



ENGAGING NEW PARTNERS BUILDING IMPORTANT COLLABORATIONS

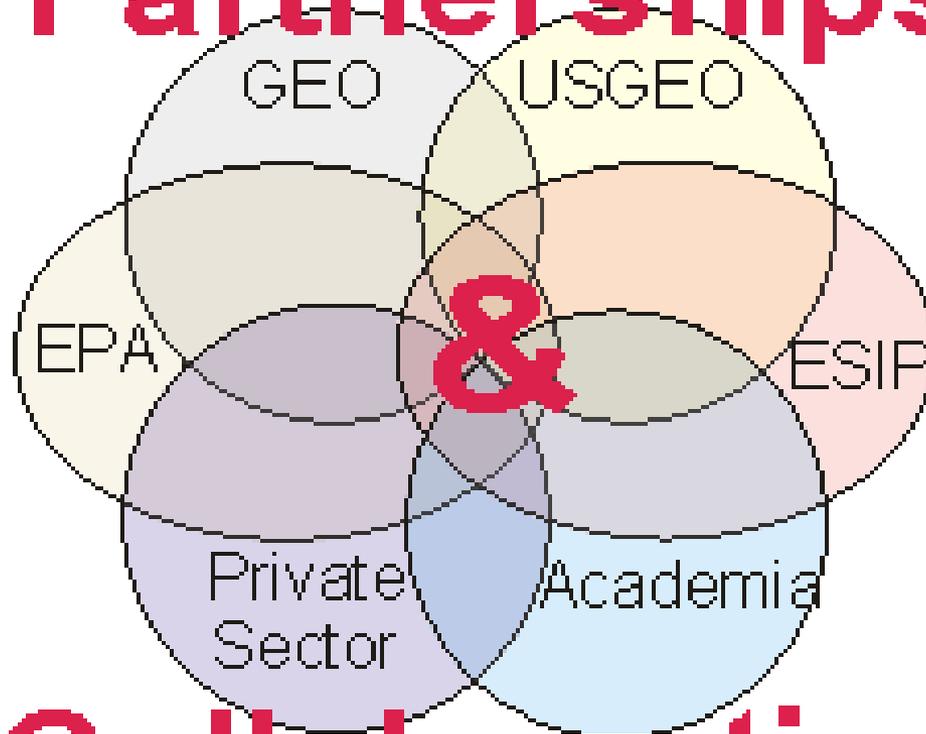
4 January 2012

Gary J. Foley, PhD

Senior Advisor to the Assistant Administrator
for Research and Development

US Environmental Protection Agency

Partnerships

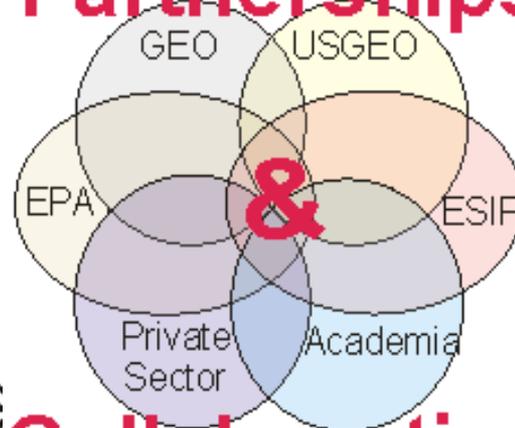


Collaboration

Data
Deliver for
Decisions

The
Public

Partnerships



Stakeholders

Global Movements

Collaboration

Sustainable
Development

Why GEOSS?

The more we understand the Earth, the better stewards we become.



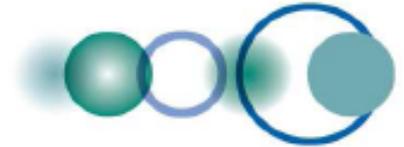
**Data from
Providers**

**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



EPA, 2005

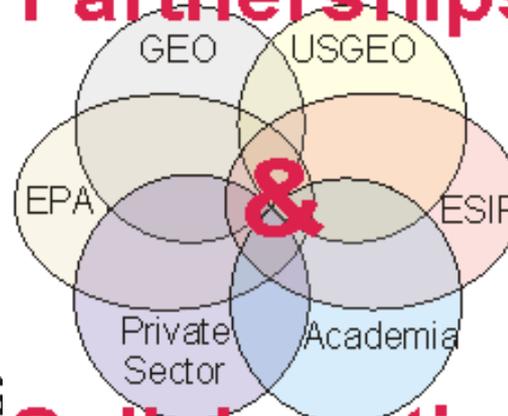
Communities
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From the Concept of

