

Going Green: the Future for Clean Water Agencies

John W. Norton, Jr., Ph.D.

Senior Environmental Engineer
MWH Americas, Inc.
Chicago, Illinois

Instructor of Chemical Engineering
University of Michigan

Overview of talk

- Public perceptions and issues
- Issues \Rightarrow public policy \Rightarrow your problems!
- Regional water strategy
- The value of water – “the curse of binary water”
- Working towards solutions
- Failure and success!

A scenic view of a lake with a forested shoreline and a rocky beach in the foreground. The water is clear and blue, reflecting the sky. The sky is bright blue with scattered white clouds. The shoreline is covered in dense green trees, and the beach is composed of reddish-brown pebbles.

How the Public Views the Environment

How the Public Views Its Water Utility





How the Public Views Its Wastewater Utility

DEATH'S DISPENSARY.

OPEN TO THE POOR, GRATIS, BY PERMISSION OF THE PARISH.

Death's dispensary, 1866

Copyright, Brooklyn College History Dept, 1997

What are your issues?

- Stormwater costs
- Scarce water supplies
- Pervious surfaces
- Many others

**You are asked to Solve
whatever you get!**



What You Might Not Have Known



Society and public policy

Distributed technology

Centralized technology

Current Policy Approach:

- “One size fits all”
- No account for regional resource limitations or end user requirements

Recommended Solution:

- Account for local constraints and demands in the “social guidance” that controls urban development

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Local Conditions 

Social Policy:

- Building code criteria
- Federal and state regulations
- Public initiative

GBC's Leadership in Energy and Environmental Design (LEED) Criteria for New Construction and Major Renovations

Criteria	Points
Sustainable sites	14
Water Efficiency	5
Energy and Atmosphere	17
Materials and Resources	13
Indoor Environmental Quality	15
Innovation and Design Process	5
Total:	69

LEED Water Efficiency

(one point each)

- Water efficient landscaping (WEL)
- WEL – no potable use/no irrigation
- Innovative wastewater technologies
- Water use reduction (20%)
- Water use reduction (30%)

Results?

Sustainable building in
Phoenix



Sustainable building in
Cleveland



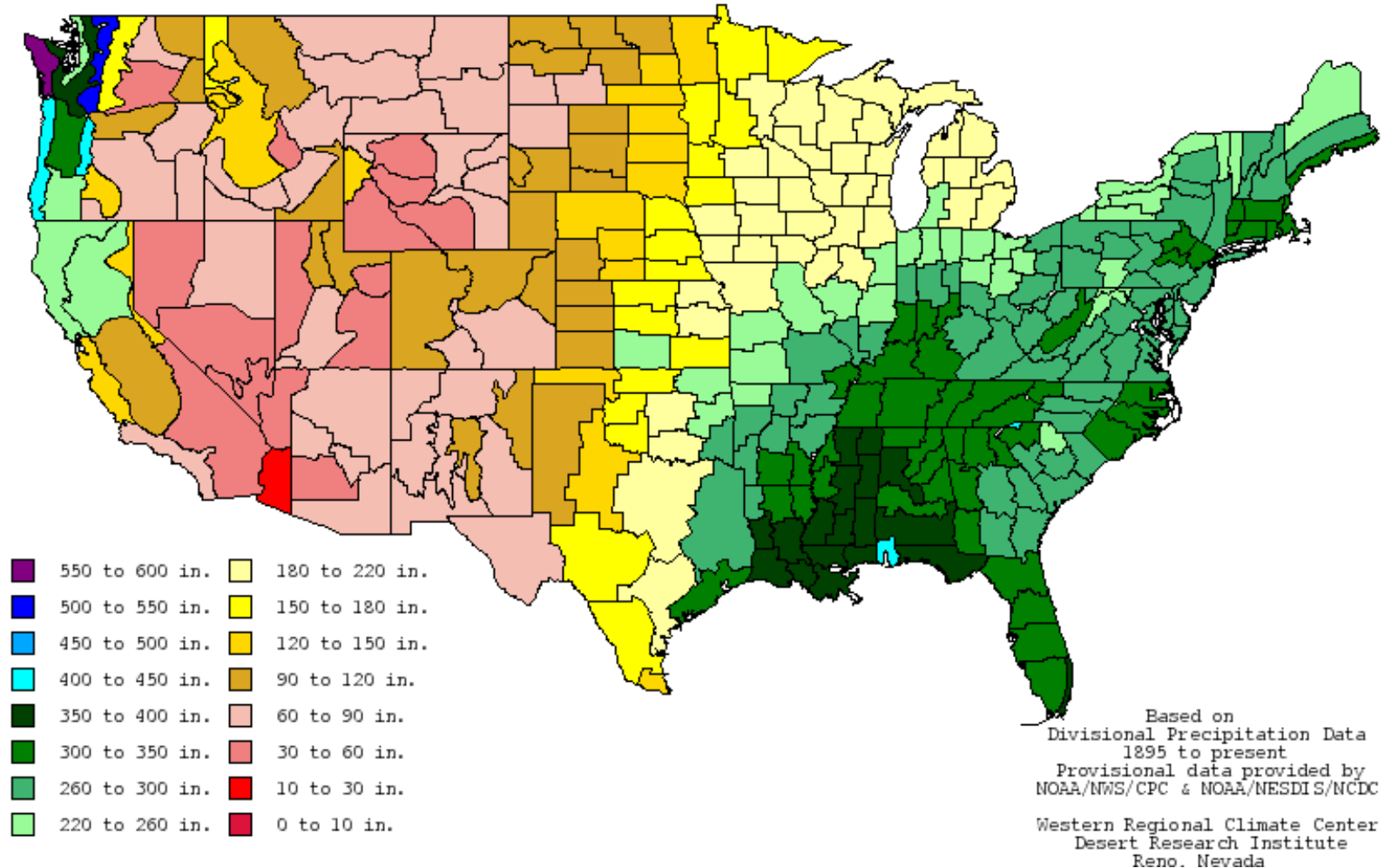
... can be the same thing!

