EEN Forum 2009, 6/8/2009, 2:15 p.m.

Session 4: Data and Information: Access, Use and Finding Meaning

Ed Washburn: GEOSS

- Global Earth Observation System of Systems
- Linking data from satellite sensors, aerial sources and ground-based monitors on land, ocean and air to help us think globally and act locally to protect human health and the environment
- Link these independent, single-purpose mechanisms and measurements
- Apply interconnected sense of the earth: climate change, energy, ocean, weather, agriculture, health, water, etc.
- Observations go to decision support assessments – policy, management and personal decisions based on evidence
- Integrate all the satellite data, air pollution, water pollution data, etc.
- Have to figure out the meta-data standards

Monitoring – how many sensors?

- What are you observing?

Air quality:

- collaboration between EPA (monitoring), NOAA (modeling), NASA (satellites)
- 3 together provide powerful predictive tool
- Air Now International – connects air monitoring instruments (EPA works now with China) – system of systems in terms of air quality

M&E Conceptual Framework

GEOSS has 10yr implementation plan

- no conceptual framework on logic model organized

Key Points:

- with evolution of GEOSS – potential value of evaluating environmental policies increases
- more data sources using GEOSS standards means they're available to evaluators (currently don't have this data)
- metadata standards
- interoperability for decision support and behavior change in decision making
- conceptual framework wasn't available before

- want databases to be like lego blocks – can stand alone but can be combined with others and be integrated together in those tools

Ann Marsh

- State of the Nation's Ecosystems Project
- Context: emerged from Clinton White House – identify strategic indicators of condition and use of US ecosystems, lay groundwork for periodic, high-quality, non-partisan reporting
- 2 SNER reports (2002, 2008), data gap report, report on landscape indicators, roadmap policy document

Indicator Design and presentation:

- need to focus on what's important and relevant to the user
- most powerful indicators work at many different scales
- stakeholder involvement is important – critical in development of indicators for buy-in to program
- normative judgments can alienate stakeholders
- keep it simple

Data Lessons:

- lots of data collected on ecosystem condition (lots of sources, governmental and nongovernmental orgs), still gaps
- some environmental features and trends can't be tracked on national scale
- Gaps due to lack of monitoring, varying methods so they can't be aggregated to national scale, limited temporal or spatial sampling, lack of national metric to measure an indicator

Eg. Data Gap: non native species – have fish data but not plants, parasites, invertebrates, etc.

- have data at local, regional or state level but collected with different methods so can't be aggregated

- not a truly integrated 'system' – just independent parts designed to meet different needs for different scales with inconsistent metrics

Looking forward-

- increased systematic integration of data
- analysis of information/tools needed to respond to climate change
- need to reassess observations and indicators are required to meet policy and management needs and program evaluations to address climate change

Richard Gelb

Evaluation as (Upstream) Decision Support
King County, Seattle

- continuous improvement loop – how to connect what we're learning to strategy development
- Areas of inquiry:
- 1) sustainability management (environment, people, cost)
- 2) reducing climate pollution
- 3) environmental justice/equity
- 4) intermediate outcomes

- Evaluation – stage in strategic planning process but other areas should be informed by environmental/program intelligence that come from eval process
- Triple bottom line with performance measures for each
- Climate Pollution reduction targets
- What does it take to develop strategies to achieve these goals?
- needed to do inventory to get opportunities for community-scale reductions
- transportation emissions are biggest piece of pie to go after
- got travel behavior data and land use patterns to show how transportation emissions are distributed
- equity and social justice initiative – mapped benefits and burdens of county services and compared it to demographic data

Intermediate outcomes

- no clear causal link between what we do and environmental outcome
- what are the intermediate outcomes that are precursors to health and environmental outcomes
- in order to have tighter feedback loop between what we do and results

Aligned and cascading performance targets in 3 goal areas

- all metrics are nested and line up so we can work upstream and figure out where we have problems

We have to understand which is a better program/strategies – first have to know cost and efficacy of different possible programs

Intermediate outcomes are critical perspective for identifying actors and attribution of responsibility for complex topics – need intermediate steps to address climate change (eg. Start with single-use zoning to get better land use to get less emissions, etc.)

- check if we're on track for intermediate outcomes
- help get feedback within timely manner for course corrections
- helps illuminate our theory of change and encourages buy-in

To get to triple bottom-line framework, our policies have to be set around those bottom lines

Decision support should be top down, bottom-up, side-to-side (cross division, cross agency, cross sector)

- have to coordinate with other actors with similar missions

Targets have to be at the edge of grasp = critical

Questions
Q for Richard:

- average per household energy use
- with less density – higher per household energy use

Q:
As evaluators have to understand conditions. But how much secondary data do we need to focus on? Will we get distracted from program or processes? Won't be getting new data?

When is too much too much? 108 baseline indicators for state of nation's ecosystems?
Ann: 13 core national indicators, broken up into different categories, about 18 per ecosystem, 2-3/ category, physical and chemical conditions, goods and services, bio conditions, etc.

- very difficult to get multi-sector groups to reduce to common level of indicators

Are we over dissecting when you have so many indicators?
A: depends on audience (Richard)

- have to make it consumable
- indicators for what audience? Scientists might want more than management audience – needs to be packaged appropriately

Ann: also depends on format and packaging

Sometimes need thousands of indicators to get understanding of complex issue (GEOSS)

- program management wants certain indicators to know if program is running well, senior management wants data to make strategic decisions, etc.

Performance management – how much data/indicators do you need

- depends on goals of the program
- depends on scope of program

Q: how do you develop support for integrated systems of information (GEOSS, etc). where does it come from (top down? Within the agency? Side to side?)
A: most effective if it comes from all directions

- Have to link the existing systems, not creating a new system
- Need common format, design, useability