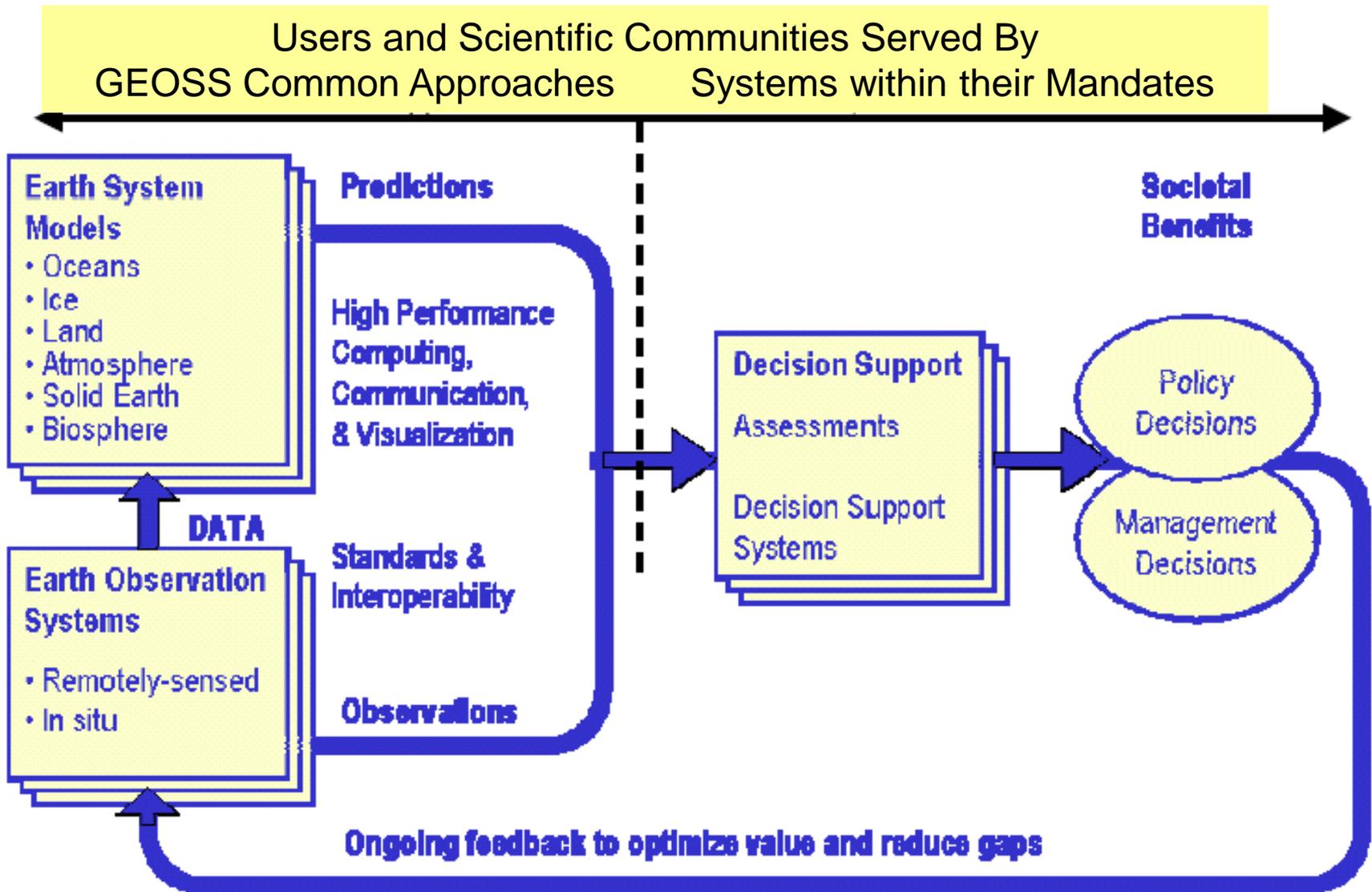
Sustainable Development

**Economic
Prosperity**

**Environmental
Protection**

**Social
Justice**

With the GEOSS Architecture



To Partnerships & Collaboration Bridging Science and Policy

**What do we know
today?
What are the
unknowns?**



**What are our goals?
What are the options?**



**Systems
Model**

**How should we
proceed given the
uncertainties?**

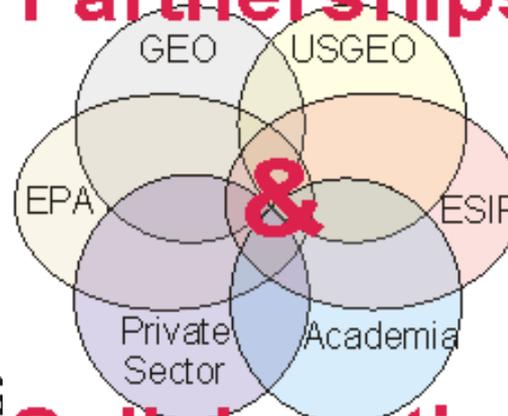
Communities
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Global Movements

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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



Seven Priorities for EPA's Future

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Lisa P. Jackson

COMMUNITIES



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STAKEHOLDERS

Communities
of Practice

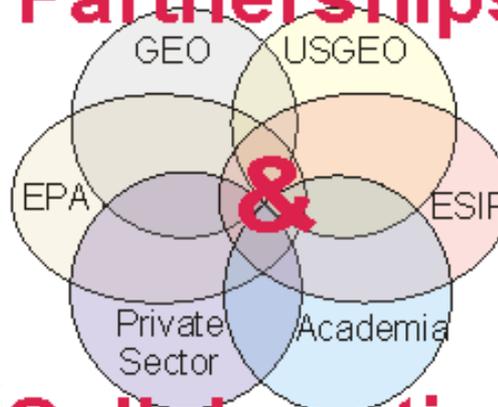


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Communities

Focusing on environmental issues that matter to communities and empowering citizens and community groups to take action to improve their health and environment.

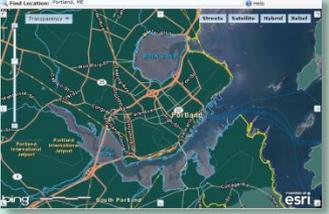
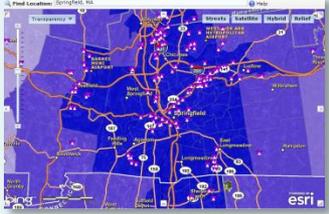
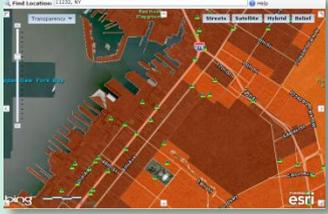
An Example

**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.**

	Portland, ME	Springfield, MA	Brooklyn, NY
Initial Issues Considered	 <ul style="list-style-type: none"> • outdoor air pollution • water quality • lead in old homes & soil • elevated childhood BLL • bike & pedestrian safety 	 <ul style="list-style-type: none"> • ambient air quality • home & school IAQ • lead • health disparities 	 <ul style="list-style-type: none"> • air quality • access to healthy affordable foods • pedestrian street safety • return of B37 bus line
Additional Issues Identified	<ul style="list-style-type: none"> • waste/litter • brownfields • public housing conditions • exposure to common chemicals 	<ul style="list-style-type: none"> • debris/waste/litter • abandoned homes/ brownfields • violence • tornado damage 	<ul style="list-style-type: none"> • waterfront access • climate adaptation • waste management • recycling in residential, business, and school settings
Local Data Collected	<ul style="list-style-type: none"> • turnpike traffic • ozone • green space • blight • waste collection 	<ul style="list-style-type: none"> • school asthma rates • air pollution • water quality • brownfield sites 	<p>(in process of collecting local data)</p>

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

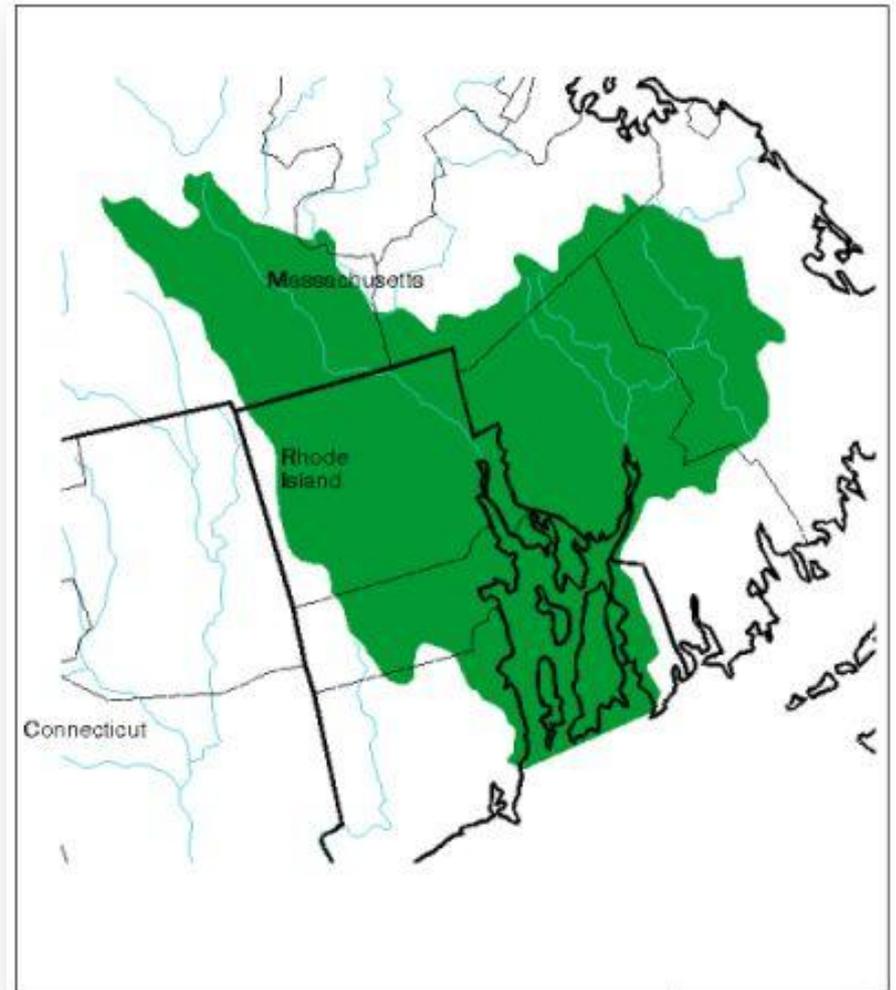
The outcome of better
Decision-making

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 overall sustainability outcomes
 - Helps create portfolio of interventions to maximize stakeholder benefits
 - **Easy to use and understand by policy-makers and stakeholders**

