



# Staring Down Scarcity

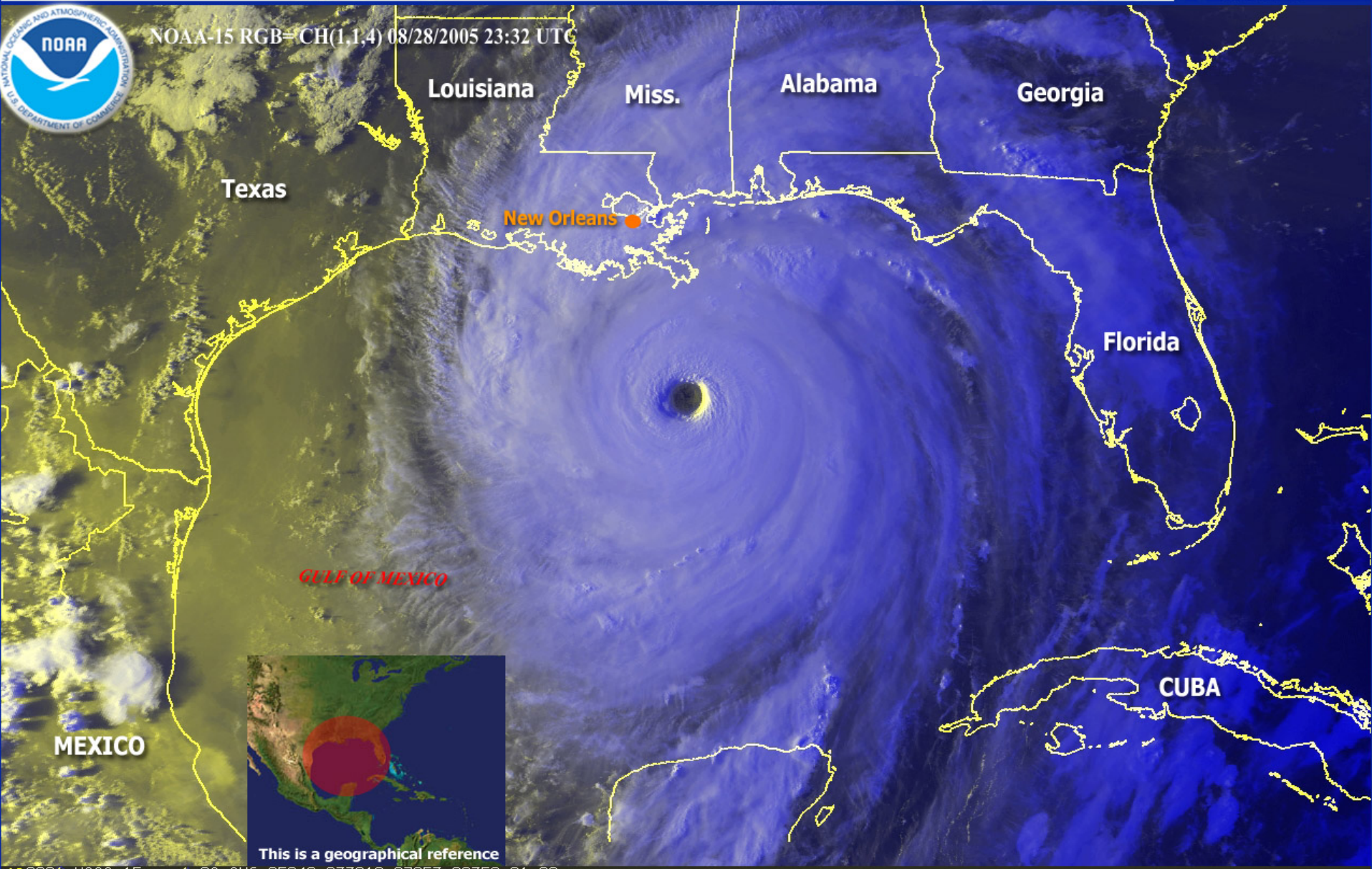
Regional Localization  
Network Conference  
Willits, California

April 7, 2006

David Schaller  
Sustainable Development Coordinator  
USEPA  
Denver, Colorado

As of 0000 UTC (7pm CDT), Hurricane Katrina is located 130mi (209km) S of the mouth of the Mississippi River moving NNW at 11mph (18kph).  
Maximum sustained winds are 160mph (258kph) and a central pressure of 904 mb making Katrina a category 5 hurricane.

Credit: NOAA







## SPECIAL REPORT GLOBAL WARMING

## TIME

**BE  
WORRIED.  
BE **VERY**  
WORRIED.**

Climate change isn't some vague future problem—it's already damaging the planet at an alarming pace. Here's how it affects you, your kids and their kids as well

**EARTH AT THE TIPPING POINT**

**HOW IT THREATENS YOUR HEALTH**

**HOW CHINA & INDIA CAN HELP  
SAVE THE WORLD—OR DESTROY IT**

**THE CLIMATE CRUSADERS**



QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.



...it's more than just the heat.



