

Water Sustainability In New Mexico and the West (Some Systems Perspectives)

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Presentation Outline...

- **My Background and Bias**
- **Sustainability Viewpoints**
- **Aspects of a System Approach**
- **Framing Water Sustainability in the West**
- **Examples for a Future Water “System”**
- **WESTCAS Consideration and Response**



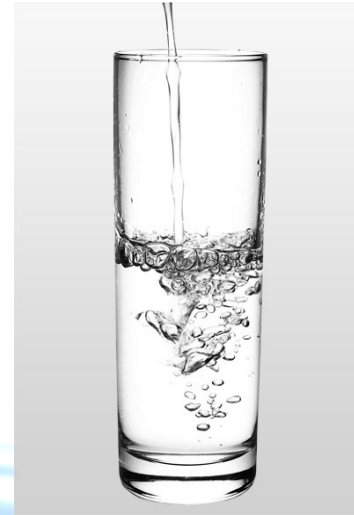
BGB's Background...

- Engineer, sort of – BH Leader, mainly
- Chair, GBRWTF Governor Richardson's Blue Ribbon Water Task Force
- Chair, BWTF Business Water Task Force
- UNM BS/MS in Civil Engr. Water emphasis
- Lifelong interest in water



BGB's Bias...

- Generally optimistic
- Quality focused
- Systems passion
- Market defender



Sustainability Viewpoints...

Our water resources in
the West are:

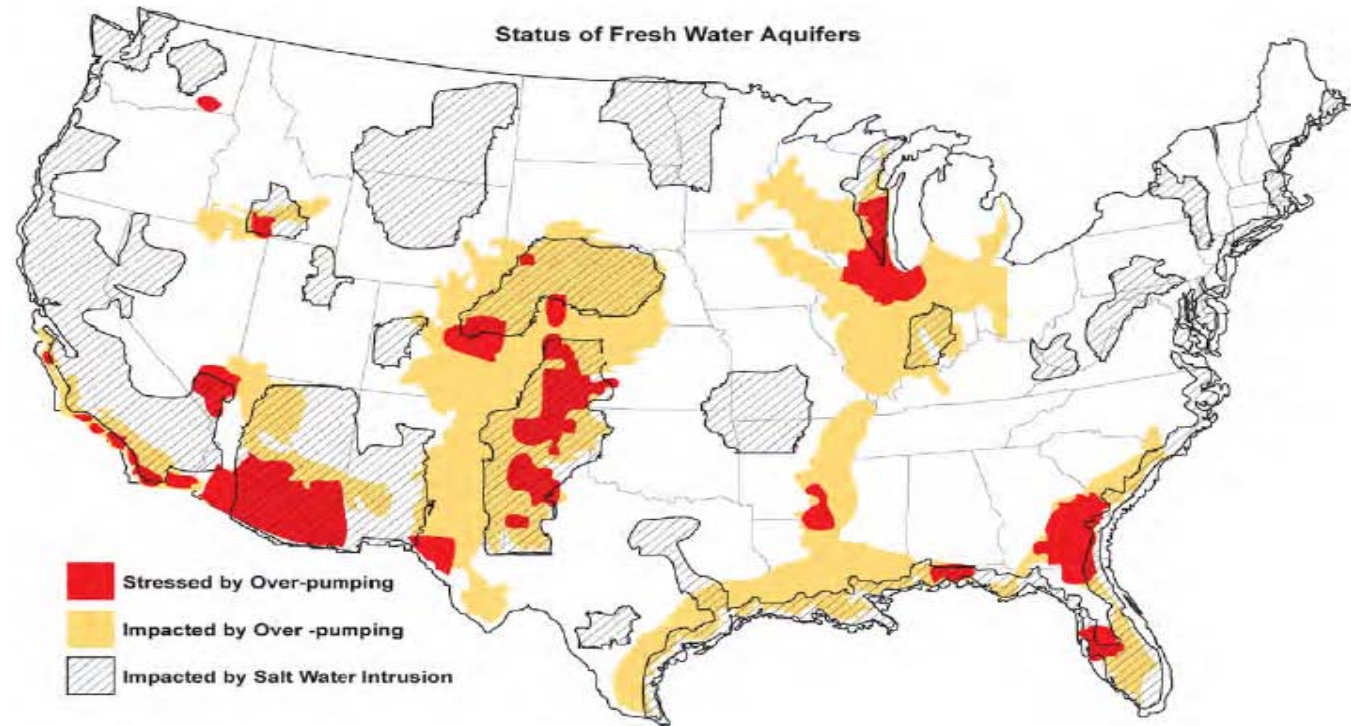
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*STRESSED!***



Sustainability Viewpoints...