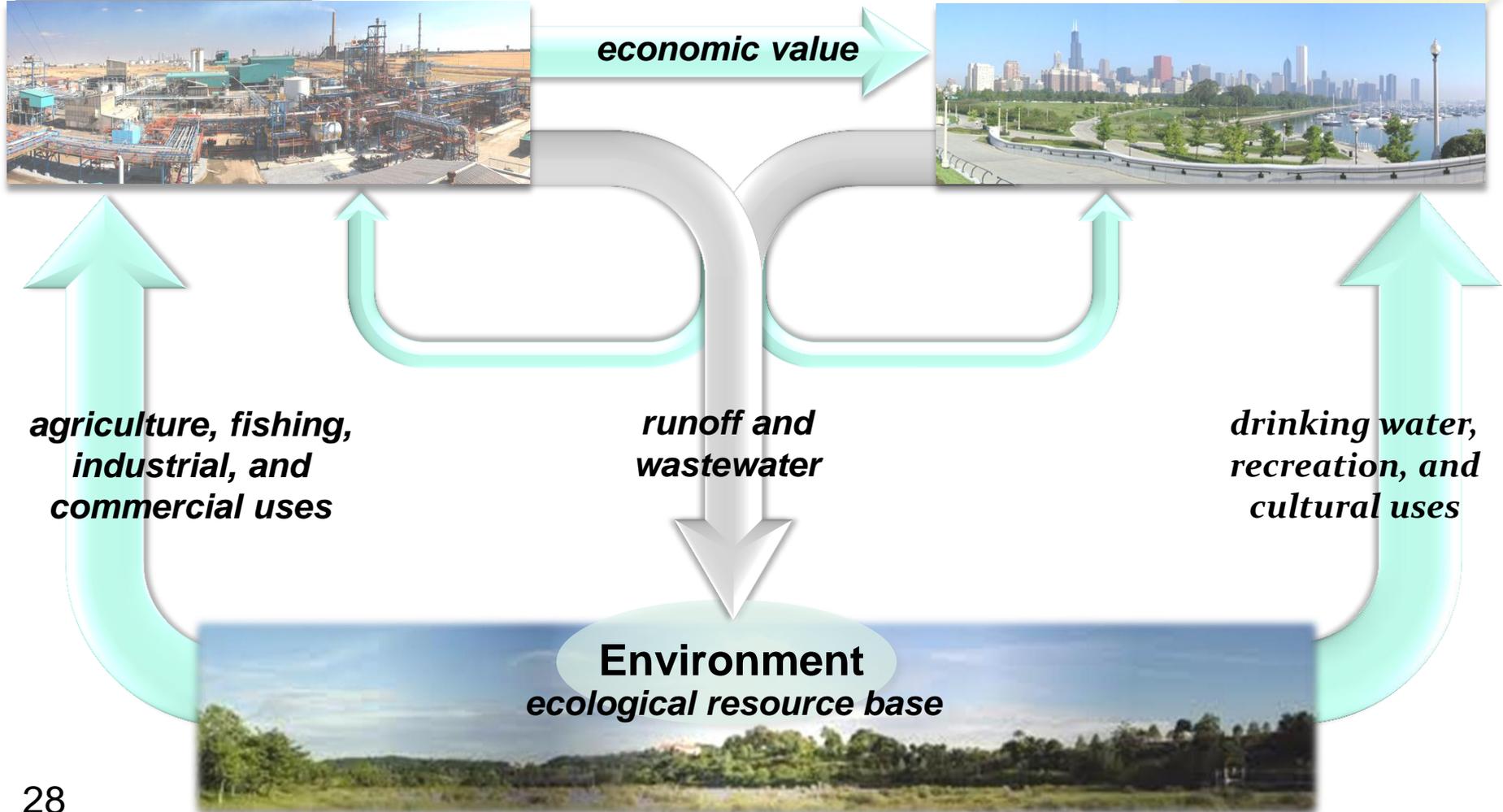


“All models are wrong, but some models are useful”

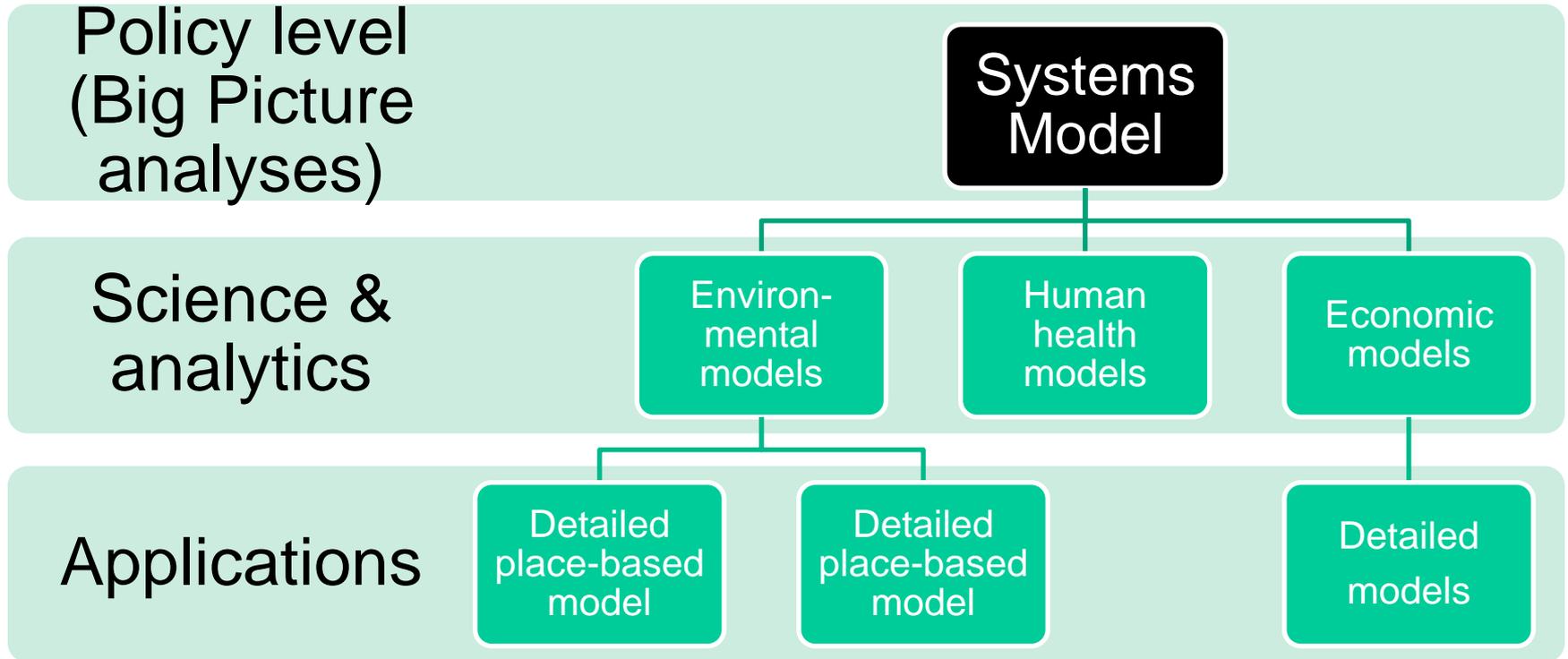
From the Pillars of Sustainability to the “Triple Value” Framework

