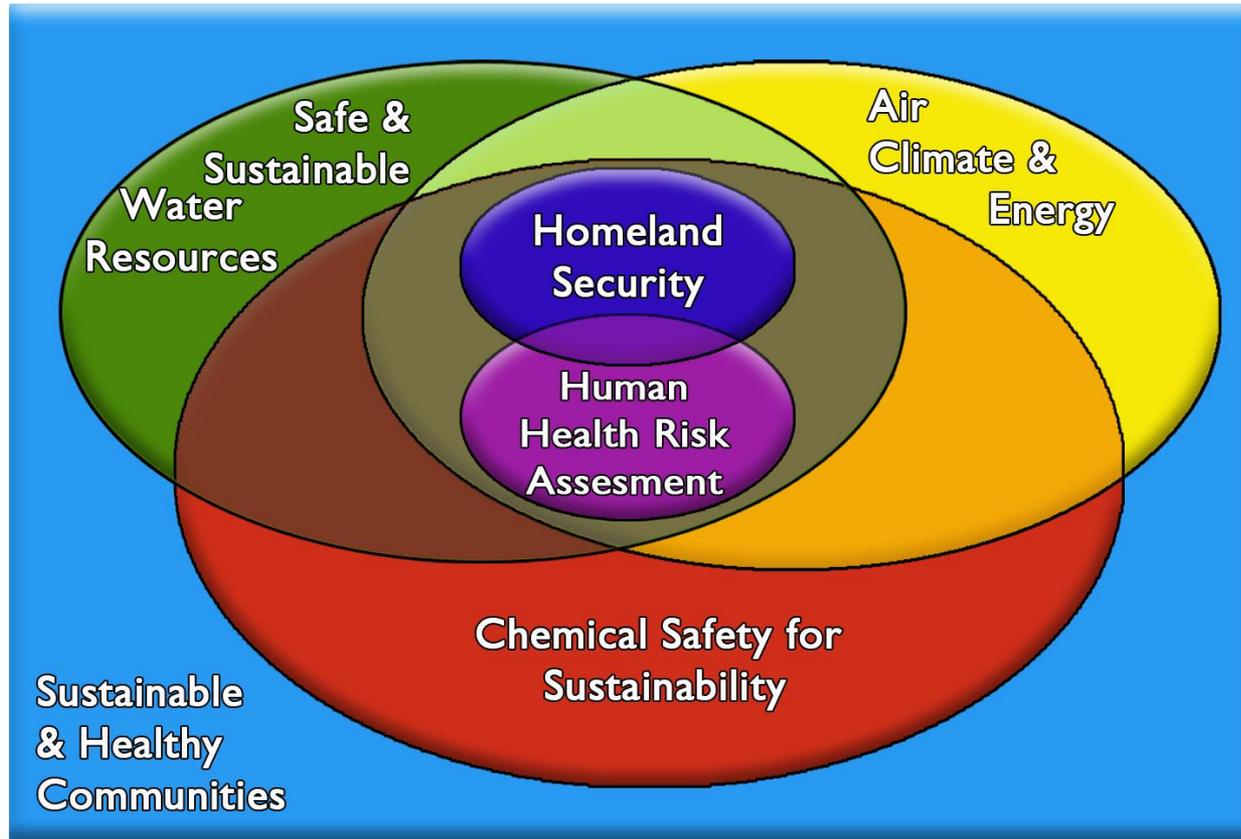


# Sustainable and Healthy Communities Research Program

*Michael Slimak, PhD  
Acting National Program Director  
SAB/BOSC Meeting  
July 10-11, 2012*



# Integrated ORD Research Programs



While all research programs have linkages, SHC can serve an essential coordinating role within ORD

# Sustainable and Healthy Communities Research Program

## Vision

... to inform and empower decision makers in communities to effectively and equitably integrate human health, socio-economic, and ecological factors into their decisions in a way that fosters community sustainability

*i.e., actionable science for communities*



# Index of Handout

- Some Conceptual Thinking
- Selected Overview of the 4 Program Themes
  - Noteworthy Progress since Summer 2011
  - *identified by italics font*
- Innovation
- Key Deliverables for 2012
- Response to June 2011 BOSC/SAB Review
- Charge Questions

# Some Conceptual Thinking

# What is a Community?

- Where the biotic & abiotic interact
  - relevant in ecology and cultural anthropology
- Community types have unique signatures
  - tropical rain forest, carbon stored in the canopy
  - Dense urban communities, vertical habitat
- All Community Types to be studied
  - Vertical and horizontal urban communities
  - Suburban communities
  - Subsistence communities, native communities
  - EJ communities (e.g., Brownfields)

# Communities

- ✓ 7,500 municipalities having greater than 2,500 residents
- ✓ 1,500 municipalities with more than 25,000 residents
- ✓ 68 municipalities with more than 250,000 residents
- ✓ 9 municipalities with more than 1,000,000 residents
- ✓ These “communities” have the legal authority and fiduciary responsibility to provide for the well-being of their residents
- ✓ Implemented primarily through community decisions about:
  - managing waste and materials;
  - maintaining a variety of transportation options;
  - establishing codes for buildings and infrastructure, and
  - land use planning and zoning

# Sustainability and Communities

## A Sustainable Community

- protects the health and well-being of its residents
- increases its returns on public investments
- provides new business opportunities
- conserves its natural resources and open space

Easy to achieve any of these goals individually

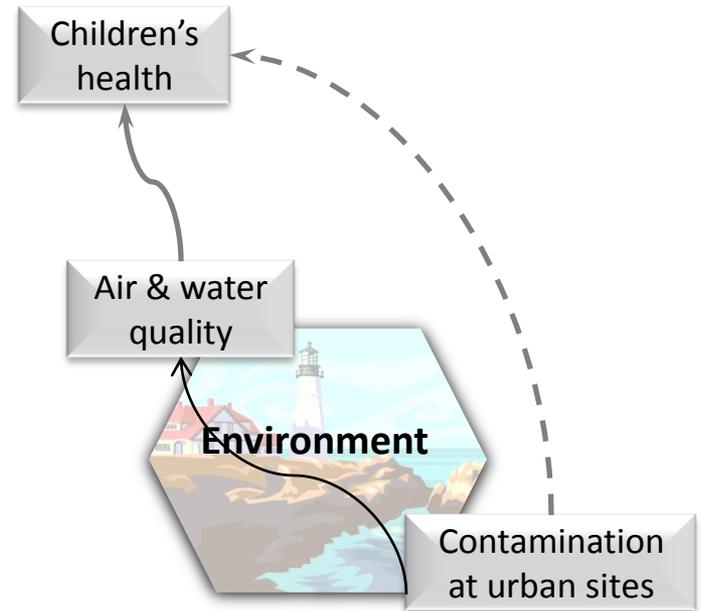
Far more difficult to achieve these goals simultaneously

SHC is based on the hypothesis that a systems-approach will improve a community's ability to simultaneously achieve more of their sustainability goals