Trends in Ground Water Availability

- Many major aquifers are seeing less capacity
- Water quantity and quality issues

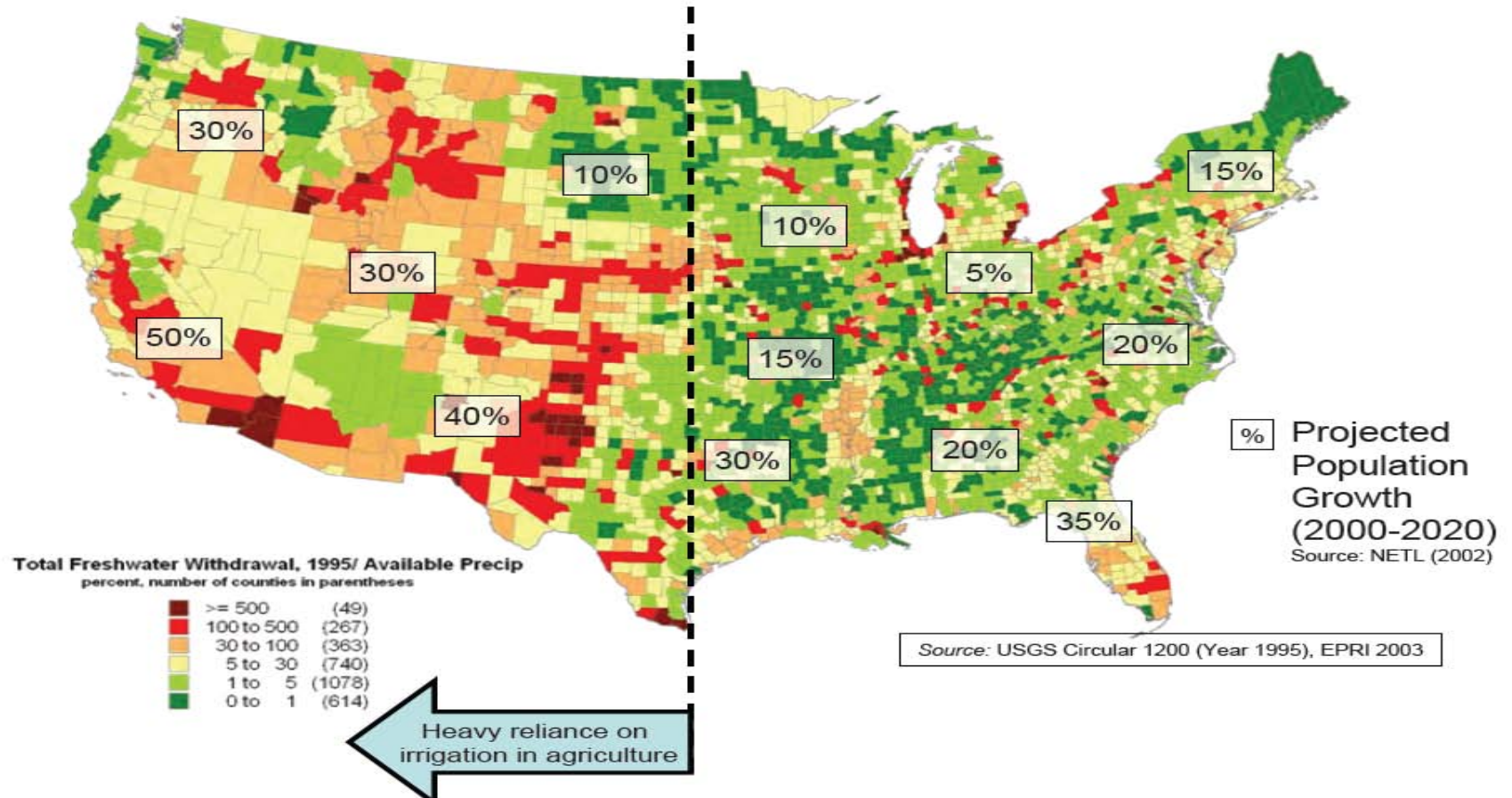


Source: Sandia National Labs



Sustainability Viewpoints...

