

**USGS Leadership 201  
Action Learning Scenarios  
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The Use of Economics in the USGS as  
a Bridge between Science and  
Societal Decision



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# Economics

by Thomas Sowell - Basic Economics

- Economics studies the consequences of decisions that are made about the use of land, labor, capital and other resources that go into producing the volume of output which determines a country's standard of living

# Environmental Value

- Ecosystems services are put into four categories:
  1. Those that provide (products of trees)
  2. Those that regulate (slow the spread of invasive species)
  3. Those that support (continual cycling of carbon and nitrogen from Earth to the atmosphere and back)
  4. Those that help people culturally (educational/recreational)

# News Flash

- ... DOI manages one in every five acres of the public land on behalf of the American people... USGS recently estimated an annual loss of \$113.3 Billion in environmental values...

# Problem Statement Process

- The Story..
  - What is being done? Why is the value not being collected / assets? If we have value .. Why don't we have the “tools” to place an economic value on the science.. Are we afraid of value on science..?

# Tools We Used!!!

- Stick them UP!!! (And give US all your money!!)
  - (Helped “start” Problem Statement)
- Polarity Map with a “draft” problem statement

# Polarity Map

Problem Statement: Creating \$ Value Attached to Science

A Little

←-Economic Incorporation ->

A Lot

- Continued Perception
- Unbiased Science
- Fostering Creativities
  - (Science Driven Values)
- Partners vs. Customers

- Common Metric to show Value
- Gives mgt. more info when making decisions
- Languages all can understand 😊
- Justify funding
- Partner gain
- Integrates Core-Science
- Helps Economy - Job Creation
- Where resources needed.

- Difficulty explaining value to congress
- Science not relevant to current economic / funding
- Undefined mission/ activities
- Difficult identifying credit
- Can't quantify
- Other agencies are doing it now

- Wrong Rock (CLU)
- Vulnerable to cuts based on \$ value
- De-valuing some science (Potential) scientists
- Controversial – Perception of bias science / congress disagree w/ values
- Partner loss
- Stifling creativity
- Scale issues

# Getting to the Problem

- Brainwriting for the I's.
  - Posted and circled all the similar “concepts”
- SOAK
- We each took another try at the problem statement and ended up further apart
- **BREAKTHROUGH MOMENT**
  - Realized we had the perfect problem statement from the beginning

# Problem Statement

- How can USGS Incorporate Economics Into its Research Efforts so that Scientific Information and Research Outputs Most Effectively Inform Resource Managers and Other Decision Makers?

# Examples where Economics are Incorporated...

- Energy and Minerals and Environmental Health
  - 2007 Science Strategy
    - “...Although economic research is not a primary purpose of USGS research, achieving natural resource security and sustainability requires that science be used in a broader societal context, in which economic and sociological factors are considered.”
- Wetlands, Grasslands, Forests...

# Examples where Economics Could be Included

- Water Program (Water Quality).. Easy win to show economic value
- Earthquake = LIFE!!
- Services
- Products
- ??

# Recommendation

- Should USGS move in the direction of incorporating economics into its research efforts?
  - Yes

# Recommendations

- Communication Plan – Dandelion Plan (Wack Pack)
  - USGS Outreach
    - The public and children (For example, the Natural Inquirer Journal – Middle School Science)
    - Decision-makers (Congress, Emergency Responders and other agencies)
  - Internal communication: change internal perspectives of economic values on science products
  - Marketing

# Recommendations cont.

- Integrate Core Science Systems Data to quantify ecosystem services
  - Estimating a diversity of services will require data from most all core science
  - We believe that there is significant opportunity to quantify ecosystem services in economic term
  - Recommend the AD for Core Science Systems establish a meta data defining the economic value of data sets in their area of responsibility.
- Look for industry best practices and success stories for methods and implementation

# BEER ;-)

- **Bring**
- **Economics**
  - into
- **Everyday**
- **Research**

Questions?????