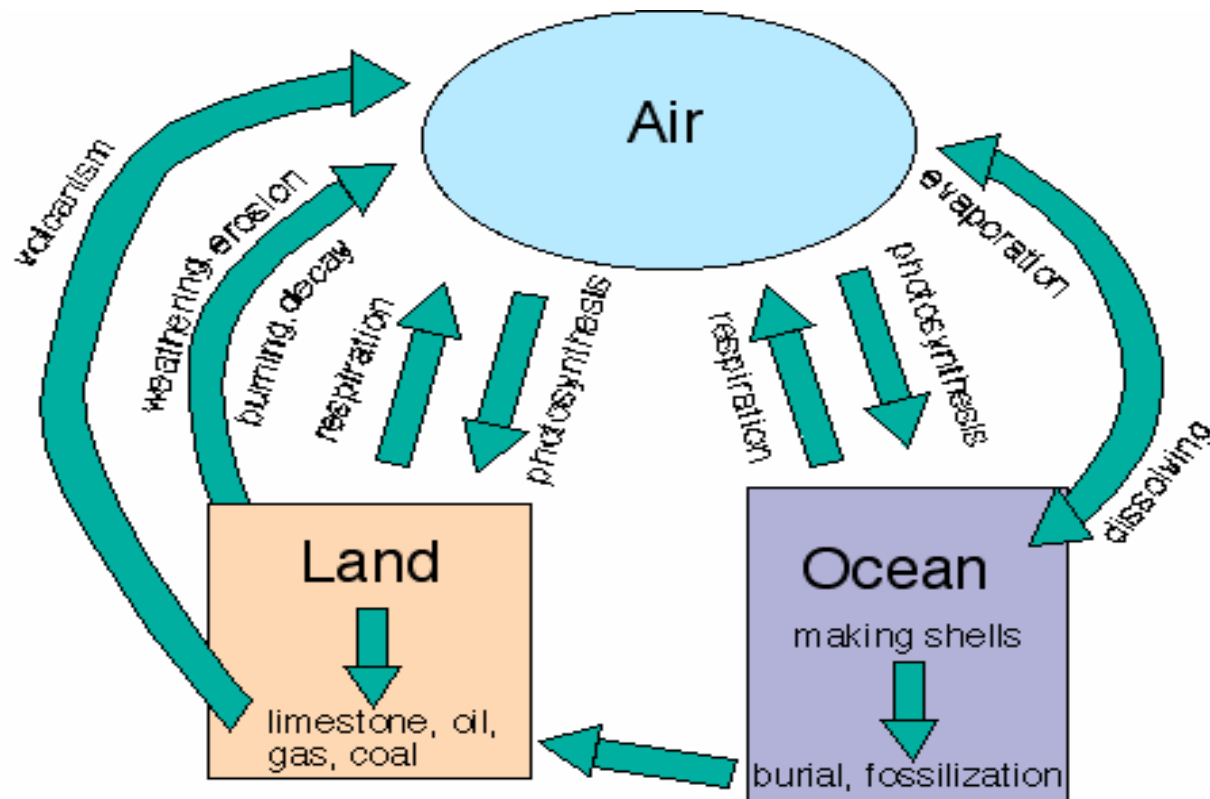




# Systems Thinking

- Our roadmap to a mental model for sustainability

# A Natural System - The Carbon Cycle

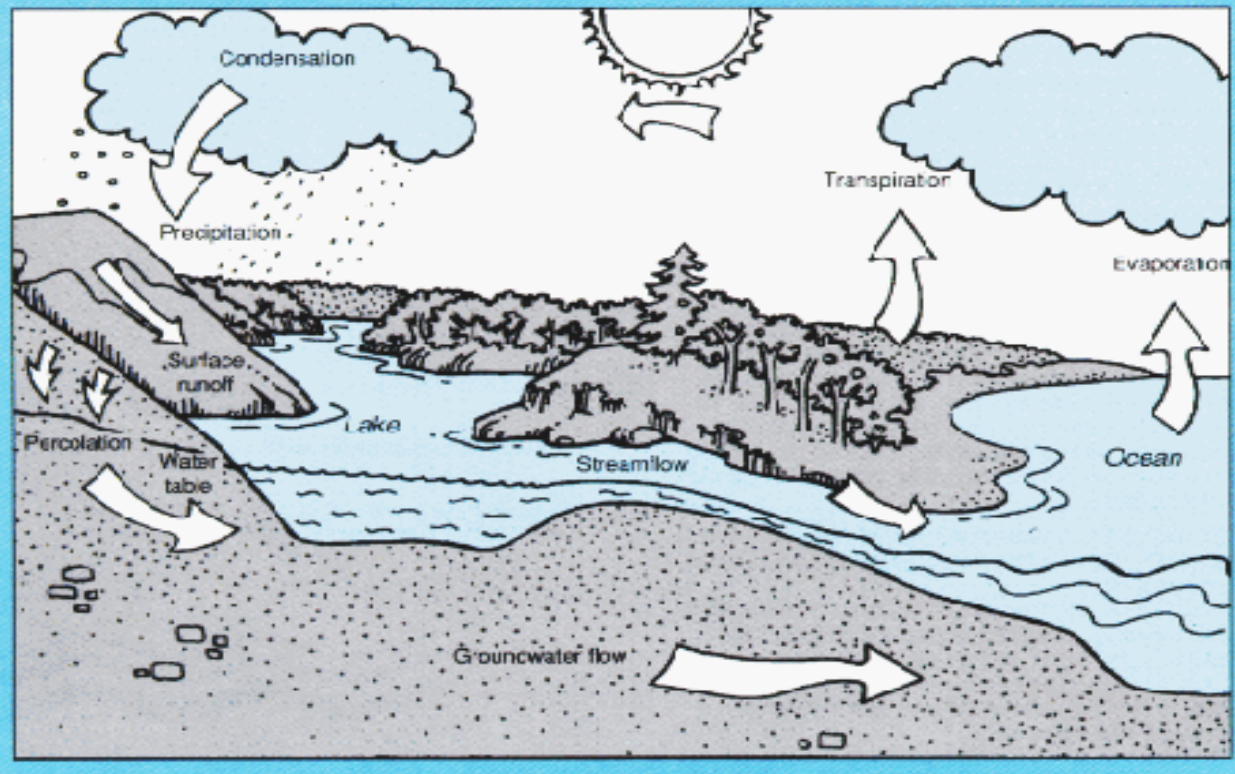


The carbon cycle on Earth

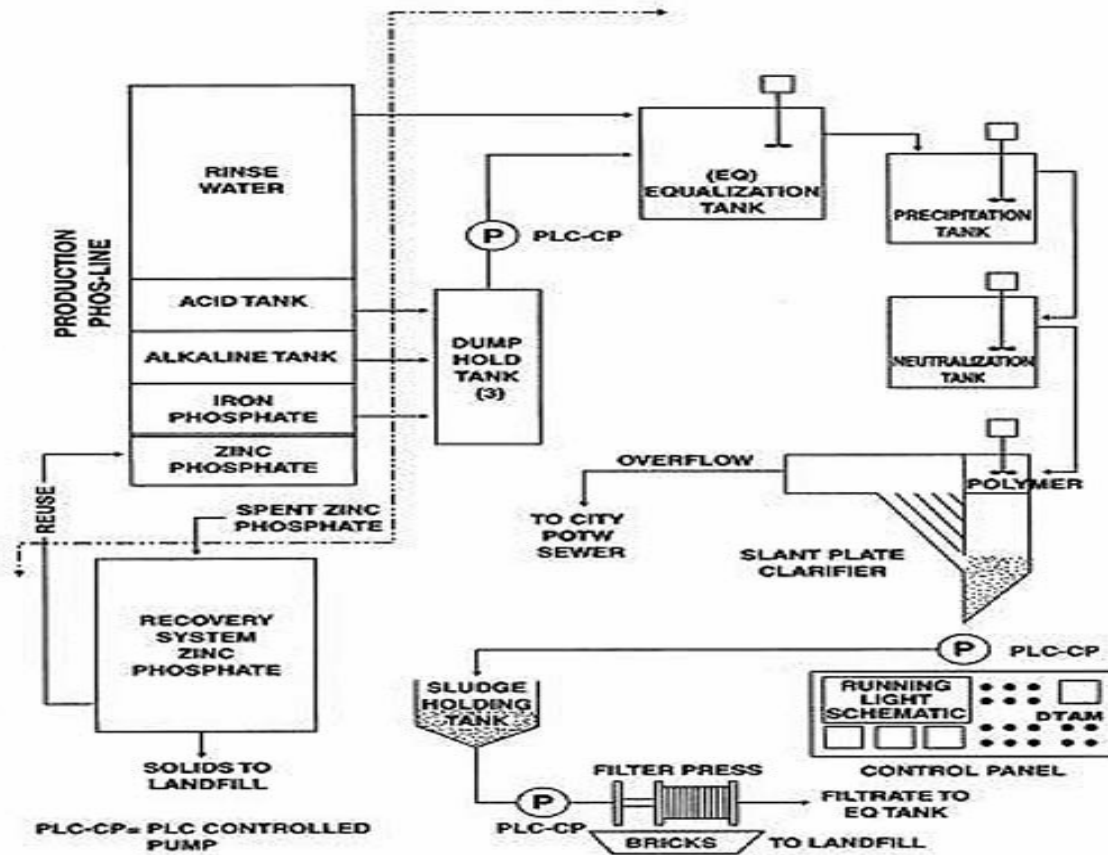
# A Natural System - The Hydrologic Cycle

Figure 1

The hydrologic cycle



# An Industrial System





# Elements of a Systems Framework - Nature as a Model

- Seeing the whole and its parts
- Networks of mutuality (relationships)
- Recognizing boundaries (limits)
- Constant creation and destruction
- Self-organizing and self-sustaining
- Time scales long and feedback loops hard to observe