Economy

Society

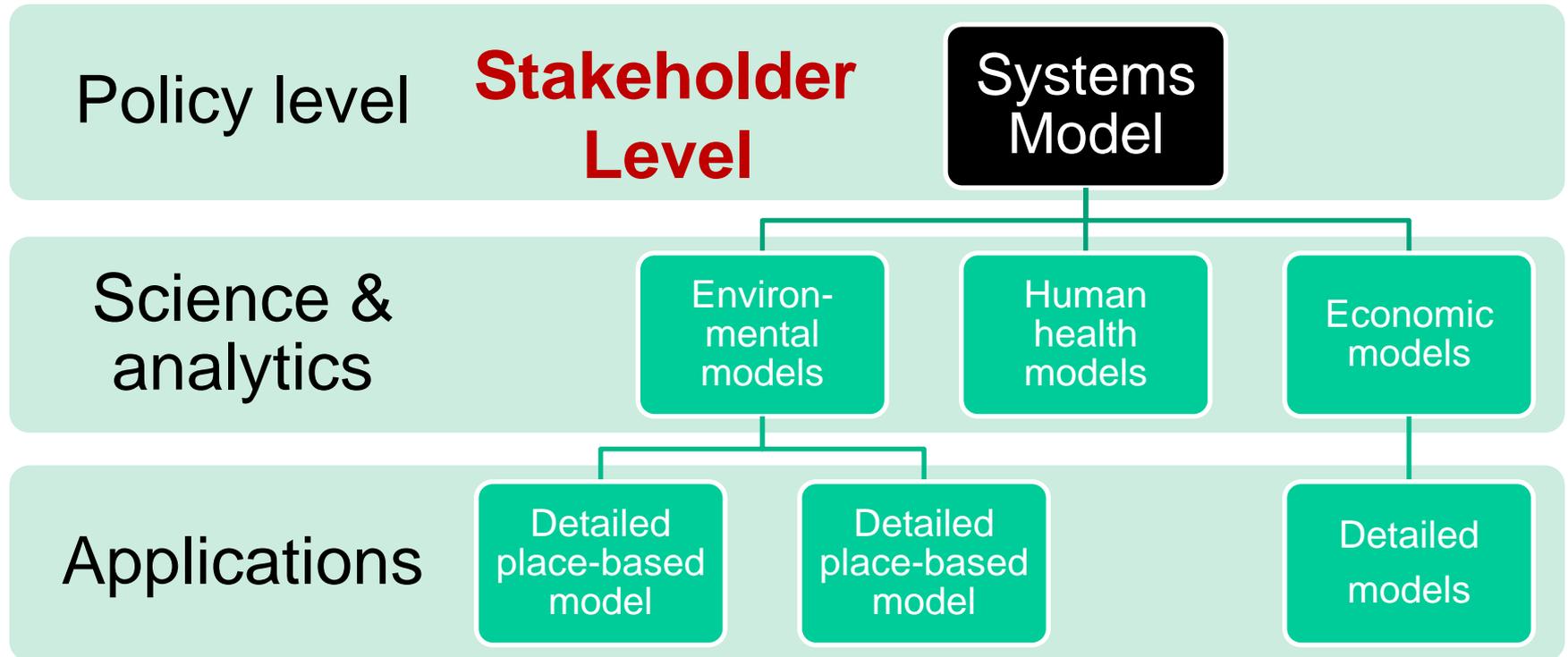


Overview of Modeling Approach



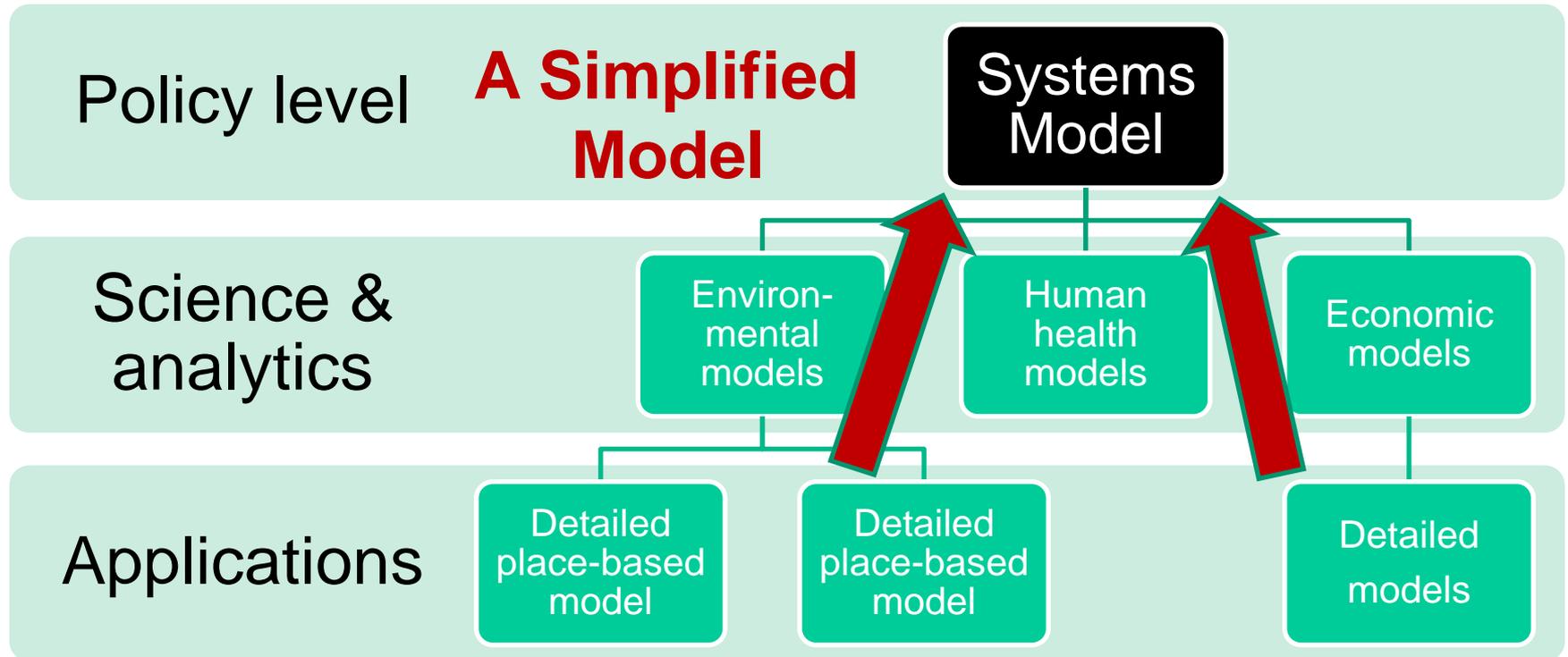
There is no single model that can address all the needs of decision makers and stakeholders at multiple scales

