ENGAGING NEW PARTNERS
BUILDING IMPORTANT COLLABORATIONS

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US Environmental Protection Agency
Partnerships & Collaboration
Why GEOSS?

The more we understand the Earth, the better stewards we become.
Communities of Practice

Data from Providers

Societal Benefits

Interdisciplinary, Multi-disciplinary, Trans-disciplinary Collaboration

Communities Of Practice
The Concept of “Community of Practice”

Groups of people who share a concern, a set of problems, or a passion about a topic and deepen their knowledge by interacting on an ongoing basis

Bring together...
• Users
• Providers
• Universities and research institutions
• Technology development actors
• Developed countries
• Developing countries
The Air Quality Community

The Public & Public Officials

Public Information Delivery Community

Public Emergency & Health Officials

Operational Modeling & Forecasting Community

GEOSS Users Community Of Practice

Earth Observation Communities

Local & Regional Environmental Managers

EPA, 2005
From the Concept of Sustainable Development

Economic Prosperity

Environmental Protection

Social Justice
To Partnerships & Collaboration
Bridging Science and Policy

What do we know today?
What are the unknowns?

What are our goals?
What are the options?

How should we proceed given the uncertainties?

Systems Model
Communities of Practice

Data Deliver for Decisions

The Public

Global Movements

Partnerships & Collaboration

Sustainable Development

GEO, USGEO, EPA, ESIR, Private Sector, Academia

Economic Prosperity, Environmental Protection, Social Justice
Seven Priorities for EPA’s Future

- Taking action on climate change
- Improving air quality
- Assuring the safety of chemicals
- Cleaning up our communities
- Protecting America's waters
- Expanding the conversation on environmentalism and working for environmental justice
- Building strong state and tribal partnerships

EPA Administrator
Lisa P. Jackson
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Communities
Focusing on environmental issues that matter to communities and empowering citizens and community groups to take action to improve their health and environment.

An Example
EPA’s C-FERST Tool and the Lessons Learned
What is C-FERST?

Community-Focused Exposure and Risk Screening Tool:

C-FERST is EPA’s GIS and information access Web tool for conducting cumulative human exposure and risk screening assessments, to support new decision-making by the communities in order to become more sustainable and healthy.
<table>
<thead>
<tr>
<th>Initial Issues Considered</th>
<th>Portland, ME</th>
<th>Springfield, MA</th>
<th>Brooklyn, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• outdoor air pollution</td>
<td>• ambient air quality</td>
<td>• air quality</td>
<td></td>
</tr>
<tr>
<td>• water quality</td>
<td>• home &amp; school IAQ</td>
<td>• access to healthy affordable foods</td>
<td></td>
</tr>
<tr>
<td>• lead in old homes &amp; soil</td>
<td>• lead</td>
<td>• pedestrian street safety</td>
<td></td>
</tr>
<tr>
<td>• elevated childhood BLL</td>
<td>• health disparities</td>
<td>• return of B37 bus line</td>
<td></td>
</tr>
<tr>
<td>• bike &amp; pedestrian safety</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Issues Identified</th>
<th>Portland, ME</th>
<th>Springfield, MA</th>
<th>Brooklyn, NY</th>
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<tbody>
<tr>
<td>• waste/litter</td>
<td>• debris/waste/litter</td>
<td>• waterfront access</td>
<td></td>
</tr>
<tr>
<td>• brownfields</td>
<td>• abandoned homes/brownfields</td>
<td>• climate adaptation</td>
<td></td>
</tr>
<tr>
<td>• public housing conditions</td>
<td>• violence</td>
<td>• waste management</td>
<td></td>
</tr>
<tr>
<td>• exposure to common chemicals</td>
<td>• tornado damage</td>
<td>• recycling in residential, business, and school settings</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Local Data Collected</th>
<th>Portland, ME</th>
<th>Springfield, MA</th>
<th>Brooklyn, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• turnpike traffic</td>
<td>• school asthma rates</td>
<td>(in process of collecting local data)</td>
<td></td>
</tr>
<tr>
<td>• ozone</td>
<td>• air pollution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• green space</td>
<td>• water quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• blight</td>
<td>• brownfield sites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• waste collection</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
C-FERST Stakeholders

- **EPA Groups**
  - Regional project officers
  - Regional risk assessors (e.g., Compliance & Enforcement; EJ)
  - EPA Program Office risk assessors/managers
  - CARE, OEJ, OECA, OCHP
  - RAF Cumulative Risk Tech. Panel

- **Communities & Individuals**

- **Other Federal Agencies**
  - CDC (EPHTN, CAEPH)
  - NIEHS PEHP

- **Academia**

- **State & Local Agencies**
Overarching Lessons Learned about C-FERST

C-FERST is useful for:

- **Visualizing environmental information**
- **Providing content for outreach materials**
- **Following step-by-step community guidance interactively**
- **Learning about community issues of concern**

C-FERST needs more:

- **Simplification & Flexibility** – Different users will use the tool for different purposes, in different order, at different levels of complexity
- **Direction** – Crosswalks could play a larger role in the directing organization/flow of the site, but need enhancements
- **Interaction** – Ability to add local data, save maps and tables, etc.
- **Risk Science & Communication** – “What does this mean to me?”
- **Decision Support Functionality** – “What if?” scenarios to inform decisions for sustainable and healthy communities
Overarching Lessons Learned about Community Tool Development