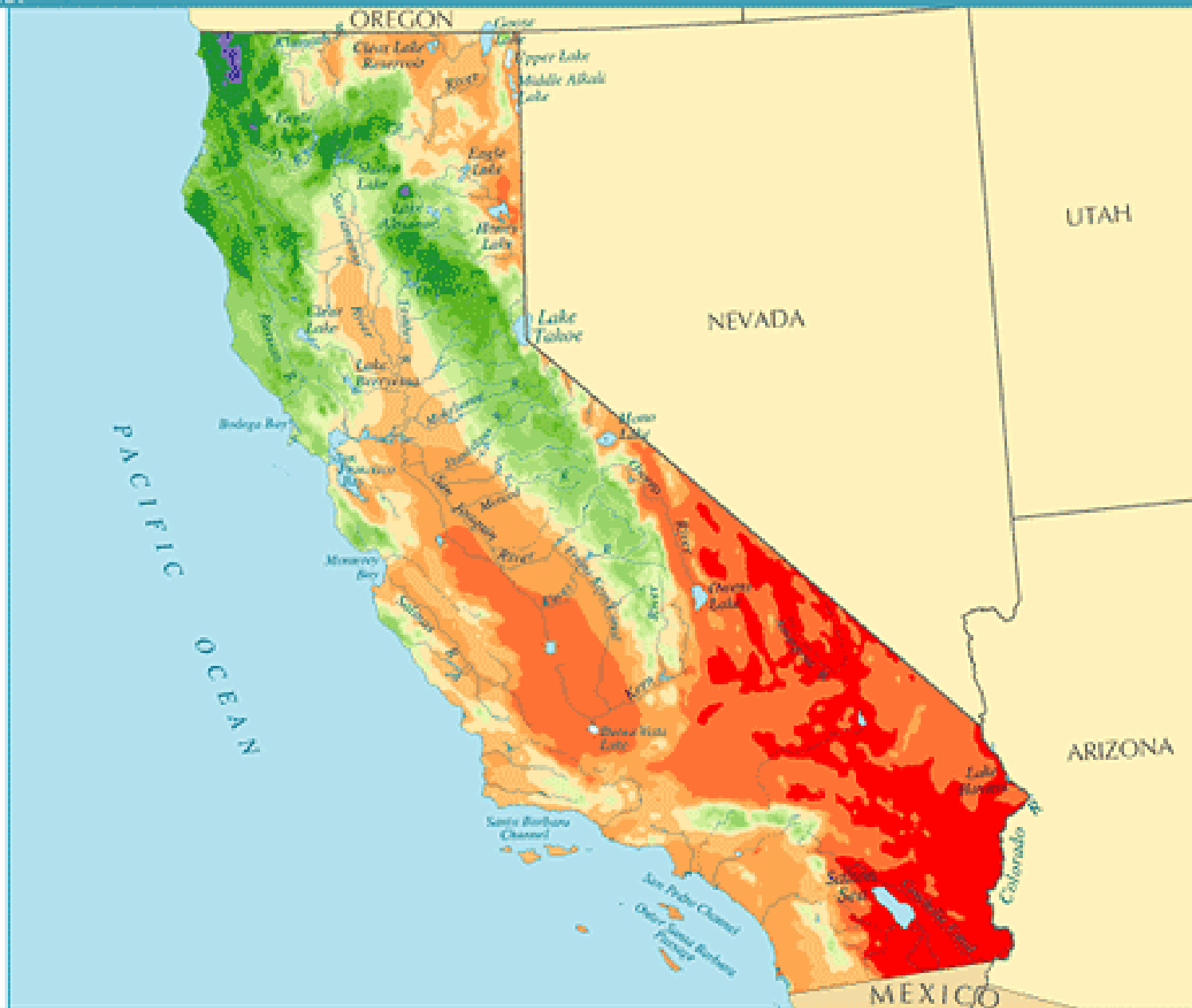
Colorful Landsat imagery merged with terrain covering the conterminous United States.

**PRECIPITATION**

Precipitation varies widely across the United States, from a low of 2.5 inches per year in California's Death Valley to a high of 440 inches on Hawaii's Mount Waialeale. Nevada ranks as the driest state, with an average annual precipitation of 9.5 inches, and Hawaii is the wettest, at 70.3 inches. The average annual precipitation for California is 21.44 inches.

Average Annual Precipitation (in inches)

1961-1990







### FEDERAL LANDS AND INDIAN RESERVATIONS

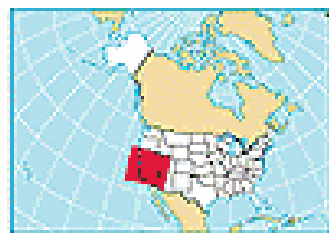
- Bureau of Indian Affairs
- Bureau of Land Management / Wilderness
- Bureau of Reclamation
- Department of Defense (Includes Army Corps of Engineers Sites)
- Fish and Wildlife Service / Wilderness
- Forest Service / Wilderness
- National Park Service / Wilderness

Some small sites are not shown, especially in urban areas.



#### Abbreviations

- AFB Air Force Base
- R Indian Reservation
- MCAS Marine Corps Air Station
- MCB Marine Corps Base
- NAF Naval Air Facility
- NAS Naval Air Station
- NP National Park
- NHS National Historic Site
- NM National Monument
- NP National Park
- NRA National Recreation Area
- NS Naval Station
- NTC Naval Training Center
- NWR National Wildlife Refuge
- Exp Escarpment
- WMA Wildlife Management Area







# The Lessons of Working in Systems

- Everything is connected to everything else
- You can never do just one thing
- There is no “away”
- Nothing grows forever
- There are no simple solutions
- Don’t fight positive feedback; support negative feedback instead
- Competition is often cooperation in disguise

# Is Scarcity an Inevitable Condition of Life?



# Through the Lens of Scarcity

“Far from scarcity disappearing, it will be the most dominant aspect of the society.” Kenneth Boulding, *Public Interest*. 1966

“The habitual condition of civilized man is one of scarcity.” William Ophuls. *Ecology and the Politics of Scarcity*. 1977

“I believe in coming decades the world will probably see a steady increase in the incidence of violent conflict that is caused at least in part, by environmental scarcity.” Thomas Homer-Dixon, “*Environment, Scarcity, and Violence*” 1999