Overview of Modeling Approach



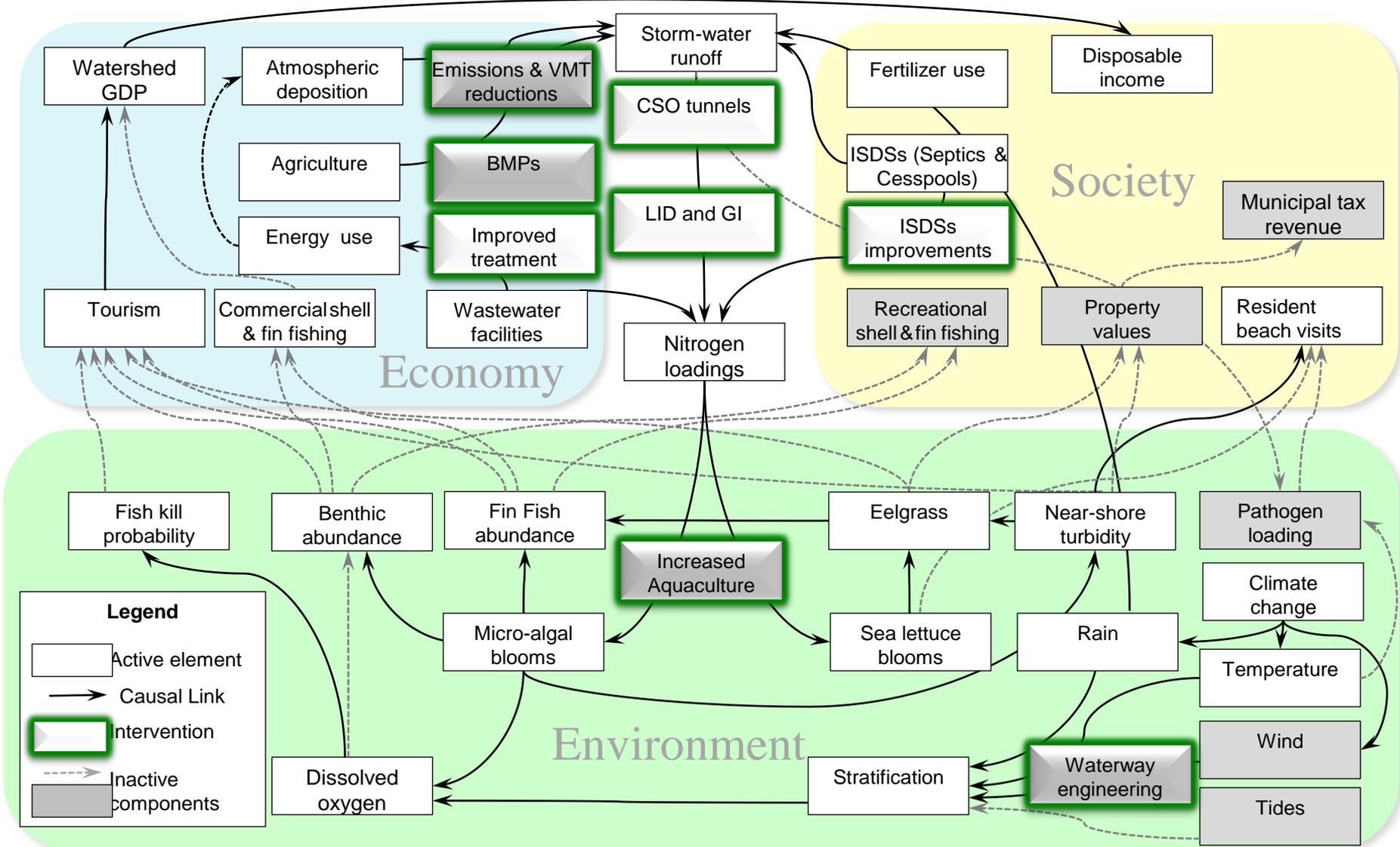
Shows how “INTERVENTIONS” could affect “INDICATORS” in the Big Picture!

Overview of Modeling Approach



There is no single model that can address all the needs of decision makers and stakeholders at multiple scales

Causal Relationships for Narragansett Bay



Requires lots of data—mostly provided by Stakeholders

Communities
of Practice



Data
Deliver for
Decisions

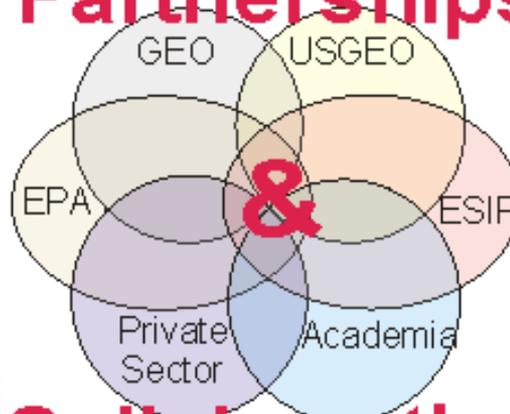
Communities



The
Public

Disadvantaged,
Under Served

Partnerships



Global Movements

Collaboration

Sustainable
Development

Stakeholders

Natural Resource
Sustainability
for Environment,
Economy & Society

Sustainable Development



Communities of Practice



Data Deliver for Decisions

Sharing is Everything Eye on Earth Network



a new global public good

Communities



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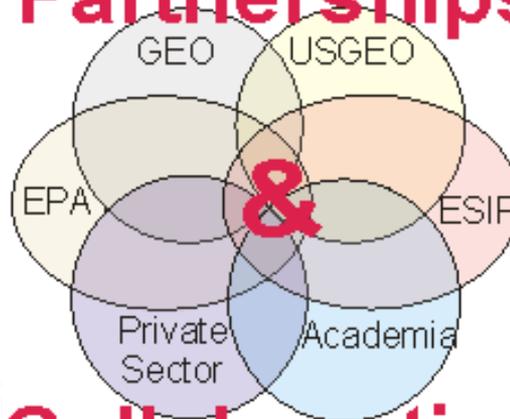
AirNow International



Personal Adaptive Mgmt

Global Movements

Partnerships

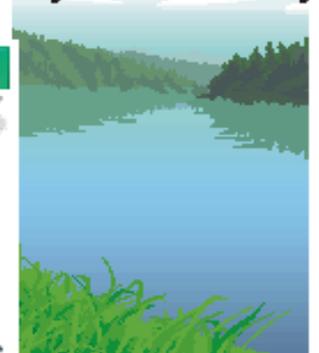


Collaboration

Sustainable Development

Stakeholders Natural Resource Sustainability for Environment, Economy & Society

Sustainable Development



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
- Unhealthy for Groups
- Unhealthy
- Hazardous