Expectations:
Communicate, refine if needed, repeat

Easy access and user-friendliness critical to success:
*Usability & IT challenges* can make or break a public-facing tool

Community Tool development is a balancing act:
Provide valuable information & science tools for complex, multi-step community assessment process while also
- *keeping it simple and streamlined*
- avoiding bias in the process
- avoiding bias in the information provided
- respecting community empowerment
It's All About Decision-Making

STEWARDSHIP
Enabling better Decision-making

SUSTAINABILITY
The outcome of better Decision-making

“. . . the goal of sustainability is our “true north” . . .”

Dr. Paul Anastas, EPA Science Advisor and Assistant Administrator for Research and Development
Protecting America's Waters

**STEWARDSHIP**
Enabling better Decision-making

**SUSTAINABILITY**
The outcome of better Decision-making

Working with Stakeholders

- expanding the conversation on environmentalism and
- building strong State and tribal partnerships
Sustainability of a Resource: Narragansett Bay

• Apply Systems Thinking

• Develop an initial version of System Dynamics modeling tool

• Obtain stakeholder insights & feedback from the start
Systems Approach

- Interactive **system dynamics** model based on the **T21** platform from Millennium Institute
  - Explores how strategic options affect overall sustainability outcomes
  - Helps create portfolio of interventions to maximize stakeholder benefits
  - Easy to use and understand by policy-makers and stakeholders

“All models are wrong, but some models are useful”
From the Pillars of Sustainability to the “Triple Value” Framework

- **Economy**: agriculture, fishing, industrial, and commercial uses
- **Environment**: runoff and wastewater
- **Society**: drinking water, recreation, and cultural uses

**ecological resource base**
There is no single model that can address all the needs of decision makers and stakeholders at multiple scales.
Shows how “INTERVENTIONS” could affect “INDICATORS” in the Big Picture!
There is no single model that can address all the needs of decision makers and stakeholders at multiple scales.
Requires lots of data—mostly provided by Stakeholders
Communities of Practice

Data Deliver for Decisions

The Public

Disadvantaged, Under Served

Global Movements

Partnerships &

Collaboration

Sustainable Development

Stakeholders

Natural Resource Sustainability for Environment, Economy & Society

Sustainable Development

- Economic Prosperity
- Environmental Protection
- Social Justice
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Sharing is Everything

Eye on Earth Network

a new global public good

The Public

Disadvantaged, Under Served

AirNow International

Personal Adaptive Mgmt

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From AIRNow to “Community”

• The AIRNow experience has taught us several lessons
  • **Community is KEY** – 40% technology, 60% people
  • The public wants real-time environmental information, but depends upon the community to interpret it
  • The community provides the context that lies between the data and the public
• For sensitive subpopulations and families, AIRNow’s forecasts **support “individual” adaptive management** to deal with residual AQ risk.
LIVE CNN Weather O_3 ZONE

Oklahoma City: Moderate
Dallas: Unhealthy for Groups
San Antonio: Unhealthy
Houston: Hazardous

WWW.EPA.GOV/AIRNOW
A new global public good

Real-time Air Quality, Water Quality and Noise Quality Data to the Public
Integrating observations from citizen scientists and indigenous peoples
Social media integration

Floods in Europe

Floods in Twitter and Flickr
Drag and drop intelligent maps
Global release at the Eye on Earth summit in Abu Dhabi 12–15 December 2011

All EEA applications and available web-services

Data from UN and other international organisations

National data, including US data
Representatives from government, business, science, civil society and academia came to join forces to:

• **CONVENE** to celebrate ‘best-impact’ data initiatives from around the globe;

• **CONVERGE** on key issues to reach consensus on solutions to greater data accessibility;

• **COLLABORATE** to strengthen existing initiatives and, where necessary, launch new ones.
FROM A MOMENT TO A MOVEMENT

The **Eye on Earth Summit** has enabled

- global leaders,
- innovators and
- decision-makers

**to focus on an “issue upon which our planet’s future depends”:**

- how to ensure **effective access** to the world's expanding pool of environmental and societal data by all of those who need it.
Eye on Earth: Press Headlines

• Abu Dhabi meeting approves 'Declaration of intentions' (some focused on Rio+20)
• Brazil pushes for global information convention
• Help plug data gaps, urges senior UN official
• Why city resilience will be an issue at Rio+20
• Geospatial initiative shows the way
• Information networks--bridging the gap between geeks and suits
• Quality control challenges for citizen science
• The sense and sensitivity of technology for all
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Push for data access at Rio+20

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WG on biodiversity, blue carbon, water, disaster mgmt, urban environment work up to Rio+20.

Stakeholders

Natural Resource Sustainability for Environment, Economy & Society

Communities

Disadvantaged, Under Served

City resilience will be an issue at Rio+20

The Public

Eye on Earth Network

a new global public good
“Those who collaborate will prosper.”
Secretary Mike Leavitt, speaking to USGEO, 2005

Thank you!