## Through the Lens of Abundance

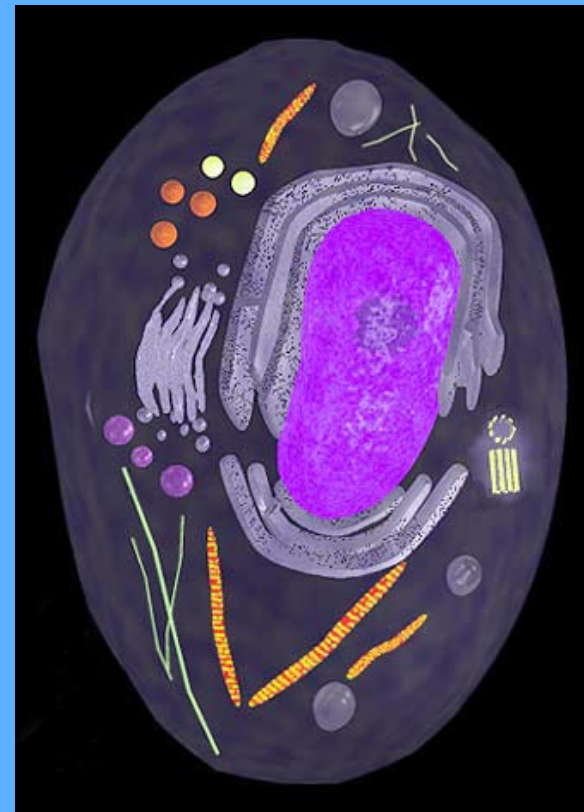
- Ecological systems of incredible diversity
- Uncountable and unnamed complexity of life and interrelationships of species
- Immeasurable value of natural services
- No limiting artificial models (i.e. a core business) to constrain possibilities

# Through the Lens of Abundance

- "We are symbionts on a symbiotic planet, and if we care to, we can find symbiosis everywhere".  
Lynn Margulis.

■ Endosymbiosis reframes evolution and asks "is competition the best game in town?"

■ A Model of Collaboration



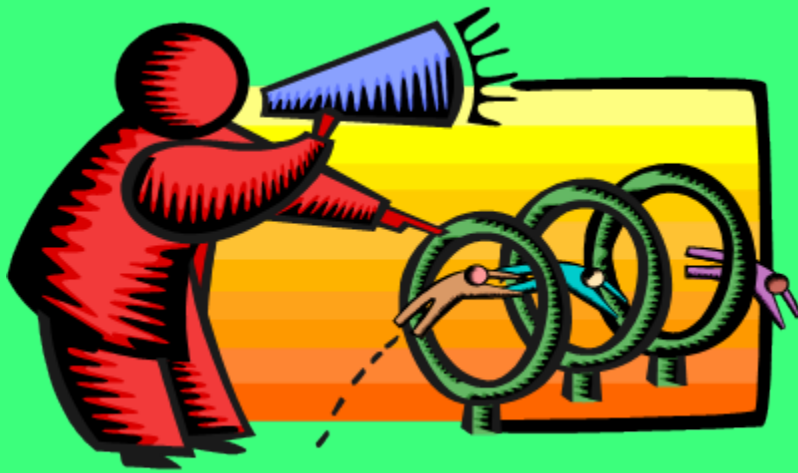
# What Happens When We Don't See Abundance



- We create economic frameworks to regulate scarcity