Is This Reality?



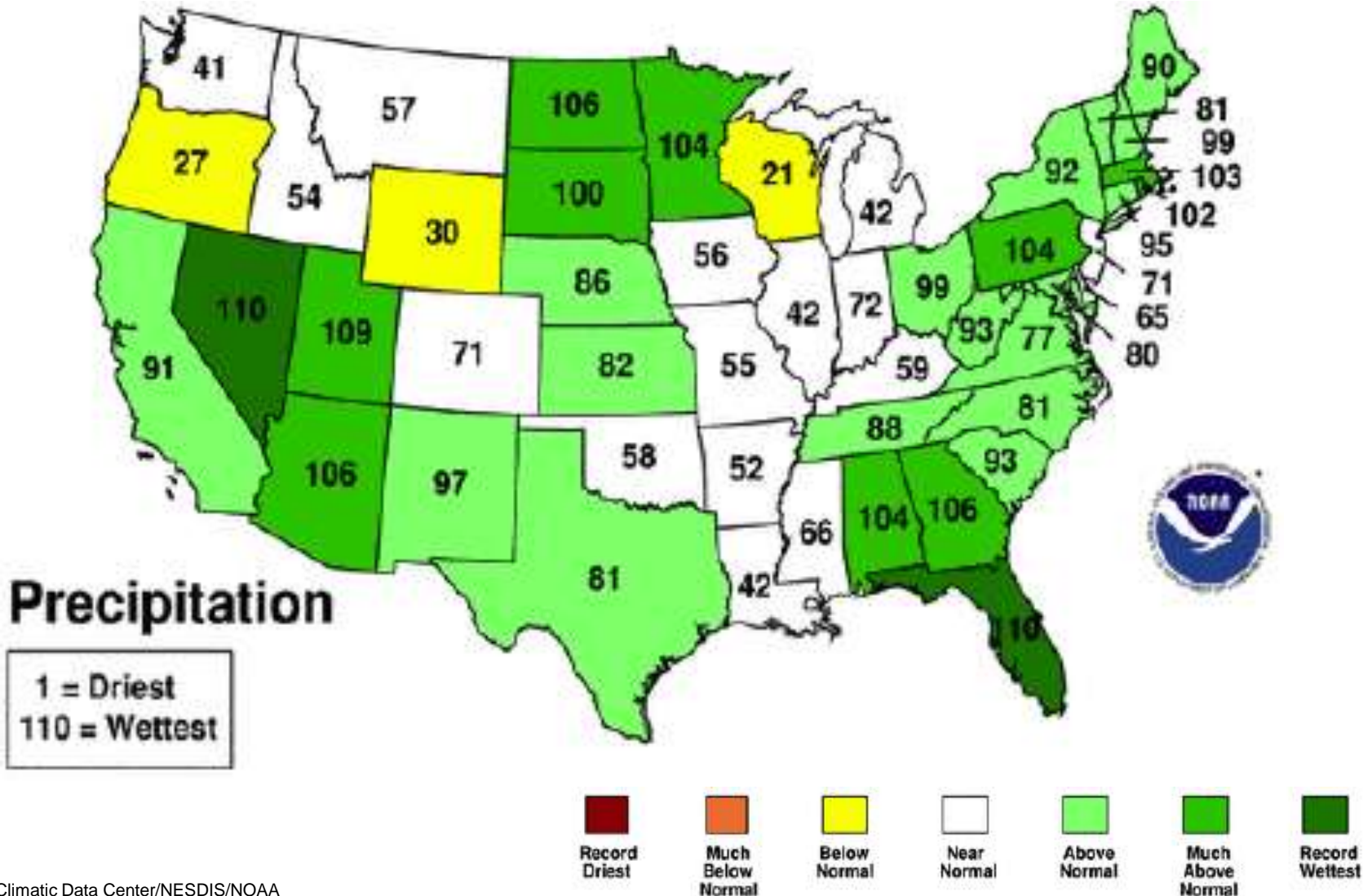
"Don't Miss A Sec" by artist Monica Bonvicini