Water challenges are nationwide

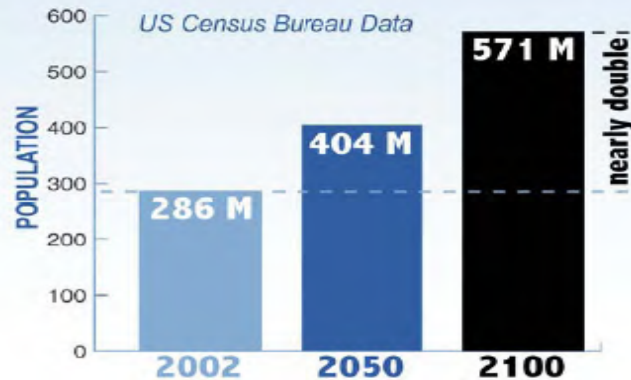


Source: Sandia National Labs



Sustainability Viewpoints...

Will water supplies be sufficient to meet US energy demands in 20 years?



- Population could increase significantly; fresh water will not
 - Population increases will not necessarily be in water-rich regions

- Diminished supplies of surface and ground water
- Energy industry must compete for water with agriculture, other industries, and domestic use
- Climate change and energy-industry operations could impact water supplies, quality, and energy demand

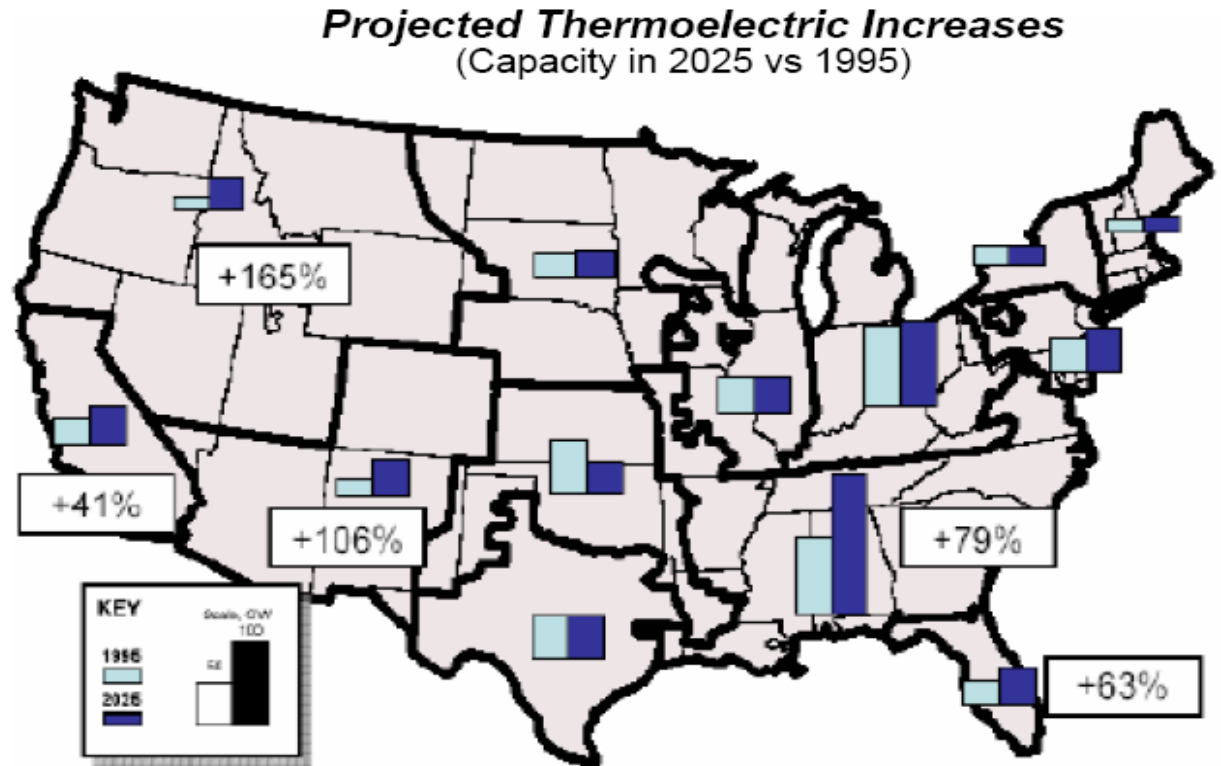
Source: Sandia National Labs



Sustainability Viewpoints...

Growth in Thermoelectric Power Generation

- Most growth in water stressed regions
- Most new plants expected to use evaporative cooling



Source: NETL, 2004

Source: Sandia National Labs



Sustainability Viewpoints...

BGB's Definition of Sustainability:

It is the practice of meeting quality of life needs in the present without compromising the ability of future generations to meet their own quality of life needs – i.e., sustainability implies taking good care of what is held precious.