Dallas

Houston

San Antonio

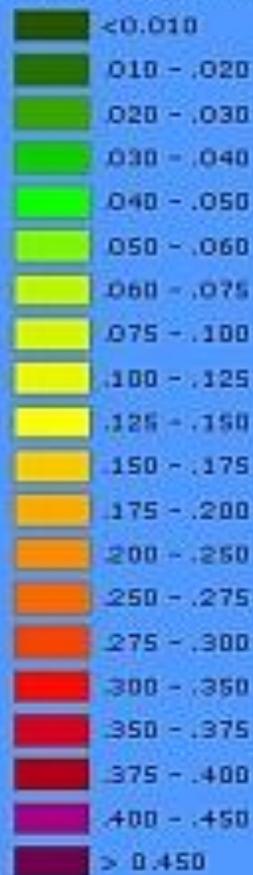
CNN

WWW.EPA.GOV/AIRN 3:23a PT

江
EXPO
2010
SHANGHAI CHINA

上海市PM₁₀ 每小时浓度
2010-11-3 8:00 北京时间

PM10 (mg/m³)



苏

嘉定区

宝山区

杨浦区

虹口区

闸北区

静安区

普陀区

长宁区

徐汇区

黄浦区

浦东新区

青浦区

松江区

闵行区

南汇区

奉贤区

金山区

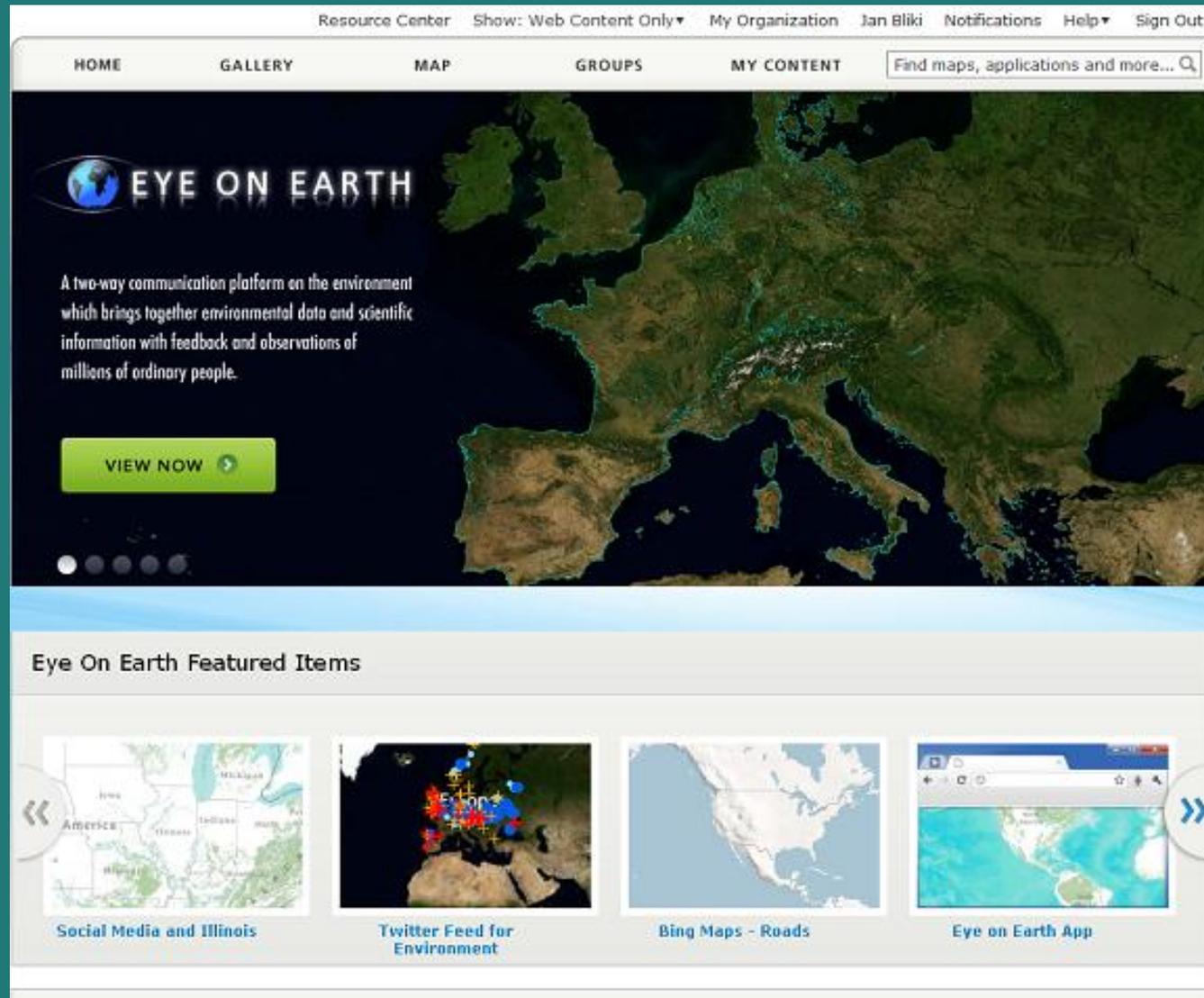
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江



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The screenshot shows the Eye on Earth website interface. At the top, there is a navigation bar with links for "Resource Center", "Show: Web Content Only", "My Organization", "Jan Bliki", "Notifications", "Help", and "Sign Out". Below this is a secondary navigation bar with "HOME", "GALLERY", "MAP", "GROUPS", and "MY CONTENT", along with a search box containing the text "Find maps, applications and more...". The main content area features a large satellite map of Europe. On the left side of the map, there is a "EYE ON EARTH" logo and a descriptive paragraph: "A two-way communication platform on the environment which brings together environmental data and scientific information with feedback and observations of millions of ordinary people." Below the text is a green "VIEW NOW" button with a right-pointing arrow. At the bottom of the main content area, there is a section titled "Eye On Earth Featured Items" which displays four featured items in a row, each with a thumbnail image and a caption: "Social Media and Illinois" (a map of Illinois), "Twitter Feed for Environment" (a globe with colorful pins), "Bing Maps - Roads" (a map of North America showing roads), and "Eye on Earth App" (a screenshot of the app interface). Navigation arrows are visible on the left and right sides of the featured items section.

Real-time Air Quality, Water Quality and Noise Quality Data to the Public

Integrating observations from citizen scientists and indigenous peoples



The image shows a composite of digital interfaces related to citizen science. On the left, a screenshot of the Great Backyard Bird Count (GBBC) website is visible, featuring the Audubon logo and navigation tabs like 'Give Now', 'States, Centers & Chapters', 'Birds & Science', 'Issues & Action', and 'Education'. Below the navigation, there's a 'Great Backyard Bird Count' section with a 'Donate' button and a 'Welcome' message. A 'Globe At Night 2006-2009' map is also shown, displaying a satellite-style map with yellow dots indicating observation locations. On the right, a mobile phone displays the 'NatureWatch' app interface, which includes icons for 'Observe' (binoculars), 'My Nature' (leaf), 'Get Trained' (puzzle piece), and 'Connect' (Facebook 'f' logo). The phone screen also shows the time '1:56 PM' and the Twitter handle '@atletetxea'. In the background, a portion of the 'Artportalen.se' website is visible, featuring a 'Species Gateway' section with a table of data and various database search options.