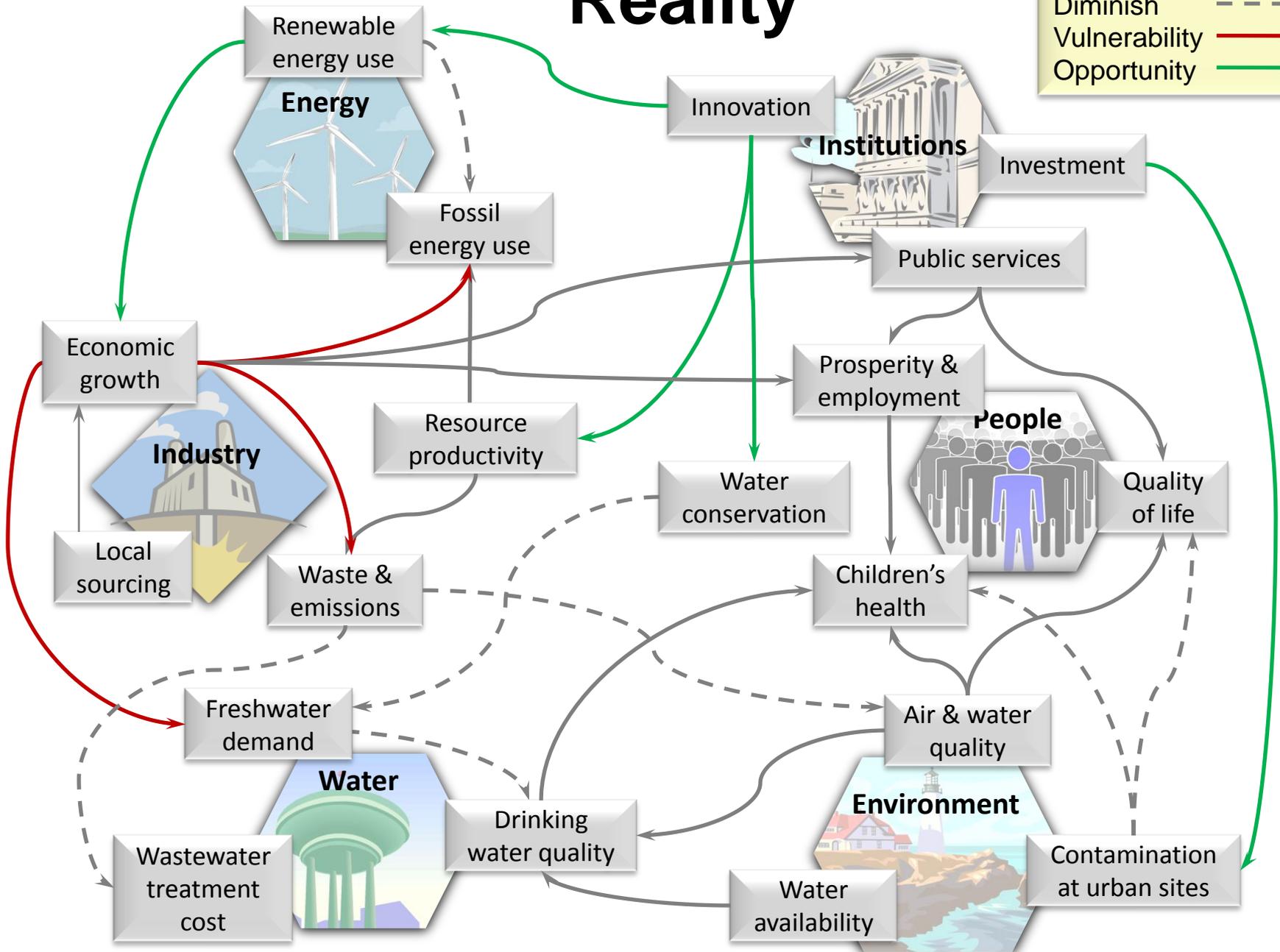
# Traditional Approach

## “Linear Thinking”

Study effects of x on y  
Regulate to reduce/remove  
“x” at the source



# Reality



## The Ceiling of Environmental Protection

Ecosystems and Humans are inextricably linked

Trans-disciplinary multi-media approach required

Decisions made in context of sustainability paradigm

- Economic & built capital (incl manufacturing, etc)
- Human capital and social institutions
- Environmental capital

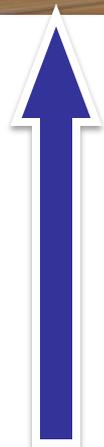
An iterative process managed by stakeholders

ORD is about providing the tools

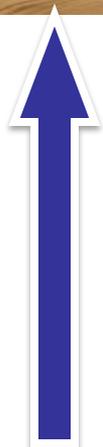


Public Participation;  
use of social media

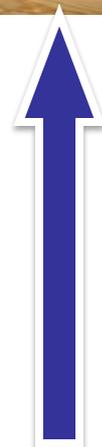
## The Floor of Environmental Protection



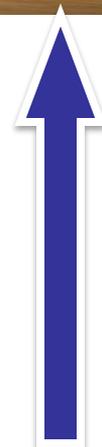
CAA  
CWA  
RCRA  
CERCLA



The 70 & 80's  
Command & Control  
Era

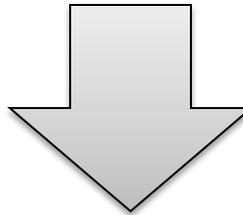


SDWA  
TSCA  
FIFRA  
MPRSA  
FFDCA



# Conceptual Framework

A Sustainable Community



← Role of Human Behavior?