Six Year Accumulated Precipitation Through February 07

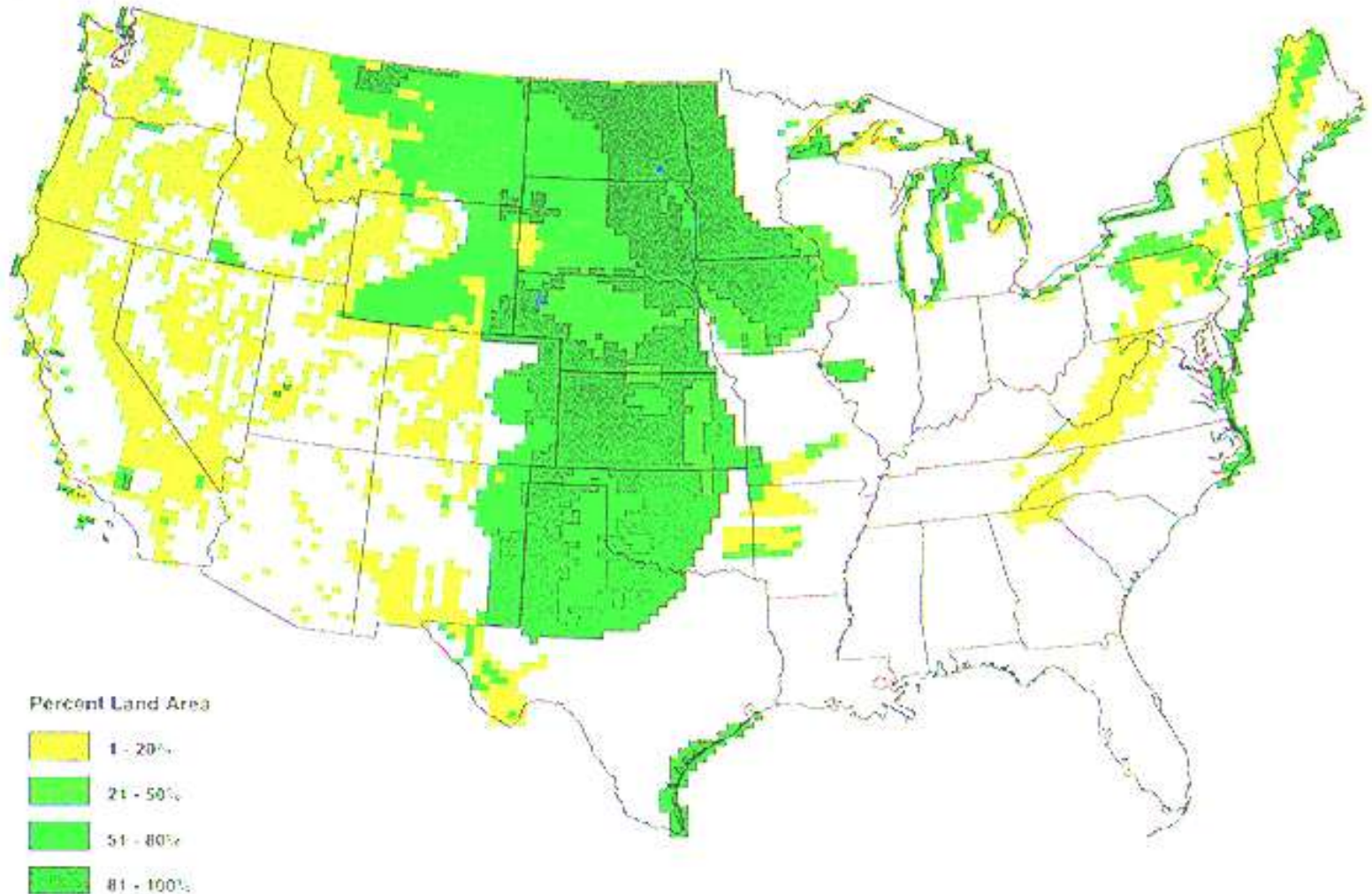


Variation in Regional Water Supply

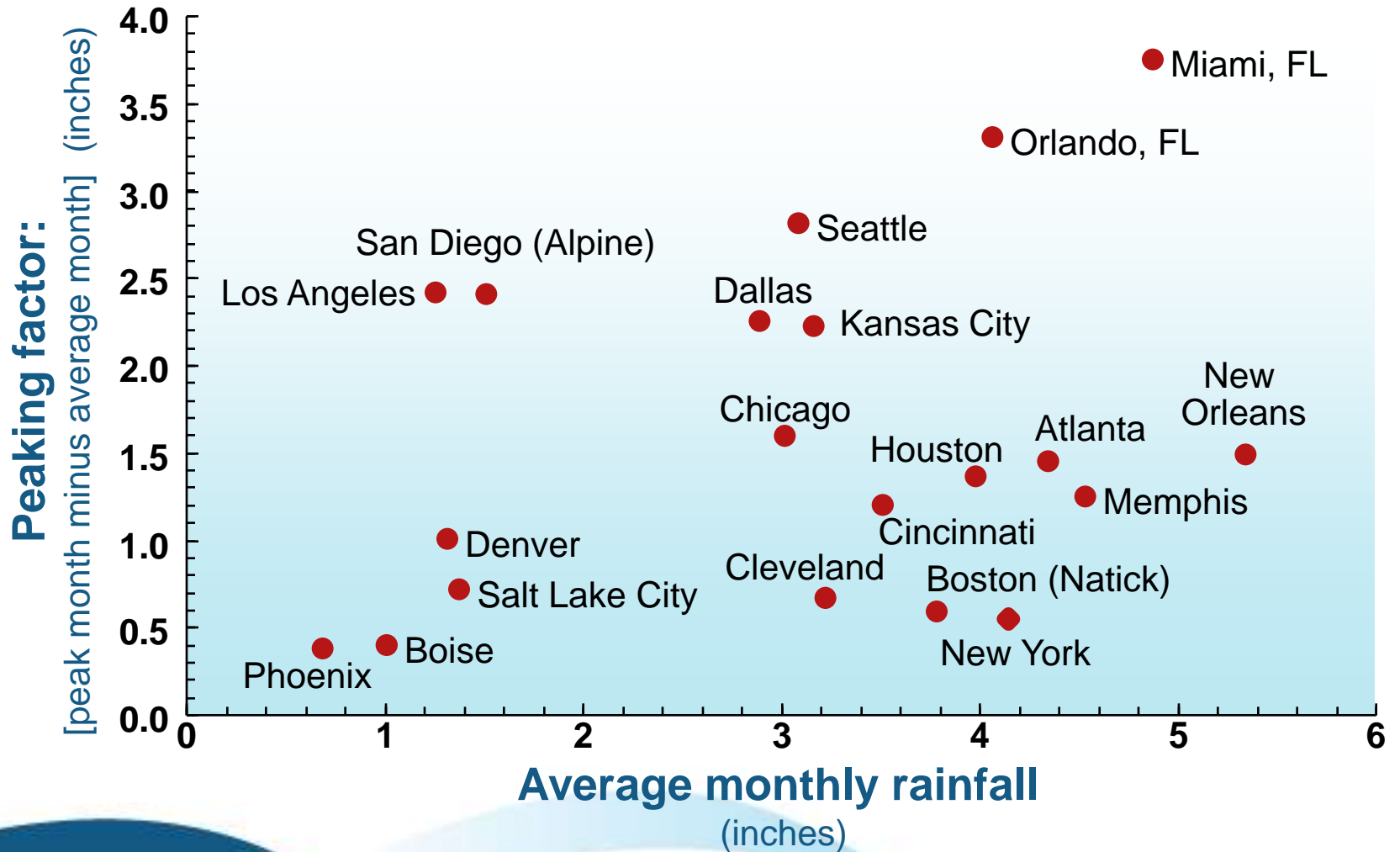
Aug 2004 – July 2005 Statewide Ranks



Variation in Class 3 or Higher Wind Power (% of land)



Stormwater Management



Suggested Dominant Water Issue for Various Climates

		AVERAGE RAINFALL	
		Low	High
PEAK RAINFALL	High	Capture & Store	Flood Control
	Low	Water Reuse	Stormwater Management