Species	Total	This year	Yesterday	Today	Tot %
192	1 409 341	12 817	2 733	81.1%	
108	180 382	1 217	500	13.3%	
156	257 247	442	48	5.5%	
369	4 535	28	2	0.1%	
759	802	-	-	0.0%	
126	1 824	-	-	0.0%	
127	1 854 151	14 504	3 283	100%	

built on Windows® Azure™

EYE ON EARTH

change language (English) developers | providers | diddamer

European Environment Agency

my location sms about help

MALMÖ, SWEDEN

OUR RATING: VERY GOOD

YOUR RATING: GOOD

Non-irritating
Odourless
Non-clear Smoky

OUR RATING: GOOD

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SMS: AIR [location name] OR WATER [location name]

+44 7786 201 106

EEA HEADLINES

EEA kicks off public activities in the run-up to COP15
On the occasion of Copenhagen Culture Night, the European Environment Agency...

EU set to miss 2010 air pollutant limits
With 2010 now quickly approaching, updated emission estimates...

EEA joins forces with European Water Partnership
The European Environment Agency and the European Water Partnership...

Best way to get around: bicycle, car or on foot?
Every day, millions of Europeans make short trips to work, school...

STATIONS more info...
AIR STATIONS WATER STATIONS

Share Location

Facebook Twitter Windows

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STATIONS more info...
AIR STATIONS WATER STATIONS

Floods in Europe

Search: flood

- Twitter (40)
- Flickr (50)
- YouTube (0)
- Wikipedia (0)

Heat Map & Clusters

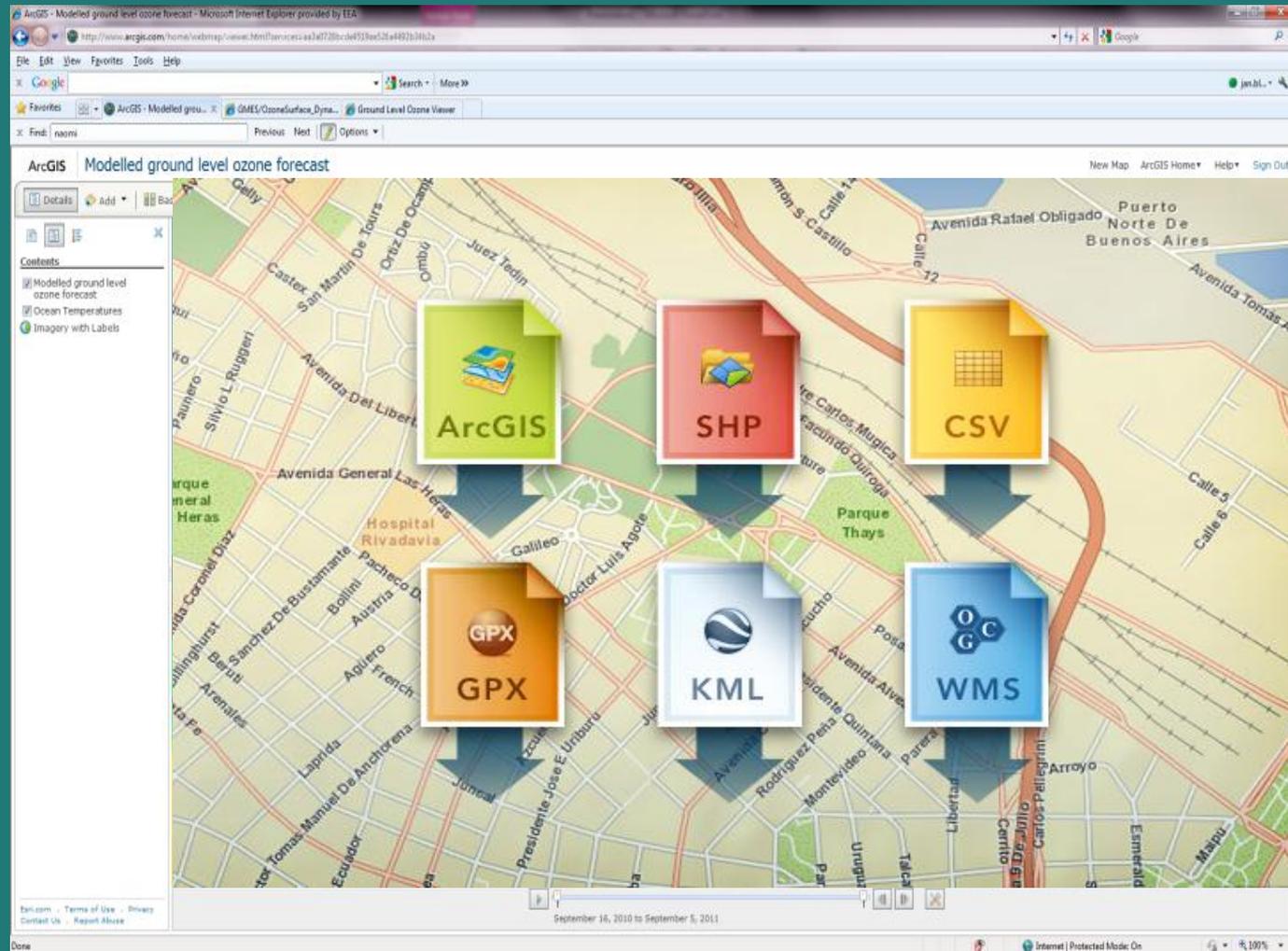
Show Density

Form Clusters

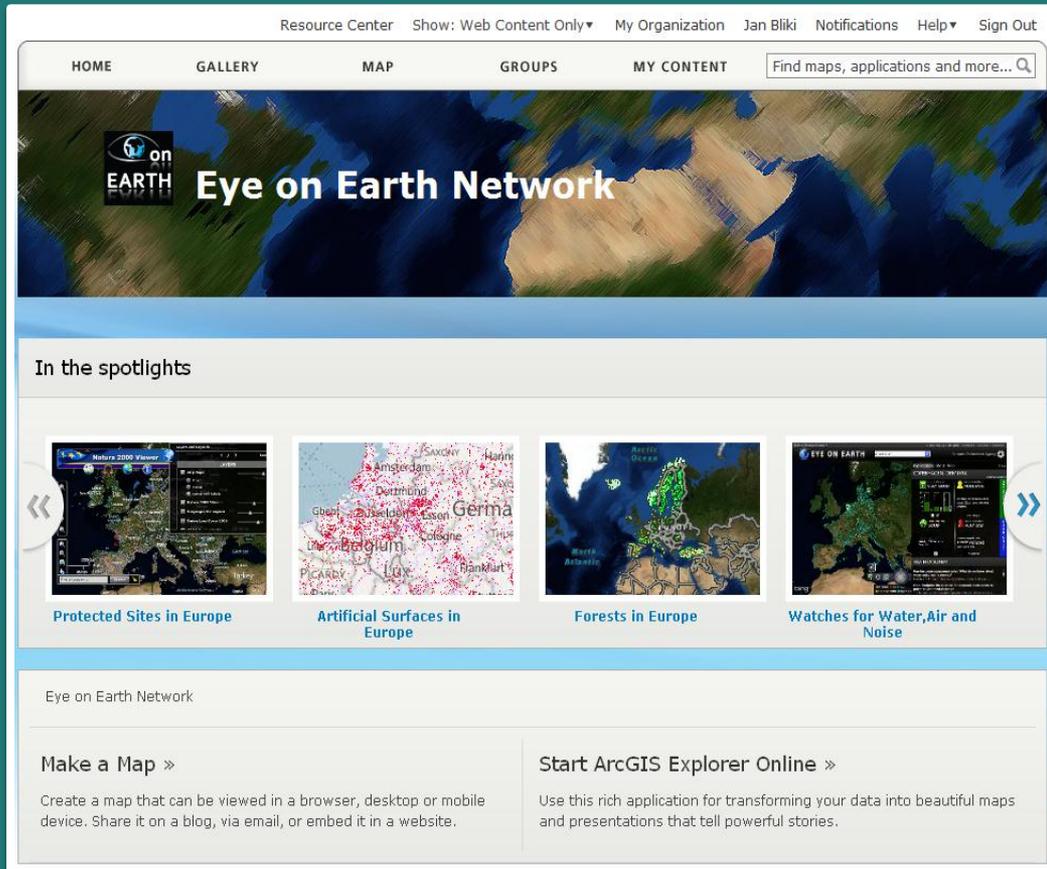
Lat: 56.13 Lon: 7.35 | Scale: 1 : 9 M | Zoom: 8 | ahaddad

Internet | Protected Mode: On

Zoom to: jose_casal: Love the tagline of @FixMyTransport: "Euston, we have a problem". I hope the flood of reports coming their way.