---

Natural  
Capital  
Conserved

Community-  
level GDP  
Increases

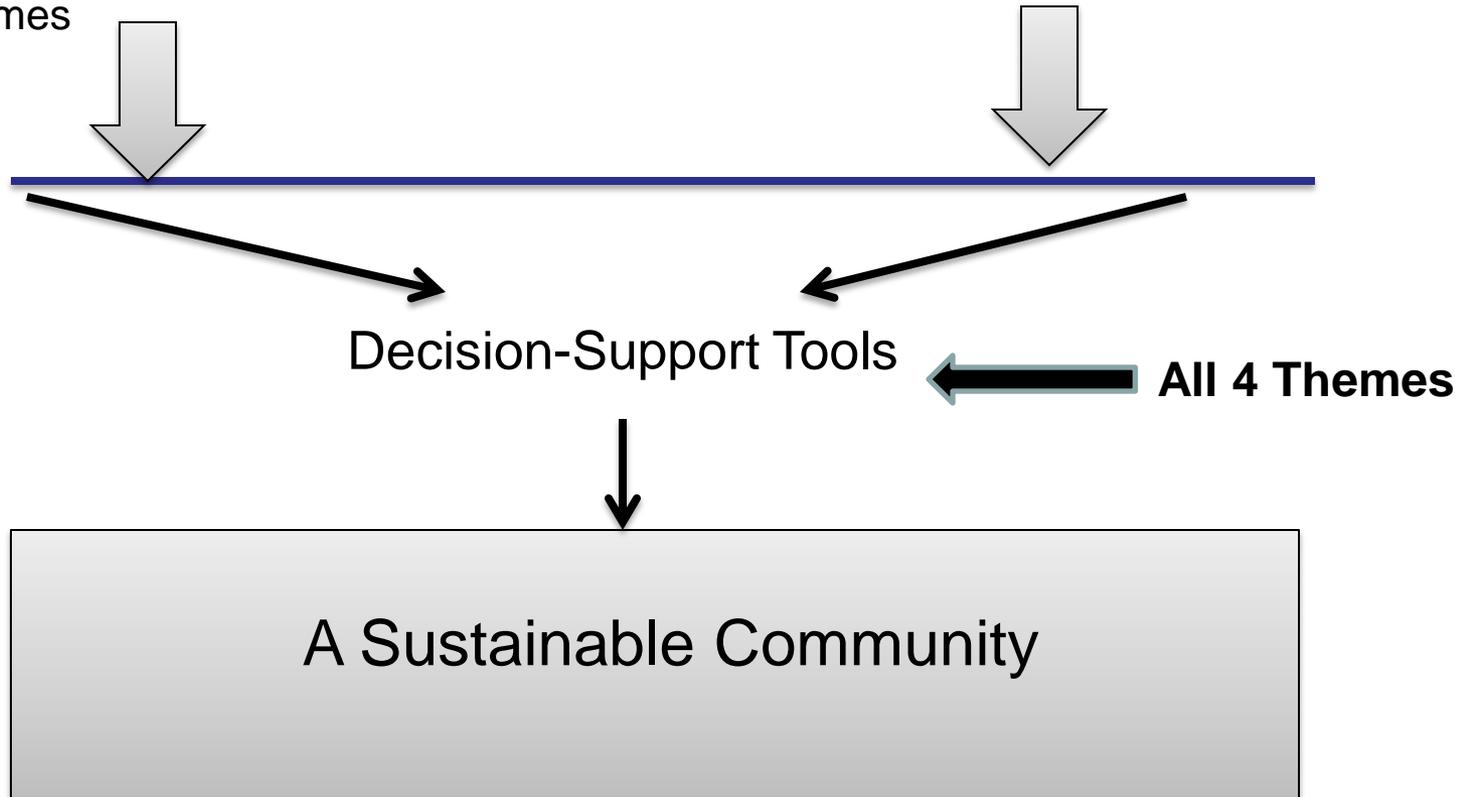
Better Health  
Outcomes

**Themes 1 & 2**

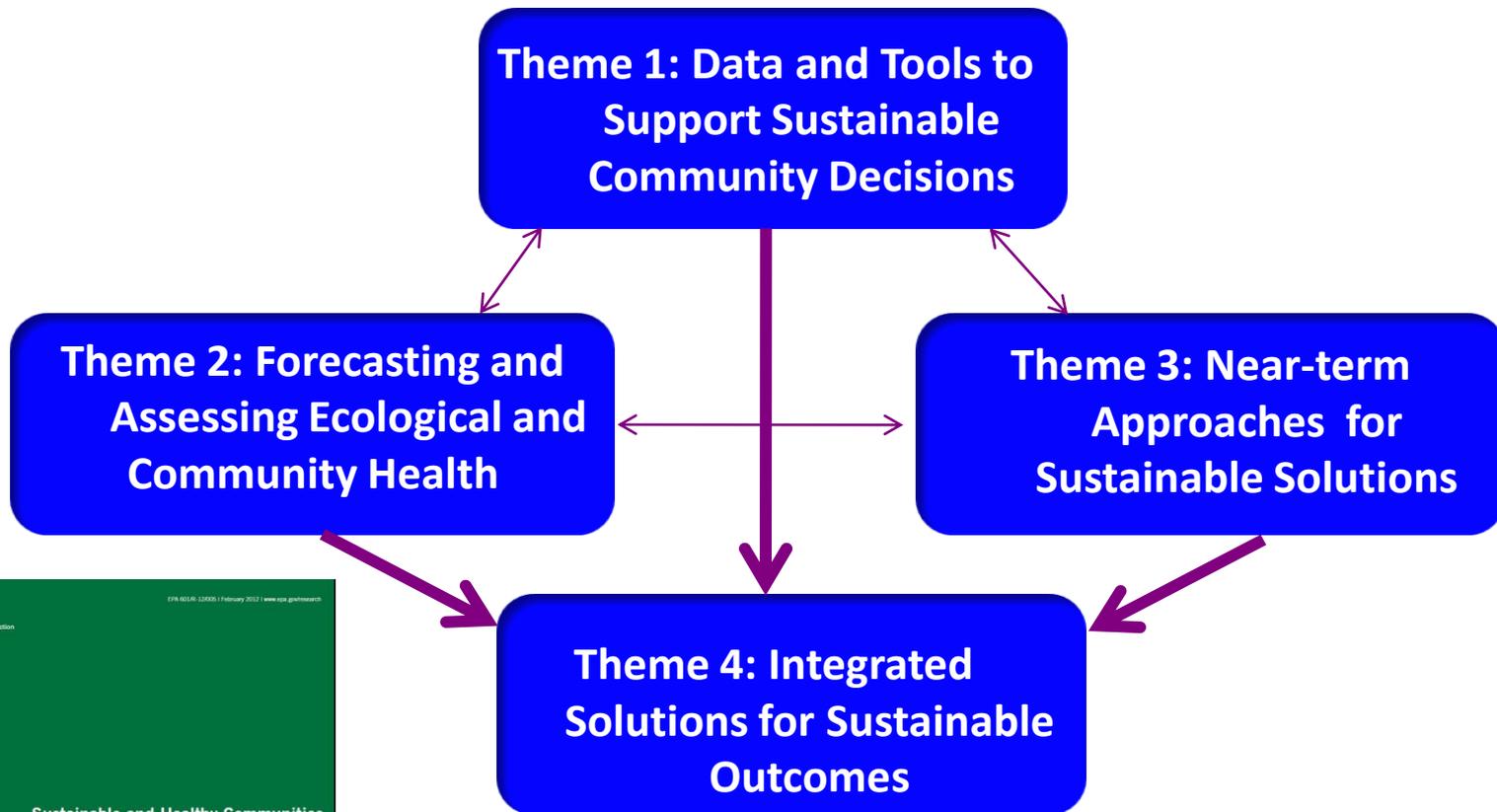
Information needed to create a more sustainable future, e.g., the **Atlas** to inform management of natural capital and the built environment and public health outcomes

**Theme 3**

Information needed to safely manage past contamination and avoid future contamination through redesign, re-use, and recovery of waste and materials



# Research Designed Around 4 Themes



As described in the Strategic Research Action Plan 2012-2016

# Theme 1

## Data and Tools to Support Community Decisions

Framing Sustainable Decisions & Enhancing Collaboration  
Information Science, Innovation and Evolved Stakeholder  
Engagement

Community Engagement

Existing & New Tools (models, methods, frameworks)

Indicators and Indices

National Atlas for Sustainability

Report on the Environment

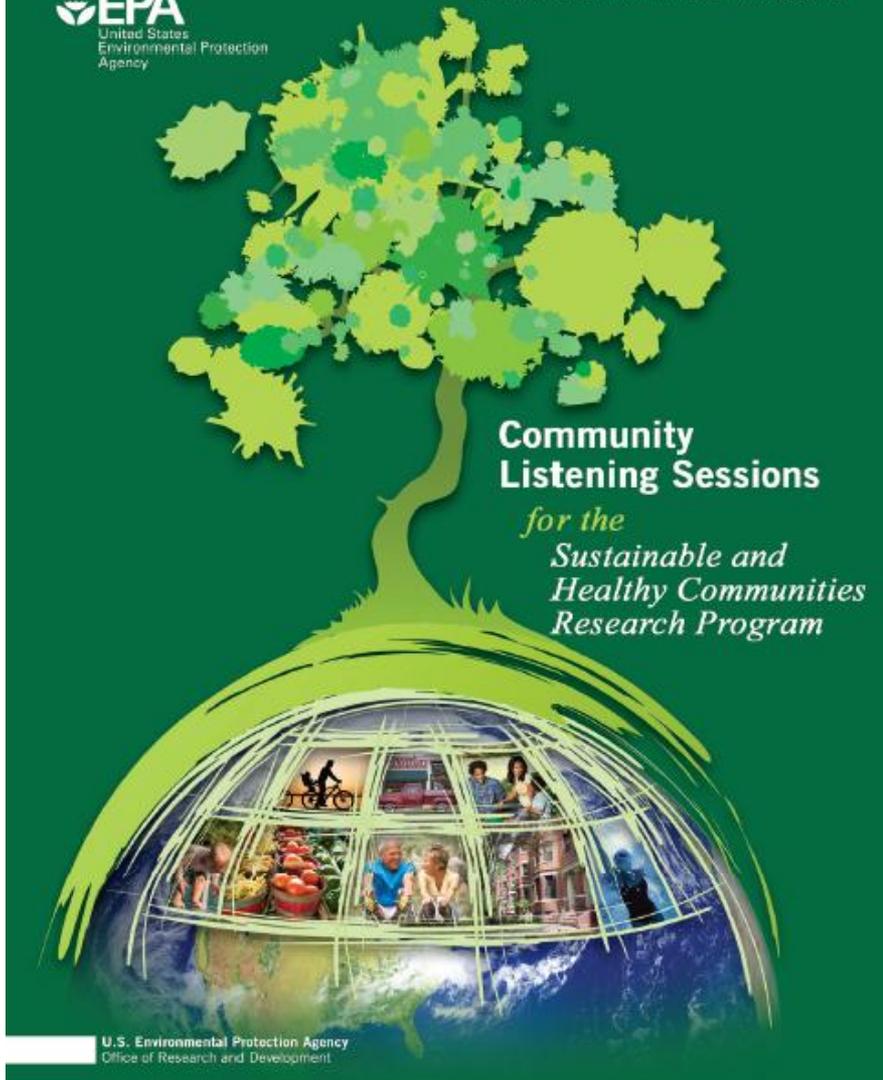


# Social Media site: JuliesEarth.org prototype

Italics  
Font  
indicates  
important  
progress

Spatial map for each e-hood; users can drop pins where they are working.

Programs and projects associated with this e-hood.



# Listening Sessions

Ashville, NC  
Boston, MA  
Milwaukee, WI  
Ogden, IA  
Spokane, WA  
Woodbine, IA  
Wyandanch, NY

Engagement of stakeholders  
and decision-makers

***Report to be released this  
summer; content already  
used in program design***

## Community Outreach in Action: Durham “Swap n Meet”

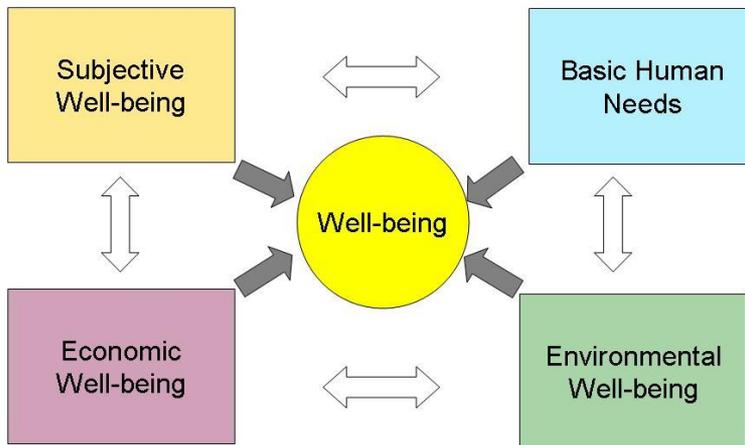
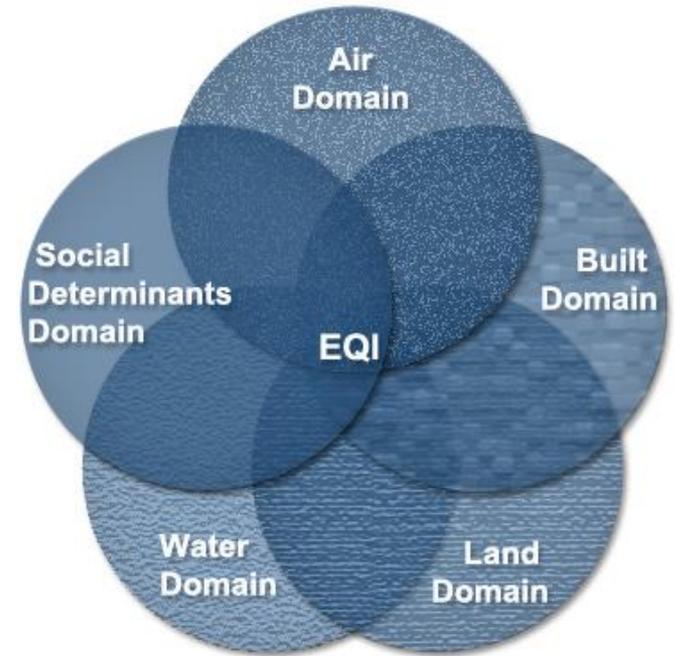
- EPA hosted a Science “Swap n Meet” in Durham, NC with Durham County and the City of Durham
- Brought together individuals, institutions, businesses, and organizations involved in sustainability-related work
- An event for these groups to meet and share ideas in a casual setting
- Goal: create a community, or “Sustainability Commons,” where different groups can collaborate toward advancing the environmental, social, and economic facets of sustainability

# Sustainability Indicators

Inventory and searchable data base of sustainability indicators

Development of indices to reflect components of sustainability, e.g. Environmental Quality Index, Human Well-being Index....