The Curse of Binary Water

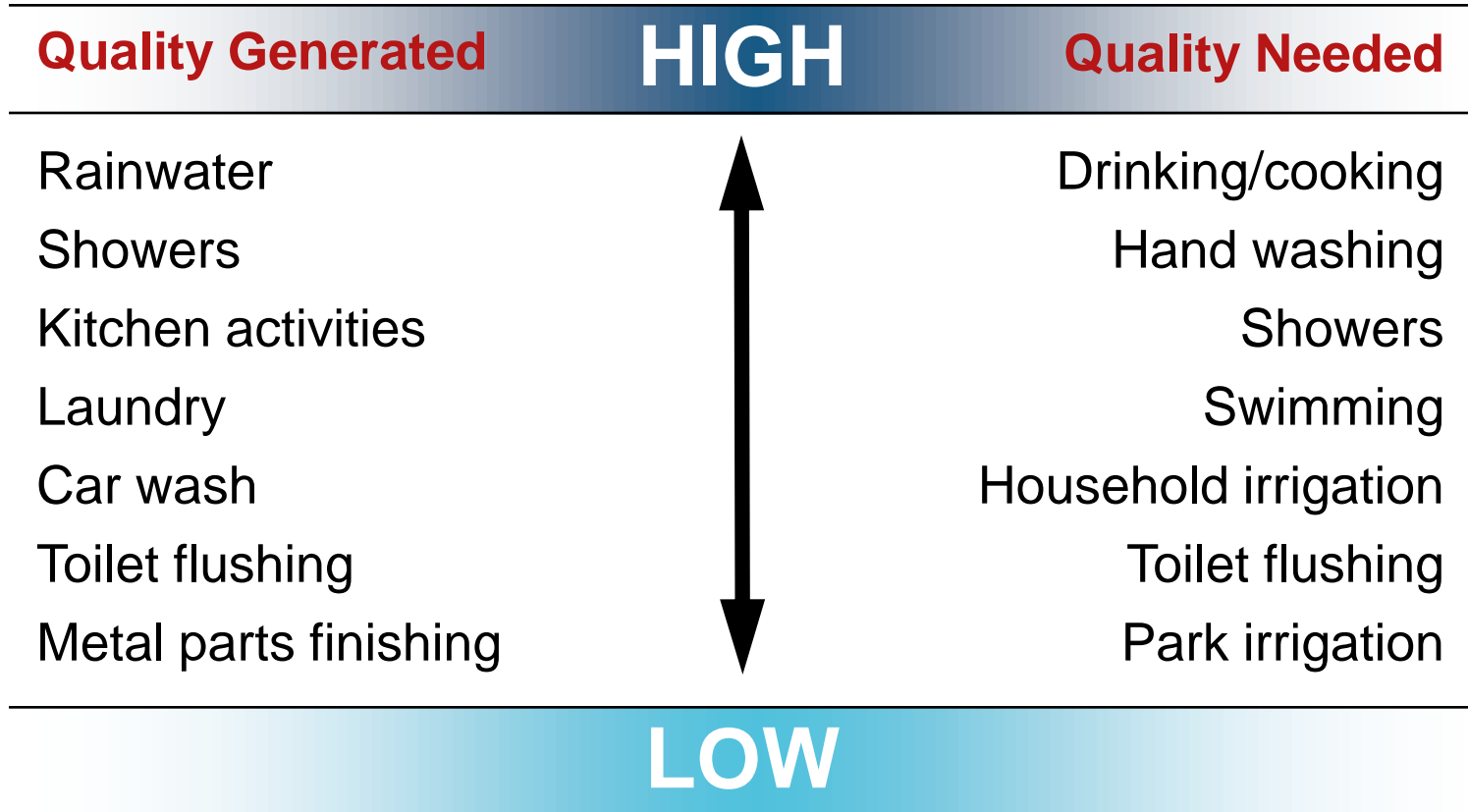
Perfectly Clean



Perfectly Dirty



The Value of Water



Urban Water Strategy

- Water Rich
 - Avoid what you can
 - Treat what you get
- Water Poor
 - Keep what you get
 - Reuse what you can

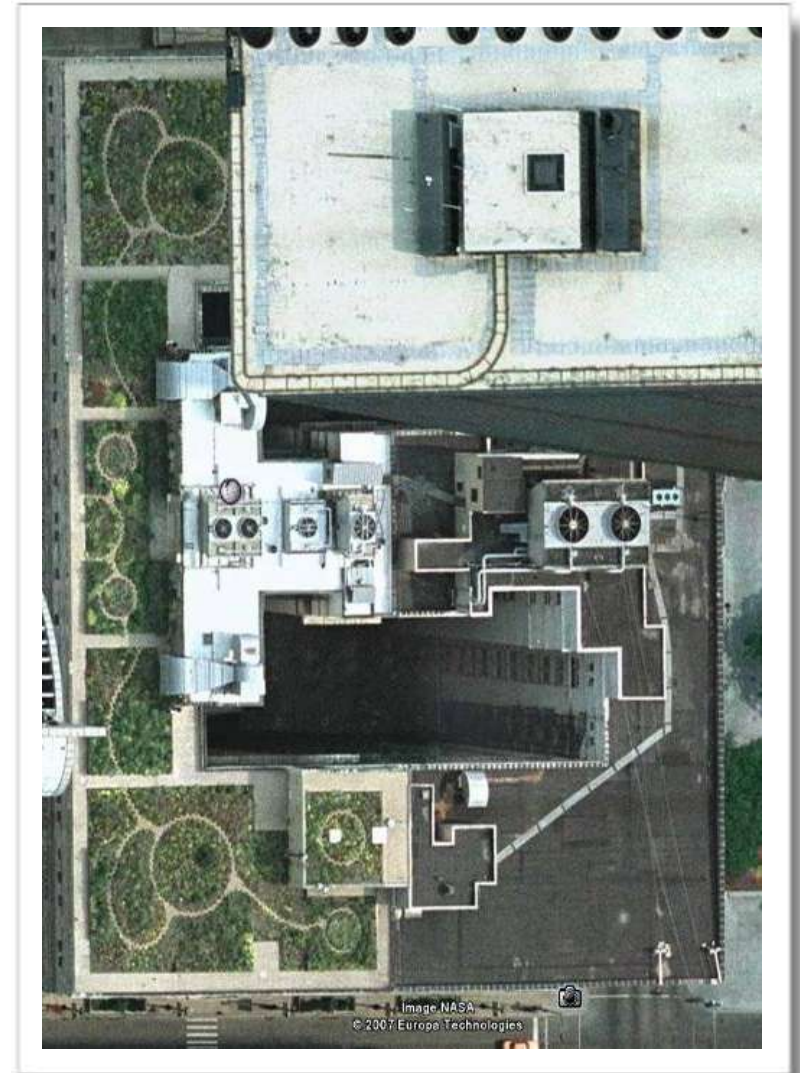
Chinese Outdoor Toilet



Chicago City Hall Green Roof

Implementation: water rich

- Prevention – keep out of system
 - Society
 - Technology
- Treatment – once in system
 - Centralized
 - Distributed