A screenshot of a web browser displaying the ArcGIS "Modelled ground level ozone forecast" interface. The browser window shows the URL "http://www.arcgis.com/home/webmap/view.html?appid=ea3d7720c4e4539e326449230124". The page title is "ArcGIS Modelled ground level ozone forecast". On the left, a "Contents" panel lists "Modelled ground level ozone forecast", "Ocean Temperatures", and "Imagery with Labels". The main map area shows a street grid in Buenos Aires with several data format icons overlaid: ArcGIS (green), SHP (red), CSV (yellow), GPX (orange), KML (white), and WMS (blue). Each icon has a blue arrow pointing downwards towards the map. The bottom of the browser window shows the date "September 16, 2010 to September 5, 2011" and the status "Internet | Protected Mode On".

Global release at the Eye on Earth summit in Abu Dhabi 12–15 December 2011



Resource Center Show: Web Content Only My Organization Jan Bliki Notifications Help Sign Out

HOME GALLERY MAP GROUPS MY CONTENT Find maps, applications and more... Q

Eye on Earth Network

In the spotlights

- Protected Sites in Europe
- Artificial Surfaces in Europe
- Forests in Europe
- Watches for Water, Air and Noise

Eye on Earth Network

Make a Map »
Create a map that can be viewed in a browser, desktop or mobile device. Share it on a blog, via email, or embed it in a website.

Start ArcGIS Explorer Online »
Use this rich application for transforming your data into beautiful maps and presentations that tell powerful stories.

All EEA applications
and available web-
services

Data from UN and other
international
organisations

National data, including
US data

Communities of Practice



Data Deliver for Decisions

Sharing is Everything Eye on Earth Network



a new global public good

Communities



The Public

Disadvantaged, Under Served

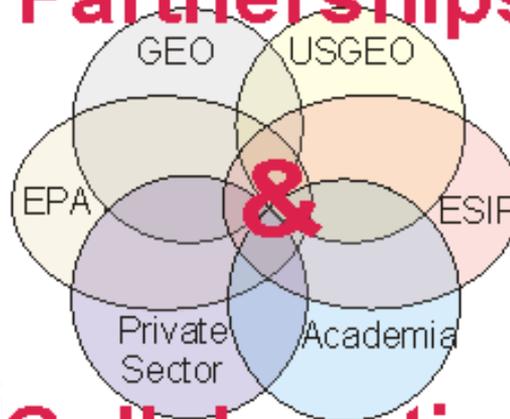
AirNow International



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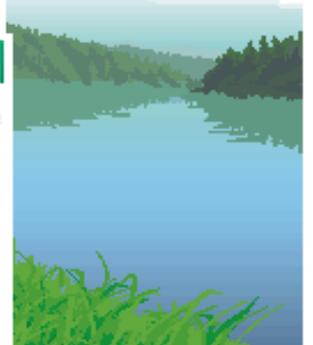


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Sustainable Development





FROM A MOMENT TO A MOVEMENT

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

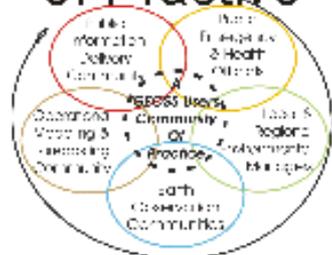
to focus on an “*issue upon which our planet’s future depends*”:

- 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

Communities of Practice



Data Deliver for Decisions

Sharing is Everything Eye on Earth Network



a new global public good

Communities



The Public

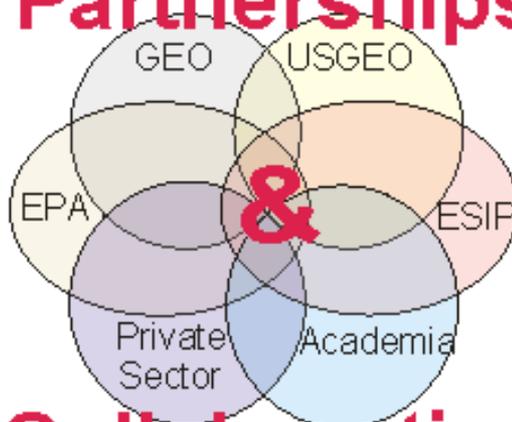
Disadvantaged, Under Served

AirNow International



Personal Adaptive Mgmt

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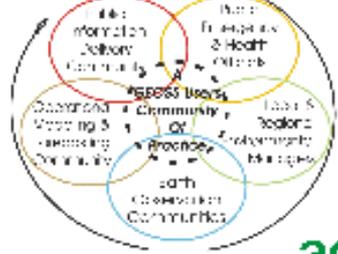
From a Moment to a Movement

Sustainable Development

Sustainable Development



Communities of Practice



Data Sharing is Everything
Deliver for Eye on Earth
Decisions Network

Push for data access at Rio+20

a new global public good



Communities



The Public

Disadvantaged, Under Served

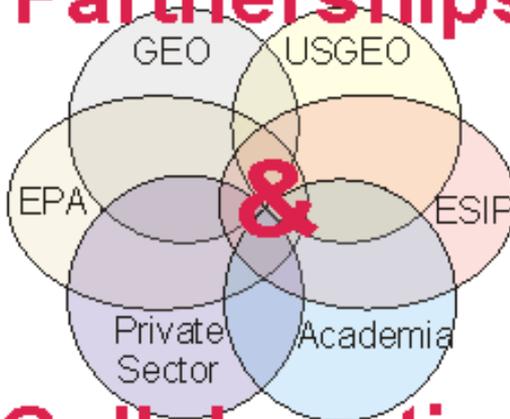
City resilience will be an issue at Rio+20

AirNow International



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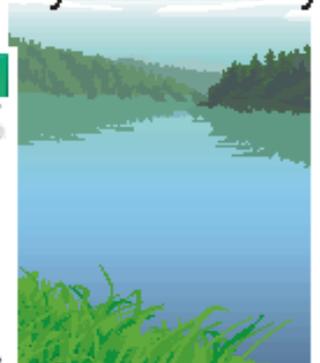
Convene, Converge Collaborate



From a Moment to a Movement

Sustainable Development

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



**“Those who collaborate
will prosper.”**

**Secretary Mike Leavitt,
speaking to USGEO,
2005**

Thank you!