Development of new indicators to assess sustainability and track performance



***Beta version of a web-based relationship browser linking human well-being to environmental conditions***

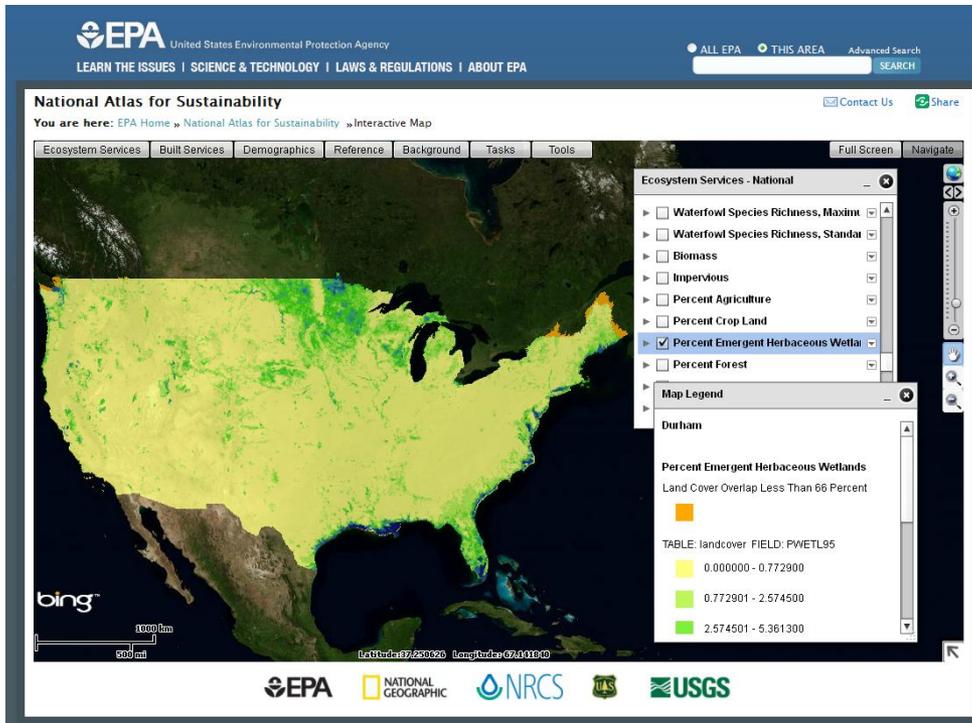
# Sustainability Indicators Database

The screenshot displays the Microsoft Excel interface with the 'Sustainability Indicators Database' spreadsheet open. The 'View' ribbon is active, and a 'Filter by Color' dialog box is open over the 'Scale' column. The dialog box shows a list of filter options, with 'Local/Region/National' and 'National/Community' selected. The spreadsheet data includes columns for Indicator, Source, Scale, Country/Region, Pilla, Source Theme, and ROE Topic. The status bar at the bottom indicates 'Ready 76 of 1627 records found' and 'Count: 77'.

Indicator	Source	Scale	Country/Region	Pilla	Source Theme	ROE Topic
Access to improved sanitation	UN	ENV-SOC	UN	ENV-SOC	Shelter	
Access to safe water	UN	ENV-SOC	UN	ENV-SOC	Shelter	Water
city product Indicator	UN	SOC-ECO	UN	SOC-ECO	Economic Development	
HIV prevalence Indicator	UN	SOC-ENV	UN	SOC-ENV	Social Development and eradication of poverty	Human Health
Houses in hazardous locations	UN	SOC-ENV	UN	SOC-ENV	Environmental Management	
Number of Poor households	UN	SOC-ECO	UN	SOC-ECO	Social Development and eradication of poverty	
Price of water	UN	SOC-ECO	UN	SOC-ECO	Environmental Management	Water
School enrollment	UN	SOC-ECO	UN	SOC-ECO	Social Development and eradication of poverty	
Women councilors	UN	SOC-ECO	UN	SOC-ECO	Social Development and eradication of poverty	
Solid waste disposal	UN	ENV	UN	ENV	Environmental Management	
wastewater treated Indicator	UN	ENV	UN	ENV	Environmental Management	Water
Literacy rates Indicator	UN	SOC	UN	SOC	Social Development and eradication of poverty	
Local government revenue	UN	ECO	UN	ECO	Governance	
citizens participation	UN	SOC	UN	SOC	Governance	
Homicides Indicator	UN	SOC	UN	SOC	Social Development and eradication of poverty	
Asthma Prevalence	US	SOC-ENV	US	SOC-ENV	Human Health	Human Health
Birth Defects Prevalence and Mortality	US	SOC-ENV	US	SOC-ENV	Human Health	Human Health
Blood Cadmium Level	US	SOC-ENV	US	SOC-ENV	Human Health	Human Health
Blood Cotinine Level	US	SOC-ENV	US	SOC-ENV	Air/Human Health	Air/Human Health
Blood Lead Level	US	SOC-ENV	US	SOC-ENV	Human Health	Human Health
Blood Mercury Level	US	SOC-ENV	US	SOC-ENV	Human Health	Human Health
Blood Persistent Organic Pollutants Level	US	SOC-ENV	US	SOC-ENV	Human Health	Human Health
Cancer Incidence	US	SOC-ENV	US	SOC-ENV	Human Health	Human Health
Cardiovascular Disease Prevalence and Mortality	US	SOC-ENV	US	SOC-ENV	Human Health	Human Health
Chronic Obstructive Pulmonary Disease Prevalence	US	SOC-ENV	US	SOC-ENV	Human Health	Human Health
Mortality	ROE 08	National/Regional/Local	US	SOC-ENV	Human Health	Human Health
Current Human Exposures Under Control at High-Priority	ROE 08	National/Regional/Local	US	SOC-ENV	Land	Land
Cleanup Sites	ROE 08	National/Regional/Local	US	SOC-ENV	Human Health	Human Health
General Mortality	ROE 08	National/Regional/Local	US	SOC-ENV	Human Health	Human Health
Infectious Diseases Associated with Environmental	ROE 08	National/Regional/Local	US	SOC-ENV	Human Health	Human Health
Exposures or Conditions	ROE 08	National/Regional/Local	US	SOC-ENV	Human Health	Human Health
Life Expectancy at Birth	ROE 08	National/Regional/Local	US	SOC-ENV	Human Health	Human Health
Low Birthweight	ROE 08	National/Regional/Local	US	SOC-ENV	Human Health	Human Health
Population Served by Community Water Systems with No	ROE 08	National/Regional/Local	US	SOC-ENV	Water	Water
Reported Violations of Health-Based Standards	ROE 08	National/Regional/Local	US	SOC-ENV	Human Health	Human Health
Preterm Delivery	ROE 08	National/Regional/Local	US	SOC-ENV	Human Health	Human Health
U.S. Homes Above EPA's Radon Action Level	ROE 08	National/Regional/Local	US	SOC-ENV	Air	Air
Urbanization and Population Change	ROE 08	National/Regional/Local	US	SOC-ENV	Land/Ecological Condition	Land/Ecological Condition

***A searchable database of sustainability indicators used at scales ranging from global to local***

# National Atlas for Sustainability



National, coast-to-coast ,  
scalable coverage of metrics for:

- ecosystem services
- built environment
- demographics
- drivers of change (e.g. pollution, population growth, development)

**Analytical tools to:**

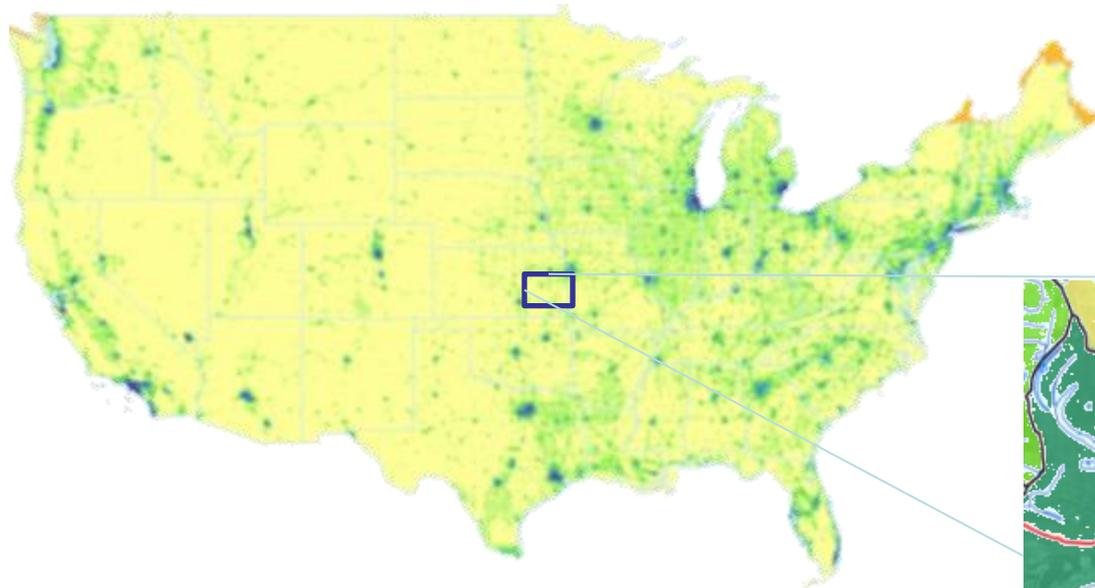
- screen
- compare
- assess
- evaluate scenarios