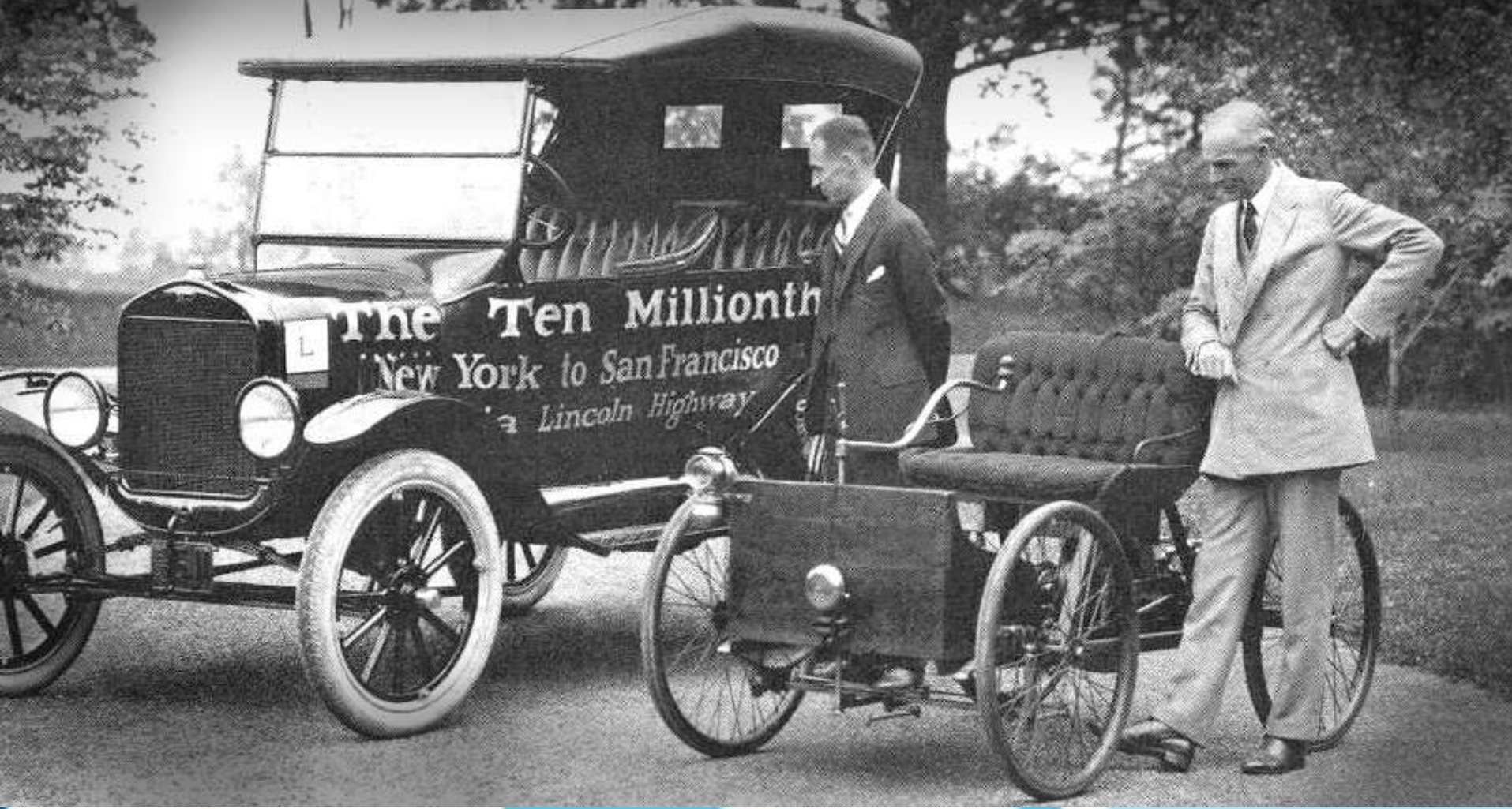
Sloan Waterfree Urinal

Implementation: water poor

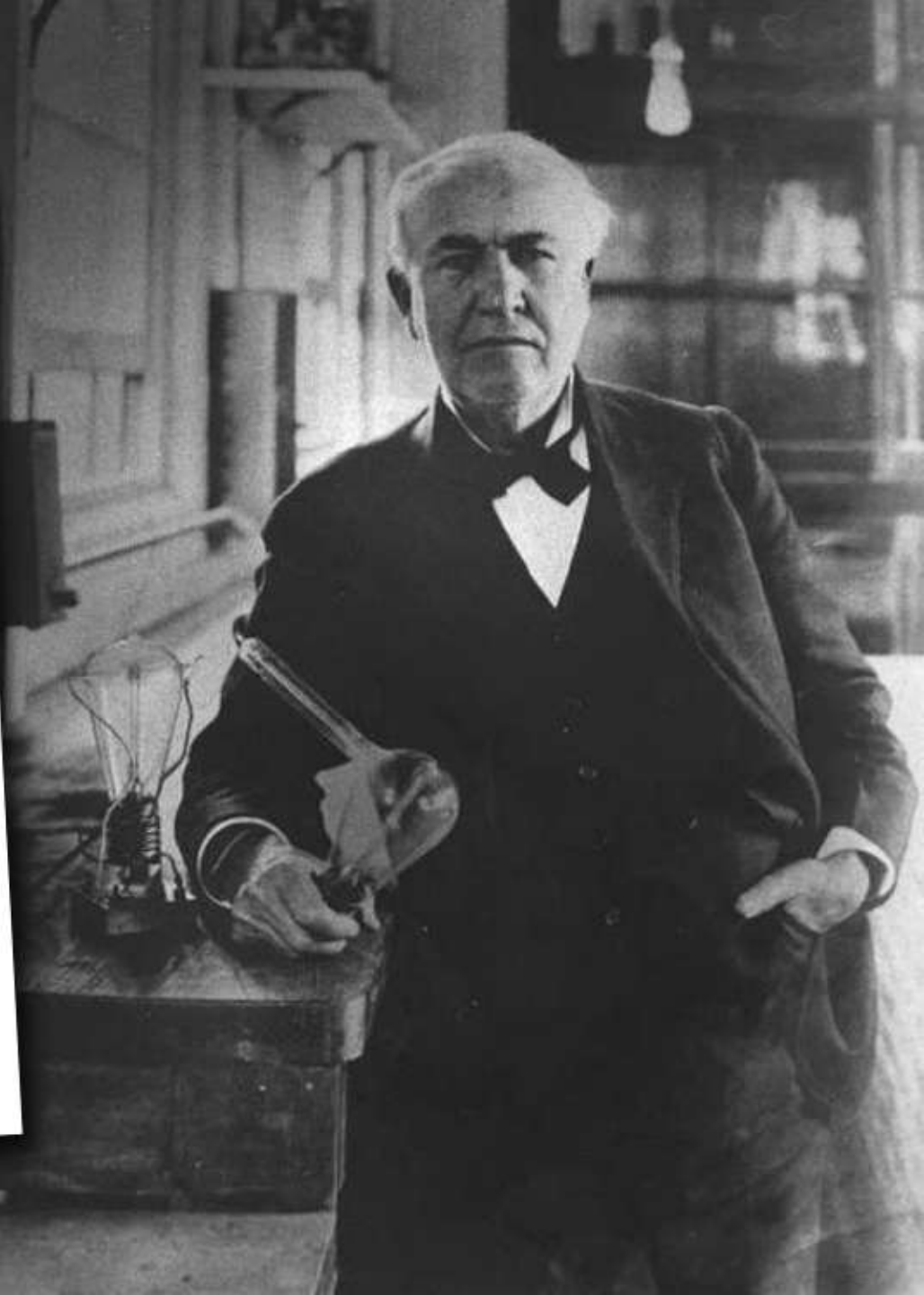
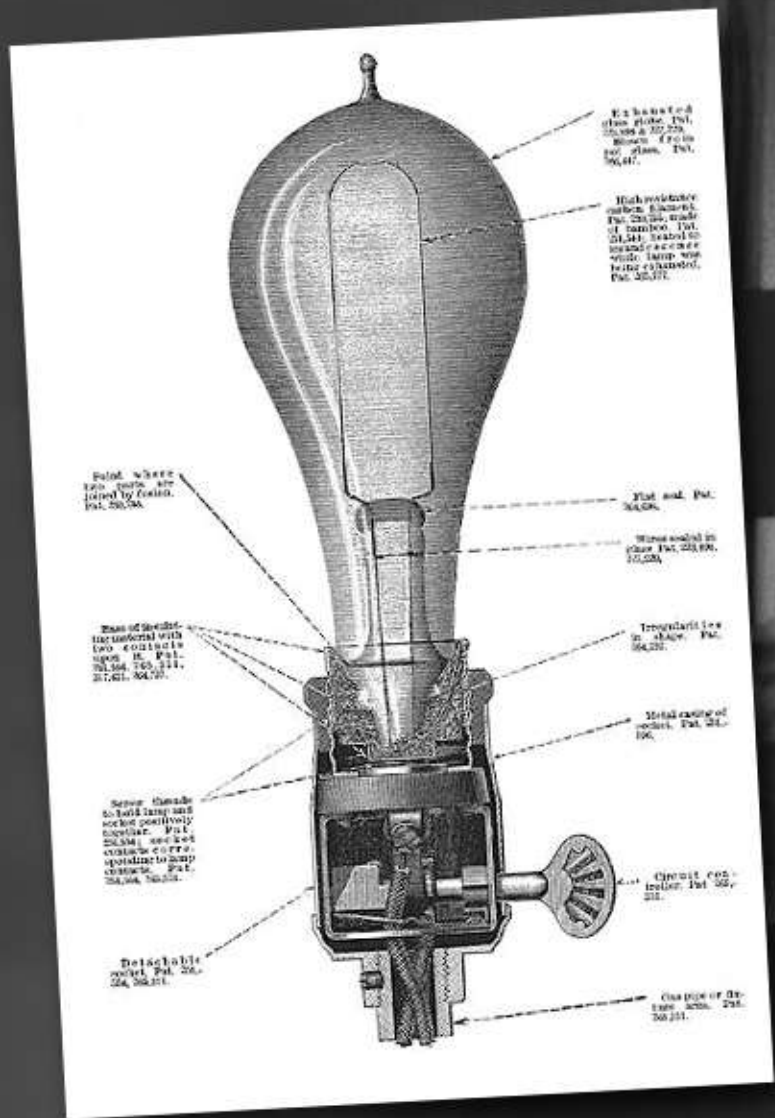
- Keep/minimize – keep in system
 - Society
 - Technology
- Reuse – use it again
 - Society
 - Technology



The Challenge of Customizing a Major Industry







How To Achieve All This?

With effort and persistence

“We shall go on to the end, we shall fight in France, we shall fight on the seas and oceans, we shall fight with growing confidence and growing strength in the air, we shall defend our Island, whatever the cost may be, we shall fight on the beaches, we shall fight on the landing grounds, we shall fight in the fields and in the streets, we shall fight in the hills; we shall never surrender.”