- We create social and political institutions to prop up the economic framework
- We allocate scarcity



# When We Allocate Scarcity....



- We treat nature as a closed system
- We invite the 2nd law to dominate
- We make our relationship with nature a zero sum game

# When We Allocate Scarcity...

- We create winners and losers
- We institutionalize poverty
- We insure conflict
- We squander abundance
- We ensure non-sustainability







# Potpourri of Innovation and Hope





# Thermafleece Insulation



THERMAFLEECE™

Healthy to Use

Healthy to Live With

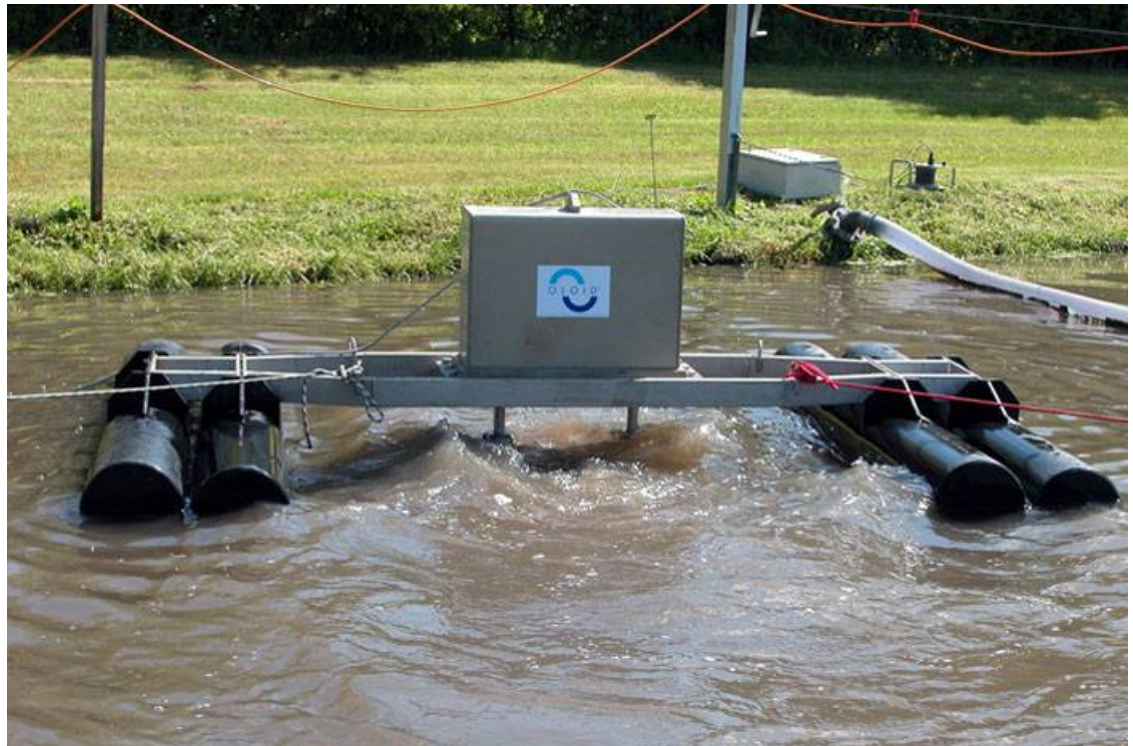
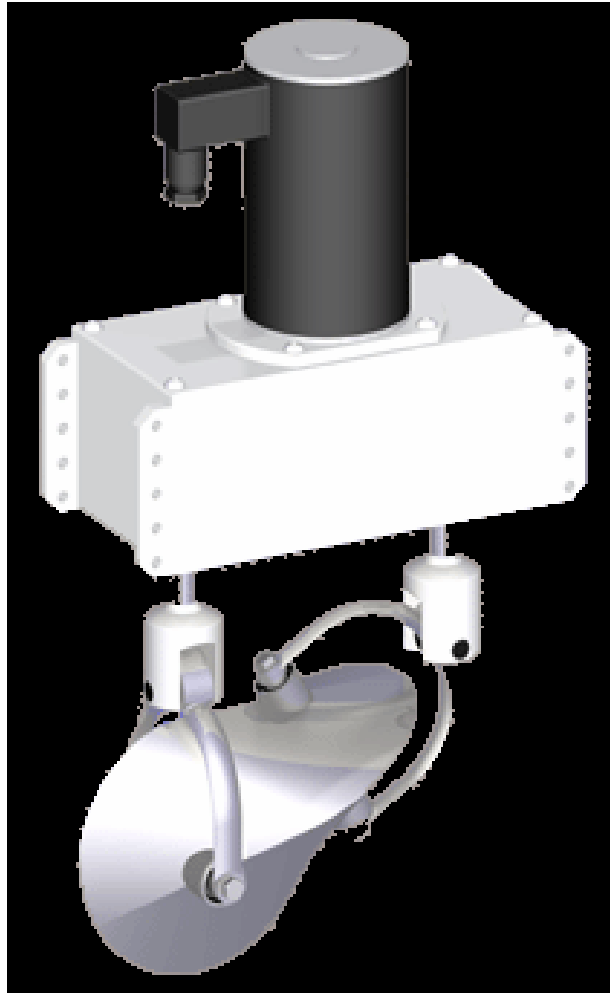