**Hi-resolution classification and analysis for 250 urban areas across country**

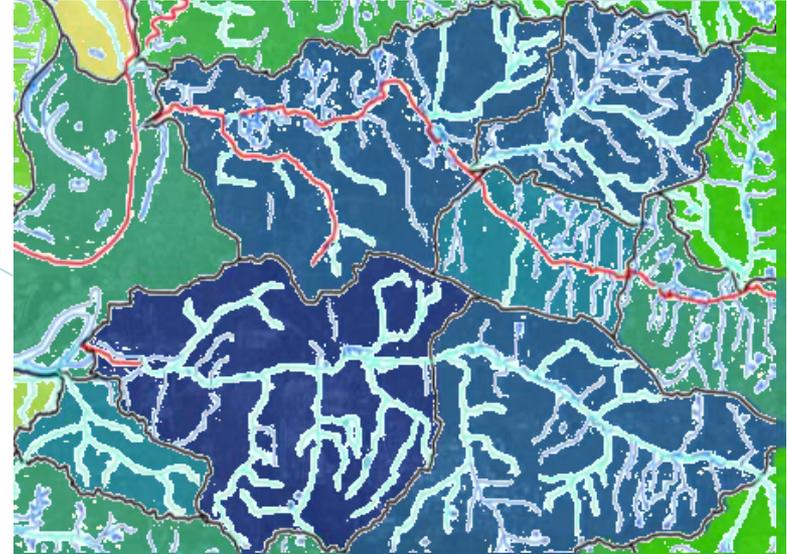
- linking ecosystem services to human health and well-being
- allowing queries on subpopulations of concern
- identifying actions to mitigate pollution and reduce energy costs



Aerial photograph of downtown Portland, ME, classified into open space (greens), impervious surfaces (pink), and water (blue)



Percent Impervious Surface, TMDL  
Streams, and Fish Consumption Warnings



Also includes:

Ecosystem Services: clean drinking water, recreation, aquatic habitat  
(biodiversity)

N sources: (fertilizer applications, atmospheric dep, point sources)

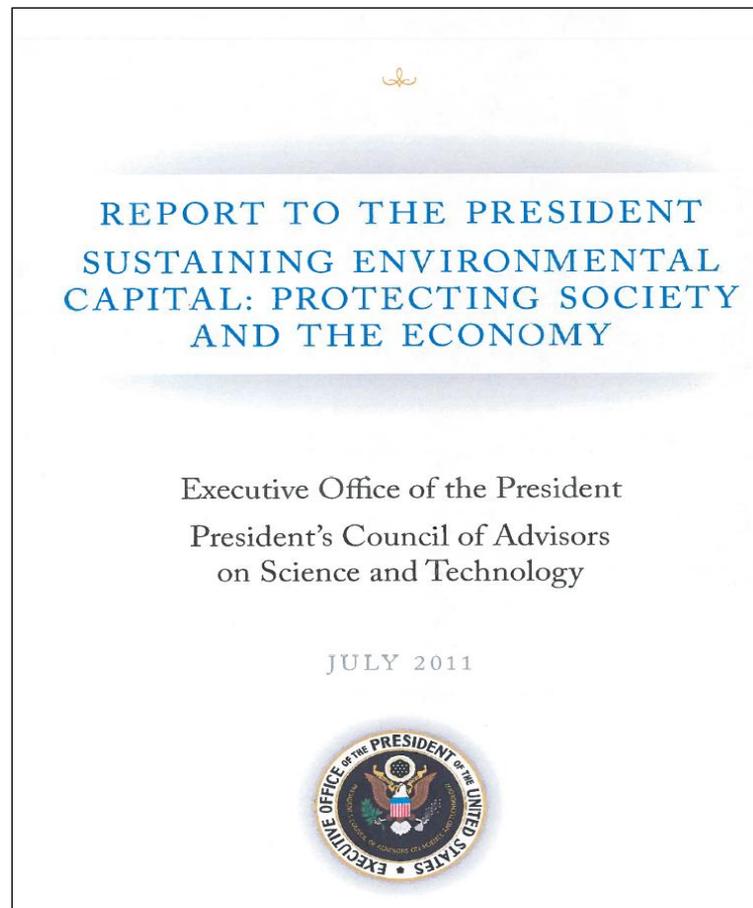
N sinks: wetlands, riparian areas, urban trees

N reduction opportunities: restorable wetlands, high N retention potential,  
etc.

# National Atlas and PCAST

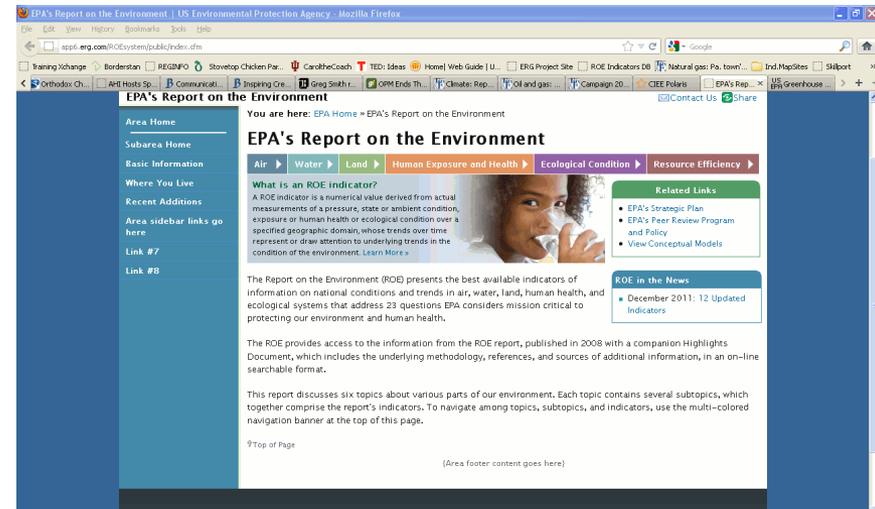
“NSTC establish an initiative to ensure that Federal datasets relating to environmental health—as well as supporting socio-economic and geophysical data relevant for ecosystem valuation and decision-making—are published in machine-readable, interoperable formats to facilitate use by various stakeholders, including academic researchers, community organizations, and public policy officials”

***National Atlas to be the Centerpiece of NSTC EcoINFORMA Initiative***



# Report on the Environment

- Indicators and trends
  - Chemicals
  - Coastal Waters
  - Consumable/Shellfish
  - Contaminated Land
  - Drinking Waters
  - Fresh Waters
  - Greenhouse Gases
  - Ground Water
  - Health Status
  - Human Disease and Conditions
  - Human Exposure
  - Indoor Air Quality
  - Land Cover
  - Land Use
  - Outdoor Air
  - Regional Indicators
  - Wastes
  - Wetlands



<http://www.epa.gov/roe/>

## Progress for ROE 2012

- **Introducing Sustainability theme and indicators for the first time**
  - **Intensity indicators on energy, wastes, and water**
  - **Additional indicators beyond 2012**
- **ROE 2012 goes green—fully web-hosted**
  - **Dynamic website interface with interactive, customizable graphics and mapping**
  - **Systems-level conceptual framework with a sustainability focus**
  - **Latest data posted on a continuing basis**

## Theme 2

# Forecasting and Assessing Ecological & Community Health

## **Quantifying Production and Valuation of Ecosystem Goods and Services (EGS)**

- Classification and Indicators for EGS
- EGS Production and Benefit Functions
- Community-Based EGS research
- Placed-based and thematic EGS research

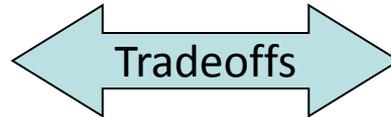
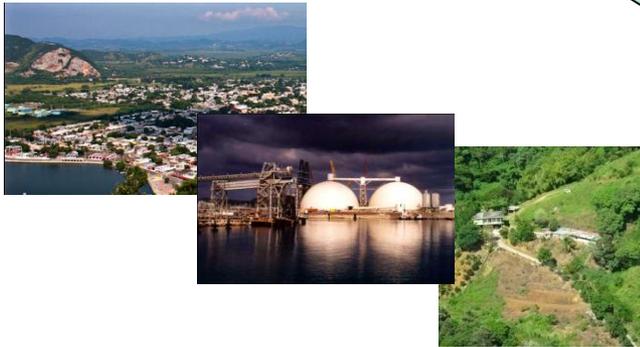
## **Improving Human Health and Well Being for Community Sustainability**