Sustainability Viewpoints...

GBRWTF:

- A diverse, state-wide group
- About 30 “volunteers”
- Advised 2 Governors on water (14 years)
- Advisor to state water agencies, OSE/ISC
- Participates in state water planning and policy development



Sustainability Viewpoints...

Those “for” Sustainability...

- We can and must view solutions this way
- Achieving long-terms goals are doable
- Long-term goals can be reached
- Planning is an imperative



Sustainability Viewpoints...

Those “for” Sustainability, but...

- Requires long-term view, but you can't often predict the future
- Subject is important, but often too complicated to address satisfactorily
- Goal setting is appropriate sometimes, but often impractical in application to achieve them
- Planning is necessary, but not always imperative



Sustainability Viewpoints...

A “Tug-of-War” on Approach...



Shorter-term view
Project-based first

Longer-term view
Strategy-based first

← Life views of how to get things accomplished →



Sustainability Viewpoints...

BGB's "Sustainability Equation":

The degree of sustainability is proportional to how well solutions are achieved on a system basis – i.e., high achievement or high results usually mean a strong system; low achievement or low results usually mean a weak system.

$$\text{Sustainability} \propto \text{System Achievement}$$



Aspects of a System Approach...

What defines a system?

A system is an assemblage or combination of things or parts forming a complex or unitary whole.



Aspects of a System Approach ...

Achievement with & without a system...

Without = X (and X can be good)

**With = aX , where a is greater than 1.0
(With a system you get better results)**



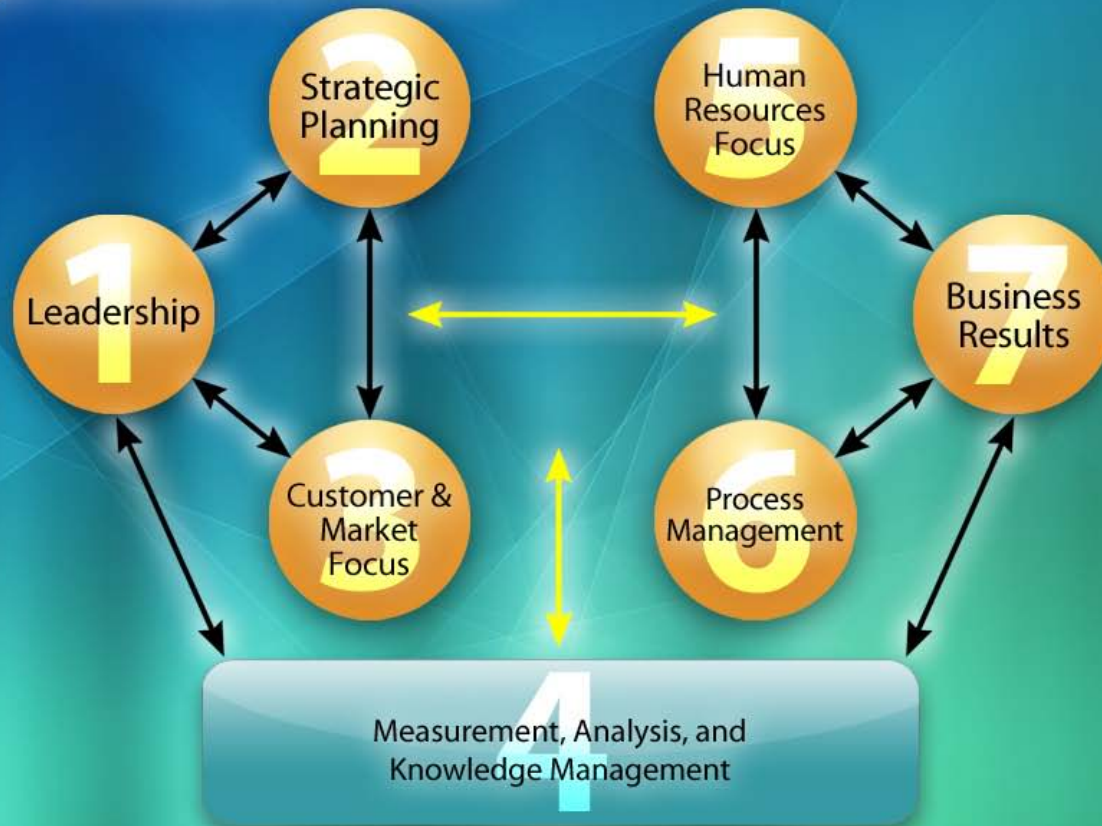
Aspects of a System Approach...