# Biobased Insulation





# Oloid Engines



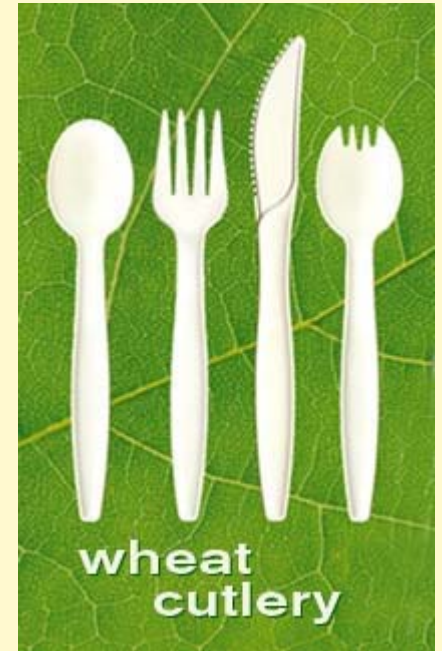
## Treatment of liquid manure with OLOID technology

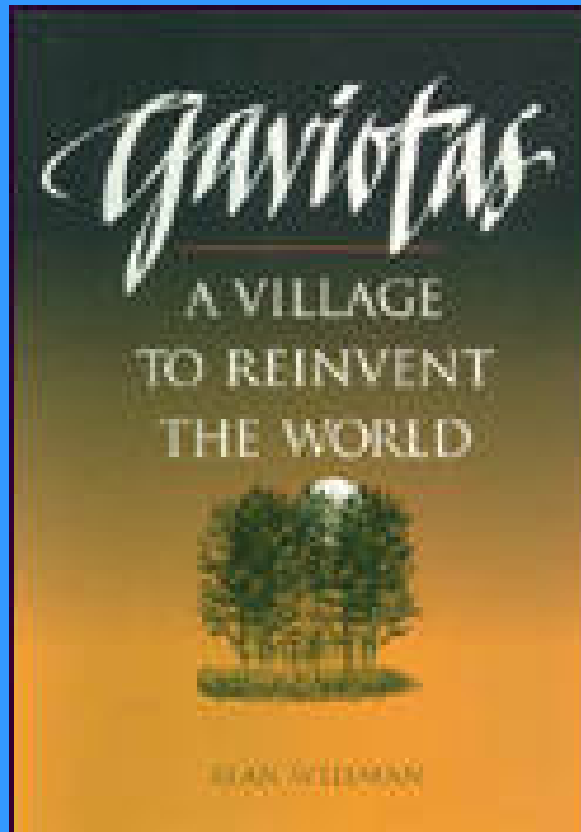


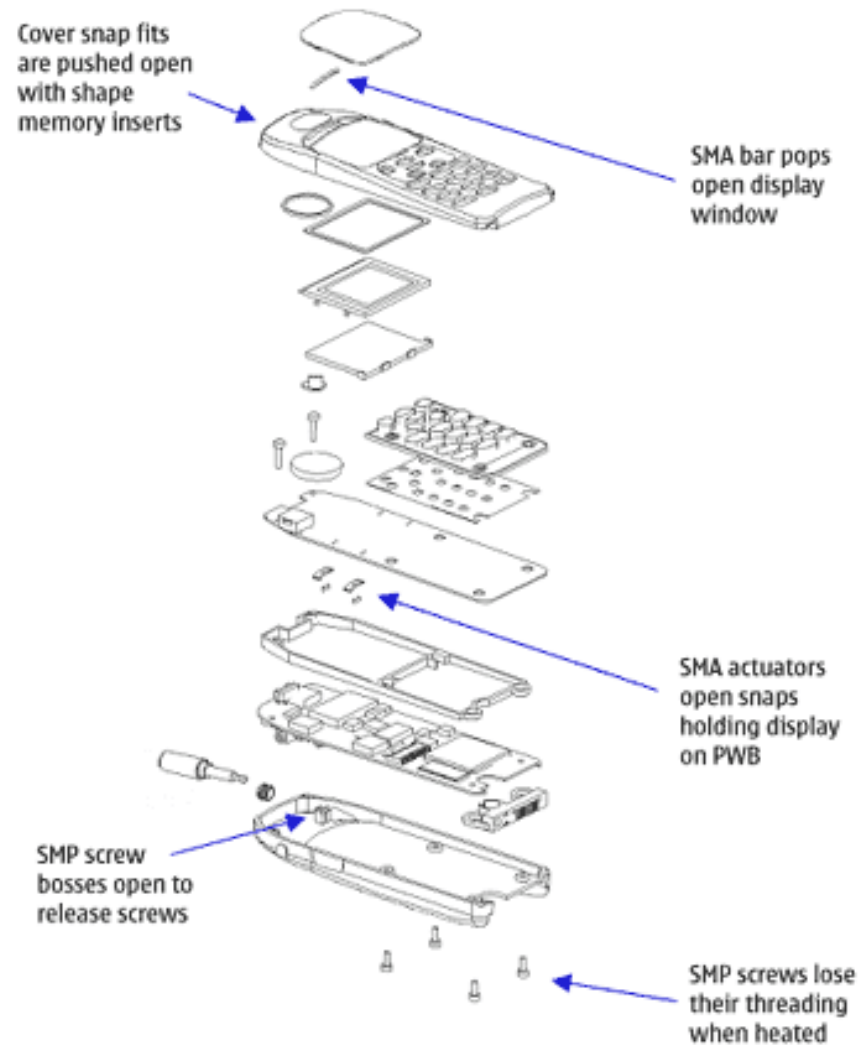
V. Sattui Winery 33.67kw Solar System in St. Helena, CA  
Photo Courtesy of Akeena Solar



# Bioplastics







In this Nokia 5510 prototype, smart materials disassemble the phone into sections when heated. Shape Memory Alloy (SMA) actuators curve to open the snap fits holding the cover, display, and display window in place. The screws and screw bosses are made out of a Shape Memory Polymer (SMP), such that no extra parts are required for active disassembly.