- Enhancing Community Public Health
- Enhancing Children's Health
- Securing and Sustaining Environmental Justice

# Community-Based and Regional EGS

maximize social, environmental and economic benefits

## Land Use Decisions



## Coastal Ecosystem Services



Characterize watershed objectives  
Characterize land use change & hydrology  
Evaluate threat & management options  
Elicit stakeholder values  
Test alternate decision scenarios

Assess coastal condition & dynamics  
Quantify coastal ecosystem services & production functions  
Assess value of coastal services  
Evaluate sustainability

***Valuation of EGS for Tampa Bay, FL***  
***Current state of the science of EGS provided by wetlands***

# Enhancing Community Public Health

- Public Health Conditions
- Environmental factors related to key health outcomes  
*Report on factors affecting health outcomes from wildfire*
- Public health indicators linking exposure to outcomes
- Methods & models for assessing cumulative risk  
*Report on approaches to cumulative risk*
- Community-based decision support tools  
*Beta version of C-FERST & T-FERST*  
*Community Cumulative Assessment Tool (CCAT)*
- Lessons Learned and stakeholder feedback
- Tribal Research (STAR)

# C - FERST

- Community-Focused Exposure and Risk Screening Tool
- Also for Tribes (T-FERST)
- A web-based decision-support tool for community-based and community-driven environmental assessments
- Being developed and tested in collaboration with the Regions and community partners
- Incorporates and automates community guidance, such as the CARE Roadmap and Protocol for Accessing Community Excellence in Environmental Health (PACE-EH)
- Provides access to information for identifying and prioritizing environmental issues
- Generates community reports
  - fact sheets, maps, and a table of available local data
  - Web links to sustainable solutions and best practices generated by communities



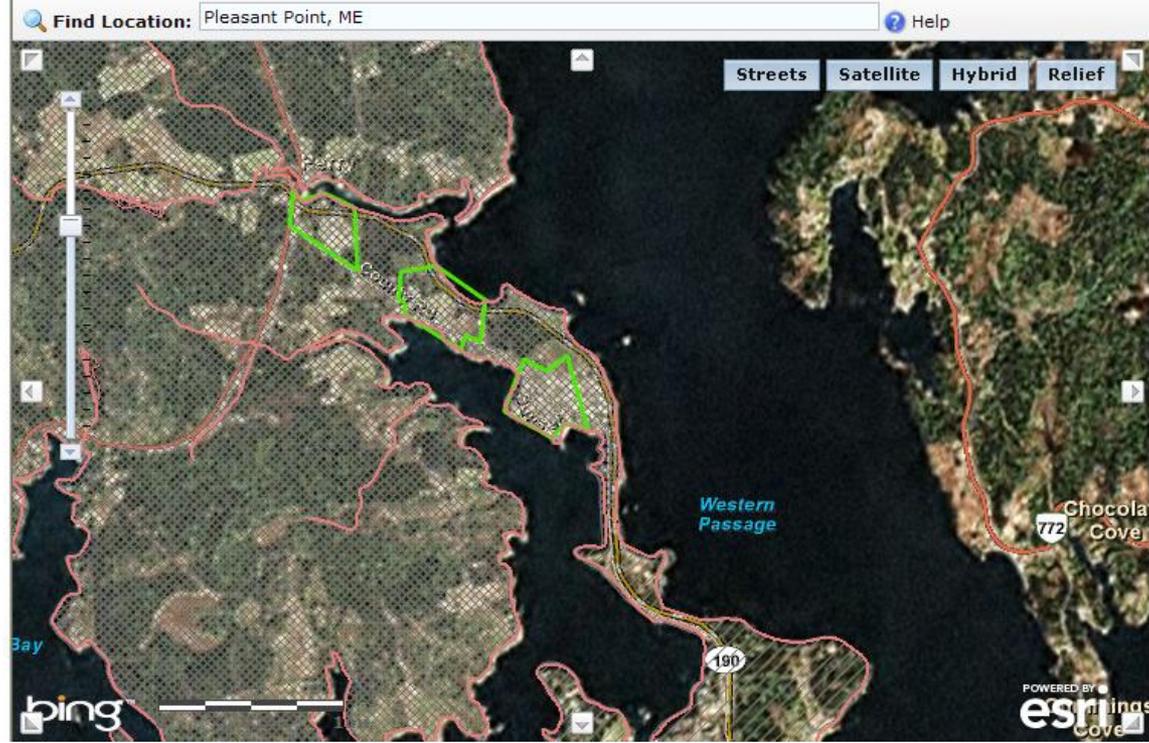
# Tribal-Focused Exposure and Risk Screening Tool

Recent Additions | Contact Us Search:  All EPA  This Area

You are here: [EPA Home](#) » [T-FERST](#) » View Exposure/Risk-Related Maps

To add your local data to the map, see the "Add Local Data" tab to the right of the map.

Example: [Local Maps](#) | [Methods for Measuring Local Exposures](#)



Fish consumption advisories and %Tribal population below poverty level

Dietary exposure modeling (e.g., using EPA SHEDS-Dietary model), with local fish tissue concentrations and tribal fish consumption data as inputs, can inform tribal risk reduction decisions.

T-FERST Home

USE T-FERST FOLLOWING COMMUNITY GUIDANCE

-- OR --

SELECT INDIVIDUAL OPTIONS:

Consider/Identify Environmental Issues

Access Factsheets for Issues of Concern

Visualize Exposure / Risk-Related Maps

Generate Environmental Issue Profiles

Prioritize Your community's Issues

Explore Potential Solutions

Access Other Community Tools

Provide Feedback / Contact US

About T-FERST

# Enhancing Children's Health

- Factors affecting children's exposures
- Health effects from early life exposures
- Holistic systems-based approaches to children's health
- Children's Centers (STAR joint with NIEHS)
  - *RFA open through July 17 for new & renewing Centers*
- Green Schools (STAR)
- Child care environments (STAR)



# Sustaining Environmental Justice

- Transdisciplinary Centers of Excellence with NIM on fundamental determinants of health disparities (STAR)
- Cumulative risk and impacts of social stressors (STAR)
- Capacity building for community-based participatory research
- Support for EPA's Plan EJ2014 Objectives
  - Supplemental issue of AJPH from EPA's 2010 symposium on disproportionate health risks*

## Theme 3

### Near-term Approaches for Sustainable Solutions

Contaminated sediments

Vapor Intrusion

Restoring Contaminated Land

Releases of Oil & Spills

Contaminated Groundwater

Beneficial Use of Waste

Energy from Wastes

Construction and Demolition Waste

Coal Combustion Residues

Sustainable Decisions about Nitrogen

## Site Cleanup & Beneficial Use

- Contaminated Sediments

*Report on New Bedford Harbor long-term monitoring*

- Vapor Intrusion

*Report on seasonal variations of indoor radon & VOC*

- Management of contaminated groundwater

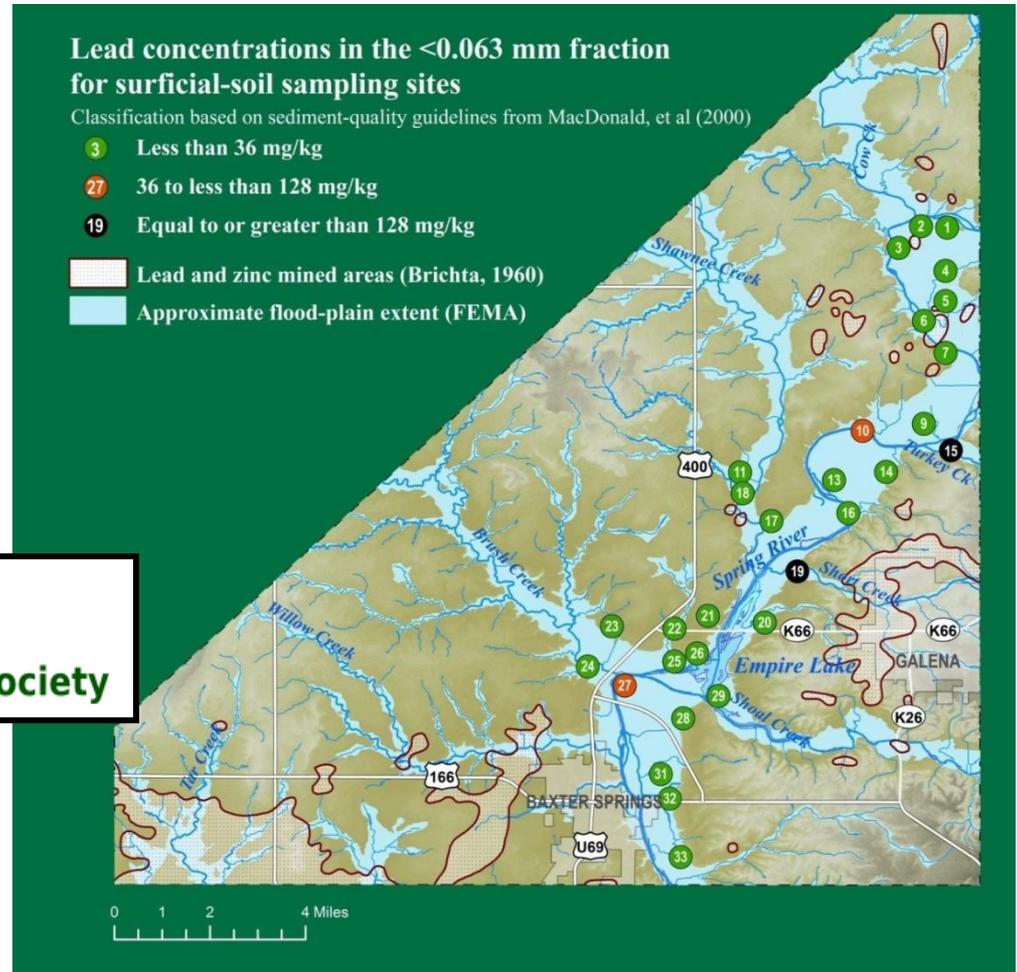
*Aquifer vulnerability to leaking underground storage tanks*

