Action Learning Scenario #2

Room 104

The Use of Economics in the USGS as a Bridge between Science and Societal Decisions (followup)

ELT Champion: Ione Taylor, Associate Director for Energy and Minerals and Environmental Health

Sponsor: Carl Shapiro, Senior Economist, Energy and Minerals and Environmental Health Mission Area

Coach: Stacy Bushee

Action Learning Team

1. Ken Buck
2. Sherry Durst
3. Robert Gleason
4. Diana Jarvis
5. Tina Palmer
6. Ryan Stevens

- Ione will be present on Monday and Friday. Carl will be calling into the meeting at 5:00 p.m. on Monday, August 1, 2011 and will be in person on Friday, August 5, 2011. A conference phone will be available in Room 104. Carl, please use the following information to call in on Monday, August 1, 2011: *703-648-4848/conference code 57622#*

- Copies of background materials provided by Champion and Sponsor will be placed in breakout room #104 for the Action Learning Tearn

The Use of Economics in the USGS as a Bridge between Science and Societal Decisions

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?

ELT Champion: **Ione Taylor**

Sponsor: **USGS Economics Workshop Steering Committee**

Carl Shapiro, Senior Economist -- Energy and Minerals, and Environmental Health Mission Area, Chair

Steve Anderson, Economist, Global Minerals Analysis, National Minerals Information Center

Frank Casey, Ecosystem Services Theme Lead, Science and Decisions Center

Shonte Jenkins, Energy and Minerals, and Environmental Health Mission Area

Dave Houseknecht, Geologist, USGS Midwest Area

Lynne Koontz, Policy Analysis & Science Assistance Branch, Fort Collins Science Center

Greg Schwarz, Economist, Water Mission Area

Update: In March 2011, an Action Learning Scenario on the use of economics in the USGS was conducted. The scope and issues addressed are shown below. The Leadership 201 team prepared an excellent report with recommendations (see attachment). A key conclusion from the March 2011 ALS is that it is essential to seek input from USGS employees on why, where, when, and how economic valuation can be incorporated into ongoing and future assessments and research. "Increasing use of economic valuations is a potentially powerful means to further broaden our science portfolio, but doing so across the full range of USGS science activities may be a less attainable goal than targeted application. One way to visualize the complexity of potential application is to consider those things we may wish to value on a continuum, ranging from tangible to intangible."

Since the March 2011 ALS, an Economics Workshop was held in the National Center auditorium. Over 70 economists, scientists, and managers participated in the workshop from across the USGS, DOI (NPS, FWS, BOR, BLM, BOEMRE, and the Secretary's Office}, other Federal agencies, academia, and NGOs (see attached list of participants).

Discussion at the workshop focused on current economic studies and opportunities and needs for future research relating to ecosystem services, natural hazards, energy and mineral resource assessments, water, climate change and adaptive decision making, and the value of information (see attached agenda). Video recordings of the sessions are available on the Intranet and on DVD's. A white paper is being prepared to examine opportunities and needs for economics at the USGS to be integrated into the USGS research portfolio.

At this point, the leadership challenge is to reconsider the issues described below in light of the results of the March 2011 ALS and the June 2011 Economics Workshop. The results from the August 2011 ALS will provide important input to the development of the post-workshop white paper.

The Leadership Challenge: Build on the results from the March 2011 ALS to consider how USGS can incorporate economics into its research efforts so that scientific information and research outputs most effectively inform resource managers and other decision makers.

Why, when, and how can resource or ecosystem service valuation be incorporated into ongoing and future assessments and research? What types of science and management issues provide the greatest opportunities and needs for resource valuation? What are the key risks with an increased USGS emphasis on valuation and how should these risks be addressed?

In what circumstances would value of information studies be most useful in understanding and communicating the use and value of USGS scientific information? How can economics be effectively incorporated into the USGS research portfolio as part of integrated assessments that provide a systems perspective of management alternatives, and their benefits and costs?

What challenges need to be considered in incorporating economics into the USGS research portfolio?

Action Learning Scenario - Leadership 201 - March 2011

Title: The Use of Economics in the USGS as a Bridge between Science and Societal Decisions

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ELT Champion: Ione Taylor, Associate Director for Energy and Minerals and Environmental Health

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Issue: The USGS Mission is to serve the Nation by providing reliable scientific information to address societal issues including managing water, biological, energy, and mineral resources. In many cases, decision makers are not biophysical scientists and thus look for ways to make scientific information understandable and presented in familiar terms. Economics is a science that examines scarce resources and can present results in terms understandable to many societal decision makers. To do so requires that we first translate, and then integrate across two distinct fields or "mega-disciplines" -the biophysical sciences and economics.

The challenge is to integrate economics into USGS research efforts so that scientific information is used to develop results that are presented to decision makers in dollar or other familiar terms There are many barriers to this integration. Scientifically, economics and the biophysical sciences have different vocabularies, deal with different boundaries, and are conducted with different sets of metrics. For instance, spatial economic analyses routinely consider political boundaries while biophysical science studies are often conducted within natural boundaries such as watersheds or ecosystems. Measurements in the biophysical sciences are often stated in physical or biological terms while economics routinely measures quantities of products and dollar values.

There are also institutional challenges. USGS economics efforts cover a wide variety of issues ranging from energy and mineral assessments, information gathering, valuation of ecosystem services, to evaluations of natural resource management. Economics has not been often integrated into USGS scientific efforts and there has been some institutional resistance to including economics within USGS research activities. This resistance comes from a concern that the USGS is a natural science (Physical and biological) agency and attempting to incorporate economics requires a stretch beyond our Mission.

Background: *"The development of the ecosystem services paradigm has enhanced our understanding of how the natural environment matters to human societies" (Valuing Ecosystem Services,* National Research Council, 2005). In recent years, the concept of ecosystem services has focused attention on the opportunities for integrating biophysical science with economics and the potential benefits of doing so. Ecosystem services are products produced by nature, such as clean water, storm regulation from barrier islands, and recreational services. Valuation of these services requires understanding of the ecological and physical processes required to produce them as well as the economic methods used for valuation.

The connection has precipitated a growing interdisciplinary research direction that has resulted in new methods, tools, and applications that necessarily link the biophysical sciences with economics. The December 2010, ACES (A Community on Ecosystem Services) Conference provided dramatic evidence of the extent and progress of these efforts.

The Leadership Challenge: How can USGS provide appropriate guidance, incentives, and direction to encourage interdisciplinary efforts to effectively incorporate economics into its research portfolio? What strategies can be developed for progress in this area, given the scientific and institutional barriers described above? How can capacity be developed in the context of extremely tight budgets? How can we move forward on this issue given that it cross-cuts all of the USGS' mission areas?

The challenge is to develop broad strategies or plans for moving forward with this interdisciplinary focus, where appropriate.

USGS is convening a workshop on the role of economics in the bureau on June 1-2, 2011. The results from this action learning project will provide an important perspective for discussion at the workshop. The objective is to define future directions for economics in the USGS.

We welcome your creative ideas!

Attachments:

1. "A Road Map for Natural Capitalism," Harvard Business Review
2. "ACES 2010 Abstracts," A Community on Ecosystem Services
3. "Valuing ecosystem services from wetlands restoration in the Mississippi Alluvial Valley," W. Aaron Jenkins, Brian C. Murray, Randall A. Kramer, and Stephen P. Faulkner, Ecological Economics
4. "The Value of the World's Ecosystems and Natural Capital," Nature.