What are the results of a system point of view?

- Boundary conditions reduce
- Alignment of work surfaces
- Understanding and communication improves
- Transparency grows
- Efficiencies abound
- Best practices prevail
- Trust increases
- Results improve

Aspects of a System Approach ...

The Baldrige Excellence Model



Aspects of a System Approach...

The Brilliance of Baldrige:

- Balance of approach & emphasis
- Results are half the score



Aspects of a System Approach...

BGB's 7 Critical Steps for implementing a system approach:

- #1 – Decide that a system is worthy (Belief)
- #2 – Select a BHAG (Dream)
- #3 – Select a system model (Methodology)
- #4 – Engage key participants (Participation)



Aspects of a System Approach...

BGB's 7 Critical Steps for implementing a system approach:

- #5–Measure what is not system focused today (Assessment)
- #6–Constantly improve (Improvement)
- #7–Stay with it (Daily Perseverance)



Framing Water Sustainability in the West...

BGB's BHAG:

By 2020 all 4th graders in the Southwest would be taught and fully understand the value of water; children would begin to understand how to be stewards of a precious resource.



Framing Water Sustainability in the West...

For Strategic Planning:

Complete a comprehensive Colorado River Basin “Shortage Sharing Plan” by 2013, developed by the top water officials in each of the seven basin states.



Framing Water Sustainability in the West...

For Measurement:

Target a comprehensive understanding of water ownership, supply, and quality in the West while at the same time creating a single repository of information for universal access.



Framing Water Sustainability in the West...

For Processes:

Work to establish a fungible and transparent water market structure in the West.



Framing Water Sustainability in the West...

For Results:

- Number of people with clean, running tap water (Quality & infrastructure)
- \$ spent on water related research and technology solutions (Technology)
- Number of communities with water conservation plans (Education & planning)



Examples for a Future Water “System”...

Children’s Water Festivals and Outreach Program–

Albuquerque Region
Katie Babuska, CEO
Experimental EE, LLC



Importance of Water Education

The fact is, New Mexico is a desert with an increasing population. The many water demands may soon threaten our quality of life. In only eight years, all fourth graders will become decision makers and voters. They need to be well educated and informed about water and water issues to understand the trade-offs that will face them.



Program Vision

Our vision is to provide fun and effective water education to public, private and home schooled fourth grade students in the areas of Albuquerque and Rio Rancho by:

- introducing students to new ideas, options and solutions so they will conserve and protect water for the future;
- laying the foundation for further learning; and
- reaching as many children as possible.

Teacher Professional Development

This year we will offer Project WET (Water Education for Teachers) training to fourth grade teachers. At the core of this international, interdisciplinary water science and education program is a collection of more than 90 innovative, interdisciplinary activities that are hands-on, easy to use and fun.



The Big Water Questions

- Why is water so important to life?
- How do all living things depend on each other?
- What is the water cycle?
- What is a watershed?
- Where does my drinking water come from?
- What makes water dirty?
- How much water does my family use each day?
- Who are the other water users in our society?
- How can I protect our water?

2008-2009 Children’s Water Festivals and Outreach Program



- Albuquerque
- Rio Rancho



Examples for a Future Water “System”...



River Ecosystem Restoration Initiative – NM Environment Dept.
National Program: **Rio Grande Environmental Management Program**



Examples for a Future Water “System”...

A large, stylized water droplet is centered on the slide, with concentric ripples emanating from its base. The droplet is depicted with a blue-to-white gradient, giving it a three-dimensional appearance. The background of the slide is a light blue gradient.

A.W.R.M.

(Active Water Resources Management
in New Mexico)



Examples for a Future Water “System”...



What is Restore New Mexico?
Restore New Mexico is an aggressive partnership to restore our state's grasslands, woodlands and riparian areas to a healthy and productive condition. Since its inception in 2005 Restore has become a model for rangeland conservation in the western United States.



Accomplishments
To date more than one million acres of impaired habitat have been treated, starting the transition to healthy ecological states. The BLM, along with its partners, will reach a goal of one million acres restored by the summer of 2009.



Partnerships
The New Mexico BLM has emerged as a national leader in pioneering collaborative partnerships, breaking barriers to bring together government, ranchers, industry, and non-profit organizations to restore landscapes and wildlife habitats.



WESTCAS Consideration and Response...

What Could WESTCAS Do?

- Be a good example, i.e., be a sustainable org.
- Define water sustainability for debate
- Make water policy around a system viewpoint
- Promote good water system examples
- Persevere and keep focused on the long term



Thank you!

Questions or comments?