- Coal Combustion Residues

*Report on efficacy of concrete-bound coal combustion residue*

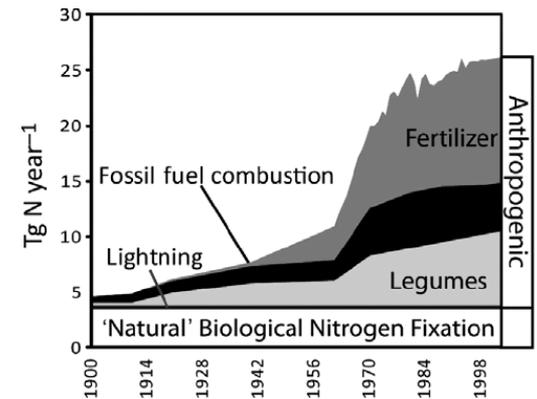
# Site Cleanup & Beneficial Use

- Restoring contaminated land – Collaborating with Region 7 to apply a new decision framework to a Superfund site impacted by mining contamination



# Near-Term Approaches for Nitrogen

- Sustainable Decisions, Reactive Nitrogen, & ecosystem services
- Mapping nitrogen sources and impacted ecosystems
  - Nitrogen input maps at various levels of resolution*
  - N critical loads and ecosystems to inform NAAQS*
- Management Tools and Case Studies
  - Report on the social, environmental, and economic characteristics of nitrogen management*
- Restoration of floodplains and N retention



# Theme 4

## Integrated Solutions for Sustainable Outcomes

The state of the practice for 4 sectors

Materials & waste management

Transportation alternatives

Buildings and Infrastructure (including energy and water)

Land Use decisions

Methods to assess Total Resource Impacts and Outcomes (TRIO) associated with community decisions – both prospectively to inform & retrospectively to track progress

Systems models to identify options for multiple benefits

Collaborative Proof-of-Concept: Durham, NC

# SHC's Systems Approach

Characterize  
the System

Assess Options

Enhance  
Practices

Learn by Doing

- Scope, context, structure
- Stakeholders
- State problem and desired outcomes
- Identify stressors, barriers, and solution options

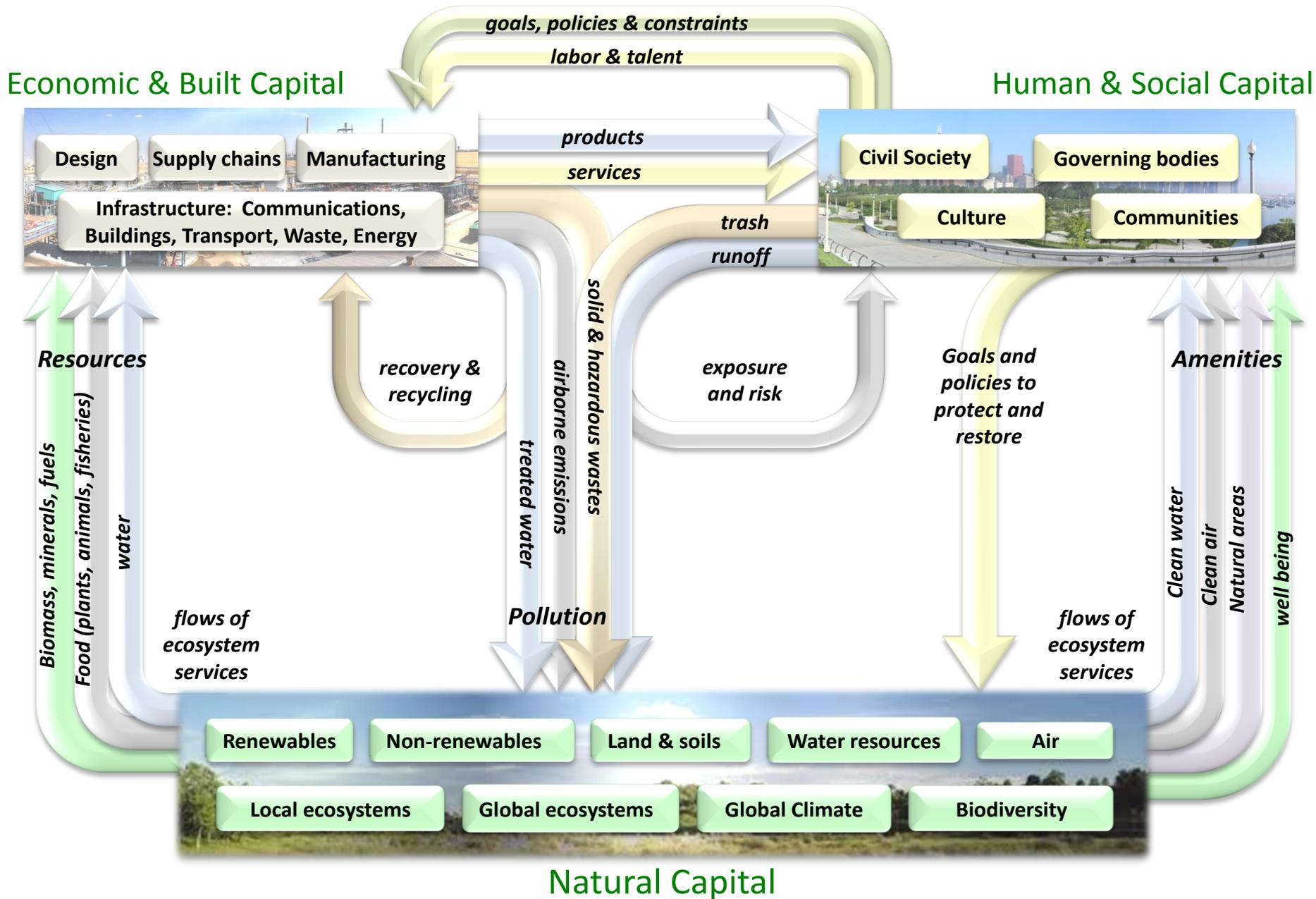
- Select indicators
- Assess baseline
- Evaluate options: via synergies, risks, trade-offs (TRIO)
- Assess knowledge gaps