# Greening the Desert

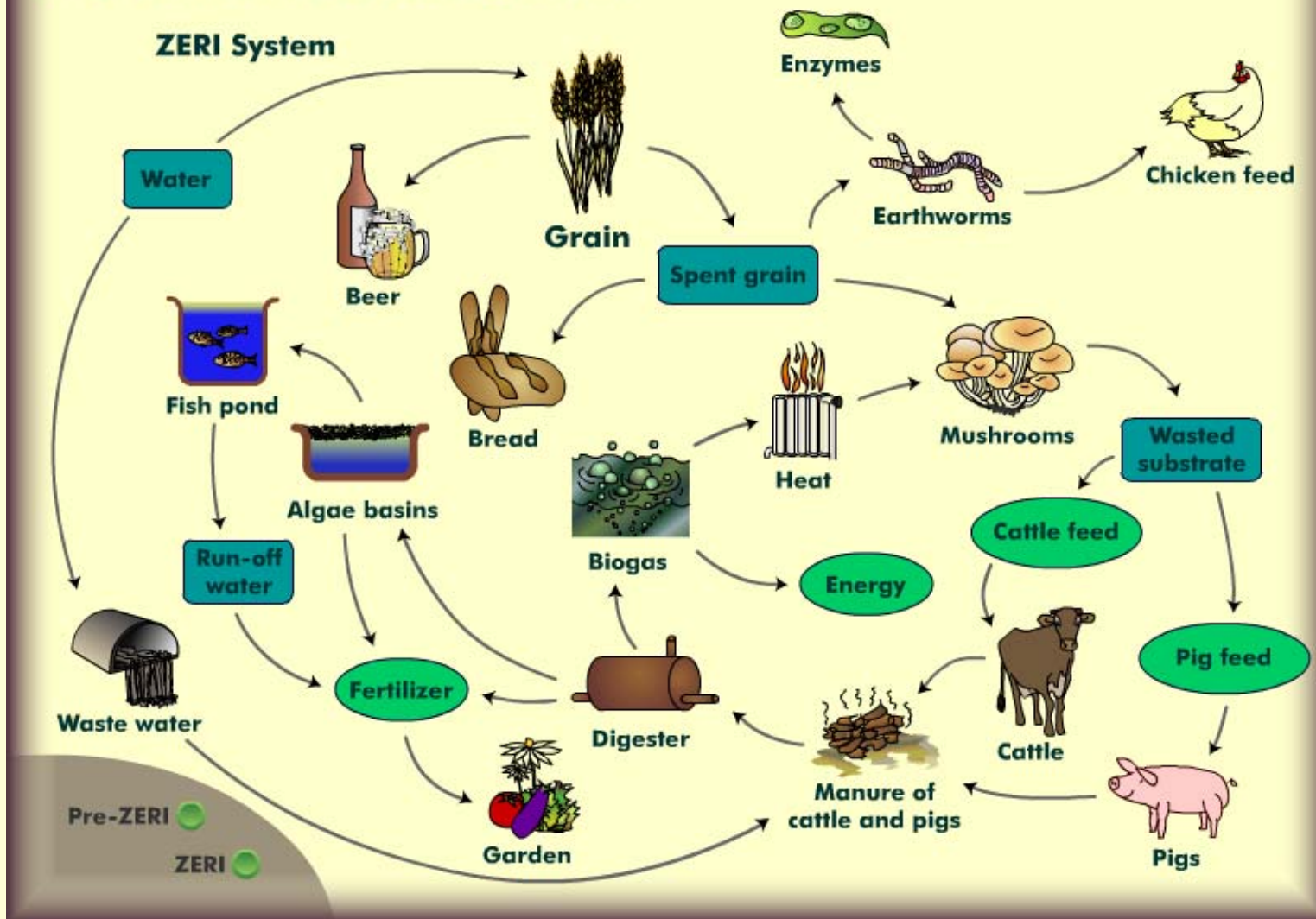






# Beer bakes bread and feeds fish

## ZERI System



# Optimizing for the System



# Bringing Sustainability Home





# The Idea of Community Nexus

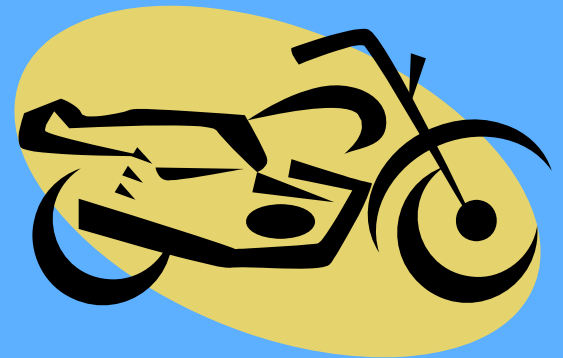
- Develop a Fabric of Community Facilities (Libraries, Rec Center, Health Clinic, Performing Arts , Community Kitchen)
- Serve Schools and the Surrounding Neighborhood
- Avoid Duplication of Costs
- Examples: Chicago, Providence, New Orleans



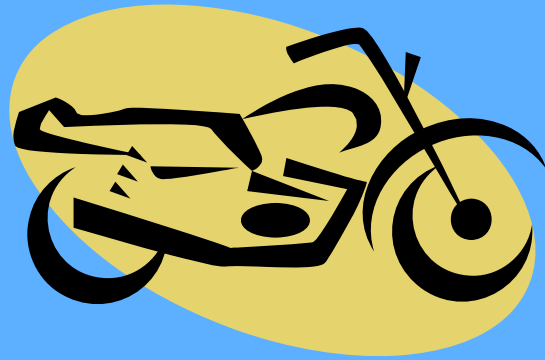


# On what target do we fix?

- Scarcity: scarcity of resources, scarcity of techniques and methods; scarcity of imagination
- Abundance: abundance of resources; abundance of ideas and opportunity; abundance of possibility







- The target we select becomes the lens through which we see our world - the lens of scarcity or the lens of abundance - it drives our world view, our mental models, our approach to problem solving, our research agenda, and our policy responses

# The Way Out of the Scarcity Trap

- See and Expect Abundance
- Seek Solutions that are Local
- Work in Systems (acknowledge limits - NOT scarcity)
- Use Nature as a Model - Find Value in Everything (Follow Biomimicry Principles)
- Put Nature's Capital on the Balance Sheet
- Design All Outputs to be Someone's or Something's Inputs

# Can we talk?



“Real change begins with the simple act of people talking about what they care about.”

Margaret Wheatley



# Language and Consciousness: Communicating to Different Worldviews

- Stages of Worldview
- Honoring the Worldview of Others
- Translate v. Transform
- Developmentally Appropriate Imagery
- Understanding Ourselves First and then our Audiences

# Different Ecological Selves

- **Guardian** - romantic ethos
- **Warrior** - heroic ethos
- **Manager** - stewardship ethos
- **Strategist** - rational ethos
- **Radical** - equality ethos

Sean Esbjorn-Hargens, based upon  
research by Don Beck and Chris Cowan,  
*Spiral Dynamics*

# The Eco-Strategist:

## Hot Buttons and Cold Buttons

- Appeal to competitive advantage
- Inspire to face the challenge
- Use scientific data
- Cite experts
- Draw upon motivation for success
- Put down profit or entrepreneurship
- Deny rewards for good performance
- Trap with rules and procedures
- Seem ordinary
- Treat as one of the herd

# Resources for Localization

- Building Green Bulletin  
(<http://www.buildinggreen.com>)
- Small Wind Newsletter  
(<http://www.irecusa.org/smallwindenergy>)
- Better by Design  
(<http://www.pca.state.mn.us>)
- RMI Principles for Community Success  
(<http://www.rmi.org>)



# Resources for Localization

- Community Culture and the Environment : A Guide to Understanding a Sense of Place ([ncepiwo@one.net](mailto:ncepiwo@one.net))
- USDA Rural Development Program Guide (<http://www.rurdev.usda.gov/co/index.html>)
- EPA Small Business Ombudsman (<http://www.epa.gov/sbo>)
- US Government Grants Database (<http://www.grants.gov>)

**“If you are working on something you can finish in  
your lifetime,  
you’re not thinking big enough.”**

**Wes Jackson**