- Sir Winston Churchill

June 4, 1940

British House of Commons

**Police are the thin blue line
protecting society from anarchy.**

**You are the thin brown line
protecting society from its waste.
<said with humor but great affection>**

**John W. Norton, Jr., PhD.
Senior Environmental Engineer
john.norton@mwhglobal.com**

Supplementary Slides

Colorado River Delta (March 26, 2001)

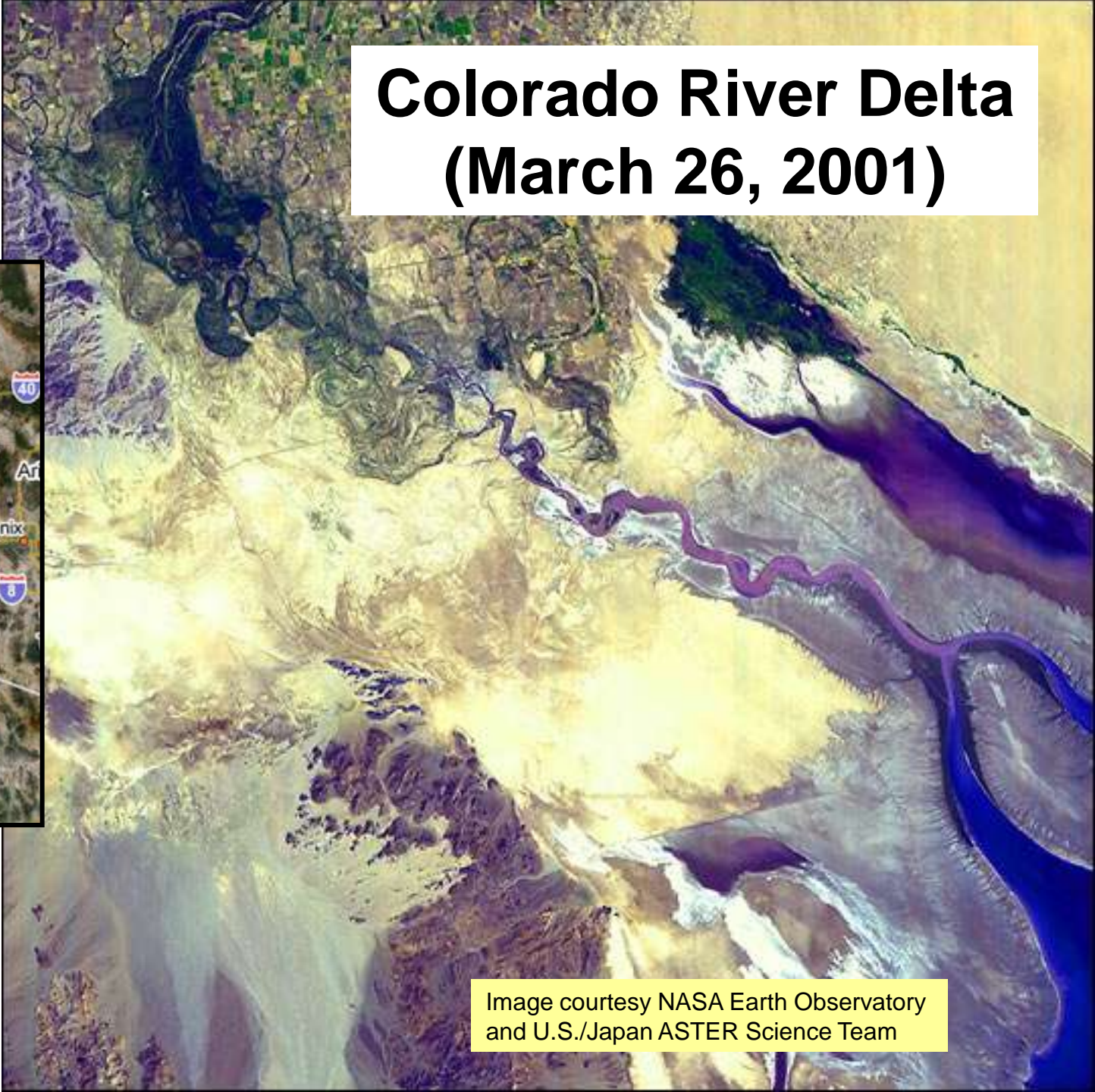


Image courtesy NASA Earth Observatory
and U.S./Japan ASTER Science Team

Improving Our Aim (with a combined treatment approach)



Sustainability: What to Measure?

Carbon
emission

Carbon use

AESTHETICS

Worker safety

*Regional habitat
destruction*

Local habitat
destruction

Resource
depletion

Public
health

Long-term
health
effects

Energy use

Water use

Social justice

Short-term
health effects

**Public
safety**

Example:

From Buckminster Fuller Institute

Sustainability – The Five Core Principles:
The Spiritual Domain (the 5th of their principles)

“Recognize the seamless, dynamic continuum
Of mystery, wisdom, love, energy, and matter
That links the outer reaches of the cosmos
With our solar system, our planet and its biosphere
Including all humans, with our internal metabolic systems
And their externalized technology extensions —
Embody this recognition in a universal ethics
For guiding human actions”

Problems with Sustainability...

- From MWH's corporate handout on "Sustainable Solutions"
(First sentence of first paragraph)
 - "Much ambiguity exists about what *sustainability* actually means."
- Imagine a similar statement by Ford Automotive...
 - "Much ambiguity exists about what *safety* actually means."

“Toilet to Tap”

From the *San Diego Union-Tribune*,
July 12, 2005:



JOHN GIBBINS / Union-Tribune

San Diego city water engineer Bill Pearce sampled a cup of treated water at the wastewater plant off Miramar Road. The pilot project is designed to store purified wastewater in a reservoir for use as drinking water.

From the *Sydney Morning Herald*,
July 22, 2005:



Apparently this just not an option ... David Moore, with daughter Alleesha, waters his lawn in Stanhope Gardens, near Rouse Hill, with recycled water.

Photo: *Bob Pearce*

Public Response....



Mike Osbun