- Assess likely outcomes
- Decide priorities
- Select options

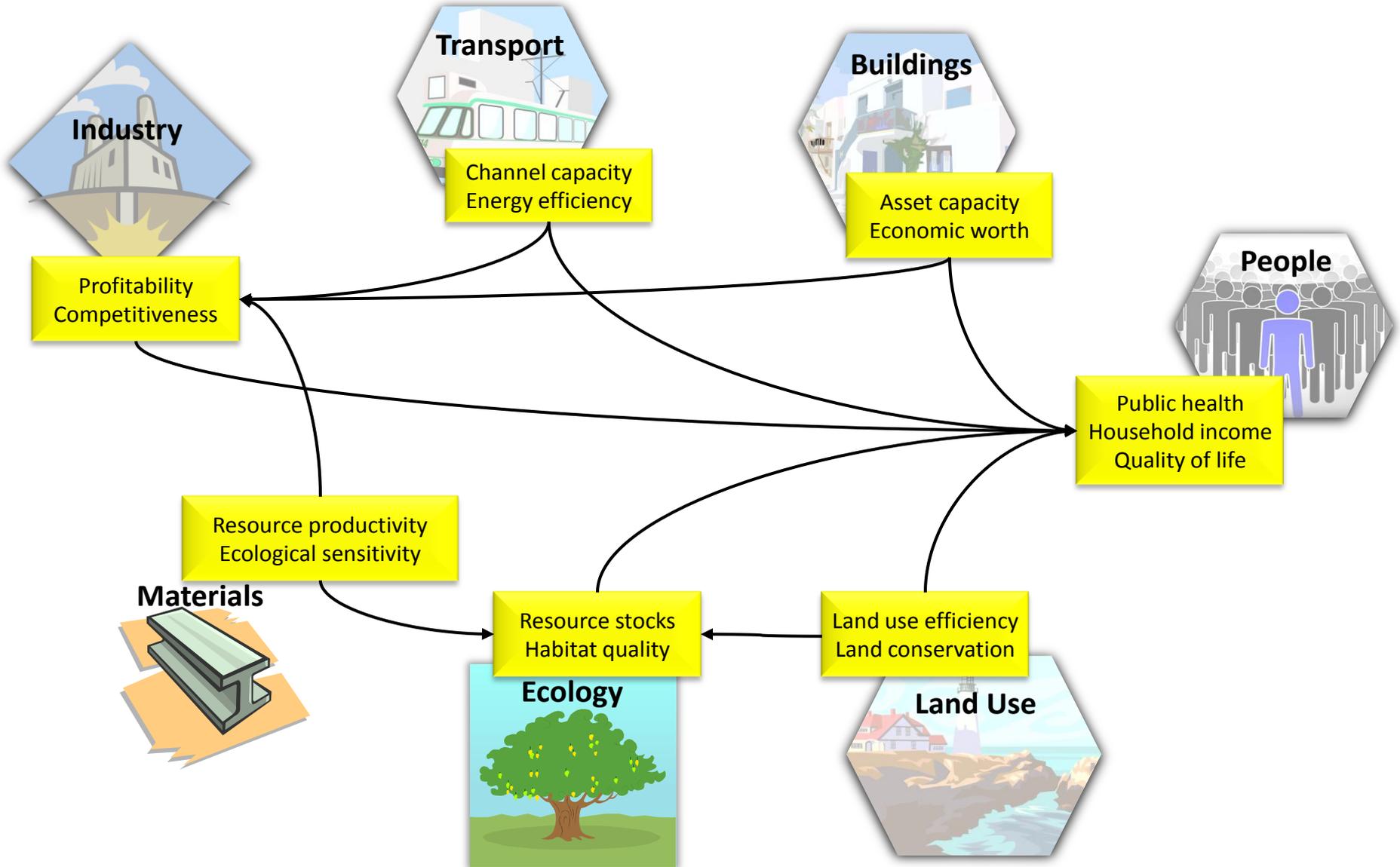
- Track progress
- Respond to problems,
- Refine practices

← Stakeholder Involvement →

# Systems Framework: Stocks & Flows Among the Three Pillars



# Summary of Linkages Among Indicators



# Sustainability activities undertaken by Local Governments\*

## Major activity area

## Local govts. reporting one or more activities (%)

• Recycling	90%
• Transportation improvements	82
• Reducing building energy use	81
• Energy use in transportation and exterior lighting	72
• Local production and green purchasing	68
• Water quality	62
• Building and land use regulations	58
• Social inclusion	58
• Greenhouse gas reduction and air quality	52
• Land conservation and development rights	44

The data show that community interest is high, but means for developing coordinated strategies are few -- e.g., the average rate of adoption for *full range of possible actions* is 18%

\* Data from 2010 Survey of local governments conducted by the International County and Municipality Association and IBM report and sent to approximately 9,000 local governments in the US. There were 2,167 respondents.

# Innovation

- Durham Pilot – heat island study
- Pathfinder Innovation Projects (PIPs)
- Social media to engage stakeholders
- America COMPETES Act
  - Apps and sensors
  - e-cycle my city
- Small Business Innovation Research



# Key Deliverables for FY 12

Inventory of available sustainability indicators in a searchable database

Report on the valuation of ecosystem goods and services for Tampa Bay, FL

Report on current state of the science of ecosystem goods and services provided by wetlands

Report detailing role of community socio-economic status, built environment, clinical care, health behavior and health outcomes in determining the susceptibility to adverse health events following exposure to wildfire

Report on use of integrated tools to support cumulative assessments about community and tribal health and ecosystem functions for use in environmental decision-making

A Web-based Community Cumulative Assessment Tool (CCAT) for defining community problems and solutions; created in partnership with the Risk Assessment Forum publicly available in beta form for review and testing

A supplemental issue of the American Journal of Public Health containing a collection of 15 papers resulting from the EPA's 2010 symposium on factors leading to disproportionate health risks

# Key Deliverables (continued)

- Journal report on The New Bedford Harbor Long-term monitoring program (1993 – 2009)
- Report on the fluctuation of Indoor Radon and VOC Concentrations Due to Seasonal Variations
- An issue paper on aquifer vulnerability to contamination from L.U.S.T. sites
- Report on the efficacy and performance of coal combustion residue materials bound in concrete
- Report that maps nitrogen inputs to the US at several levels of resolution
- Report synthesizing policy and management tools for reducing nutrients that identifies the social, environmental, and economic characteristics of sustainable nitrogen management
- Report on nitrogen deposition critical loads, sensitive ecosystems and biota, and connections to ecosystem services for informing the review of National Ambient Air Quality Standards (NAAQS)
- Release of the 2012 version of the e ROE

# Response to BOSC/SAB Review of June 2011

- Draft framework is vague & lacks focus; the 3 themes unclear
  - Improved conceptual thinking
  - Framework substantially clarified as Portfolio was developed
- Clearer vision in providing assistance to communities; better definition of communities & decision-makers
  - Communities and stakeholders now succinctly defined
  - Selection of new community studies to be guided by a community typology and clear categories of case types and objectives
  - Listening sessions in 7 communities
  - Durham pilot
  - Place-based studies in EGS & community health
  - Use of social media to engage decision-makers
- Need to catalyze & complement ecosystem science outside EPA
  - SHC Atlas as a major component of EcoInforma in response to PCAST report

# Response (continued)

- Better linkage to EPA Regions
  - RESES competition (Regional Sustainable Environmental Science Program)
  - Place-based work (EGS & C-FERST) coordinated through Regions
  - Working with Smart Growth & Science Liaisons in Regions
- Need for metrics to evaluate program
  - ORD working on metrics across all programs
  - Sustainability indicators
  - Report on the Environment
- More Innovation Needed
  - Durham Pilot – heat island monitoring
  - PIP projects
  - e-cycle my city open source challenge
  - Apps & sensors
  - Net Zero with US Army

# Most Important Progress since last Summer?

Modifications to the program

Integration within and across

Writing a Strategic Research Action Plan

Learning roles & responsibilities of a matrix

Reaching out to stakeholders

# Charge Questions

# General Charge Questions

## **1. FIRST YEAR PROGRESS**

The Strategic Research Action Plans were developed during 2011, with the benefit of SAB and BOSC advice [*Office of Research and Development (ORD) New Strategic Research Directions: A Joint Report of the Science Advisory Board (SAB) and ORD Board of Scientific Councilors (BOSC)*]. (EPA-SAB-12-001)].

**Charge Question: How are the ORD research programs progressing in the first year of implementation? Are the research activities planned for FY 13 and future years appropriate for answering the science questions in the Strategic Research Action Plan?**

## **2. SUSTAINABILITY**

The SAB and BOSC concluded in the October 21, 2011 report that “...ORD’s research frameworks can advance EPA’s adoption of sustainability as a core principle by more consistently and clearly describing where and how ORD research relates to sustainability.”

**Charge Question: How are ORD programs contributing to sustainability through their research plans and activities? What advice does the SAB and BOSC have for each research program about advancing sustainability in future research?**

### **3. BALANCING IMMEDIATE PROGRAM NEEDS AND EMERGING ISSUES**

Meeting program and regional needs is a primary objective of ORD research. The highest priority needs of the programs tend to be those that are most immediate. Another important role for ORD is to anticipate the future scientific needs of the programs and regions, areas of research that tend to get less support from the EPA partners. Anticipating emerging issues and investing in innovative approaches that could lead to more sustainable, less expensive or timely solutions often requires longer term and potentially higher risk research. The Strategic Research Action Plans strike a balance in addressing current priorities and future science needs; however, new emerging issues will likely arise that are not currently anticipated.

**Charge Question: As we consider science for the future, while budgets continue to shrink, how should ORD balance its commitments in the Strategic Research Action Plan with the need to advance science on emerging issues?**

# Charge Questions Specific to SHC

The Sustainable and Healthy Communities Research Program incorporated a number of diverse research elements (e.g., ecosystem goods and services, human health outcomes, waste and contaminant remediation, environmental indicators) in building a research program focused on supporting community decision-making.

The SHC Strategic Research Action Plan aims to provide science-based research and tools to assist communities in evaluating their decisions from a sustainability perspective.

**Q 1. What advice can the SAB/BOSC provide to help ensure this research and these tools will most effectively support communities?**

The SHC's fourth theme intends to integrate within specific sectors for which communities are making decisions: transportation, land use, buildings and infrastructure, and waste and materials management.

**Q 2. Does the Committee agree that this fourth theme that integrates across decision sectors improves on the design of SHC? If so, what are the most important implementation questions that ORD must address?**

**Q 3. Does the Committee feel that SHC has the appropriate balance of breadth and depth in its design?**

**3 (a) If out year budgets continue to shrink, what areas should SHC maintain as the primary areas of focus?**

**3 (b) Can the committee recommend areas that SHC should invest in if budgets increase?**