

# July 2012 SAB/BOSC Meeting

Robert Kavlock, Ph.D

Deputy Assistant Administrator for Science

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# From Planning to Implementing



- National Program Directors on board
- Strategic Research Action Plans completed
- FY 2012 research underway
- Ongoing meetings with EPA Partners
- National Program Directors to meet with new Regional Leads in August
- Formal Updates for EPA Assistant Administrators in September
- Interacting with federal partners



# Today's Review of Strategic Directions

- Materials provided for the meeting
  - Science for a Sustainable Future - Research Program Overview
  - Six Strategic Research Action Plans, and six powerpoint handouts
  - Five examples of research integration
  - Background on innovation efforts
- Today
  - Plenary presentations on integration examples and innovation
  - Breakout group discussions on each of the 6 programs
- ORD guidance for the research programs in FY13
  - Stay the course with strategic directions
  - Continue emphasis on outreach and communication with partners
  - Focus on meeting product commitments



# Products Expected from ORD Research

## ORD committed to 93 products for the 2012 EPA Annual Performance Report

Program	Examples
Air, Climate and Energy	<ul style="list-style-type: none"> <li>• Analysis of cookstove pollutant emissions of gases and PM</li> <li>• Methods assessing VOC and GHG emissions from oil and gas</li> <li>• Report on cardiovascular effects associated with exposure of humans to ozone</li> </ul>
Safe and Sustainable Water Resources	<ul style="list-style-type: none"> <li>• National Coastal Condition Assessment</li> <li>• State of epidemiological research on mountaintop mining</li> <li>• Use of biological treatment for ammonia control</li> </ul>
Sustainable and Healthy Communities	<ul style="list-style-type: none"> <li>• Inventory of available sustainability indicators in a searchable database</li> <li>• Report on the valuation of ecosystem goods and services for Tampa Bay, FL</li> <li>• Release of the 2012 version of the Report on the Environment (eROE)</li> </ul>
Chemical Safety for Sustainability	<ul style="list-style-type: none"> <li>• Completion of high-throughput screening datasets of first 1000 EDSP21 chemicals, and ToxCast Phase II chemical library</li> <li>• Evaluation of PCB encapsulants</li> <li>• Sign agreement w/an industrial partner for sustainable supply chain research</li> </ul>
Human Health Risk Assessment	<ul style="list-style-type: none"> <li>• Dioxin (noncancer) IRIS assessment</li> <li>• Ethylene oxide IRIS assessment</li> <li>• Rapid Risk Assessment for PAH mixtures</li> </ul>
Homeland Security	<ul style="list-style-type: none"> <li>• Brief on Decontamination Technologies for Biological Agents</li> <li>• Need to Know: Anticipating the Public's Questions During a Water Emergency</li> <li>• Provisional Advisory Levels (PALs) for 12 Chemical Contaminants</li> </ul>

## Advice on the Research Programs

- **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?**
- **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?**

# SAB & BOSC Comments

## October 2011 & May 2012

- **Strong support** for ORD's consolidation and realignment of research programs and marked increase in transdisciplinary coordination and collaboration across ORD, and EPA broadly.
- All six programs will help EPA promote sustainability. Each program should include **sustainability** as part of its research vision and identify clear metrics for assessing progress toward sustainability goals.
- Efforts to foster **innovative research** are notable. ORD should develop metrics to evaluate contributions of innovation activities.
- The success of ORD's new research directions will depend upon **implementation** - – need to transparently describe research goals and activities.
- Increased emphasis on **social, behavioral and decision sciences** within ORD is needed.
- More explicit and transparent exposition of the processes and activities that implement **integration and coordination** across programs.

# Integration into Six Programs

Former ORD Research Structure	Integrated ORD Research Structure
Global Change Research	<b>Air, Climate &amp; Energy</b>
Sustainability Research	
Clean Air Research	
Human Health and Ecosystems Research	
Drinking Water Research	<b>Safe and Sustainable Water Resources</b>
Water Quality Research	
Human Health and Ecosystems Research	<b>Sustainable and Healthy Communities</b>
Pesticides & Toxics Research	
Sustainability Research	
Fellowships	
Land Research(Excluding Nanotechnology)	
EDCs Research	<b>Chemical Safety for Sustainability</b>
Computational Toxicology Research	
Human Health & Ecosystems Research	
Human Health Risk Assessment (NexGen)	
Pesticides & Toxics Research	
Land Research (Nanotechnology)	
Clean Air Research (Nanotechnology)	
Sustainability Research	
Human Health Risk Assessment	<b>Human Health Risk Assessment</b>
Homeland Security	<b>Homeland Security</b>

# Integrating within ORD Programs

For example:

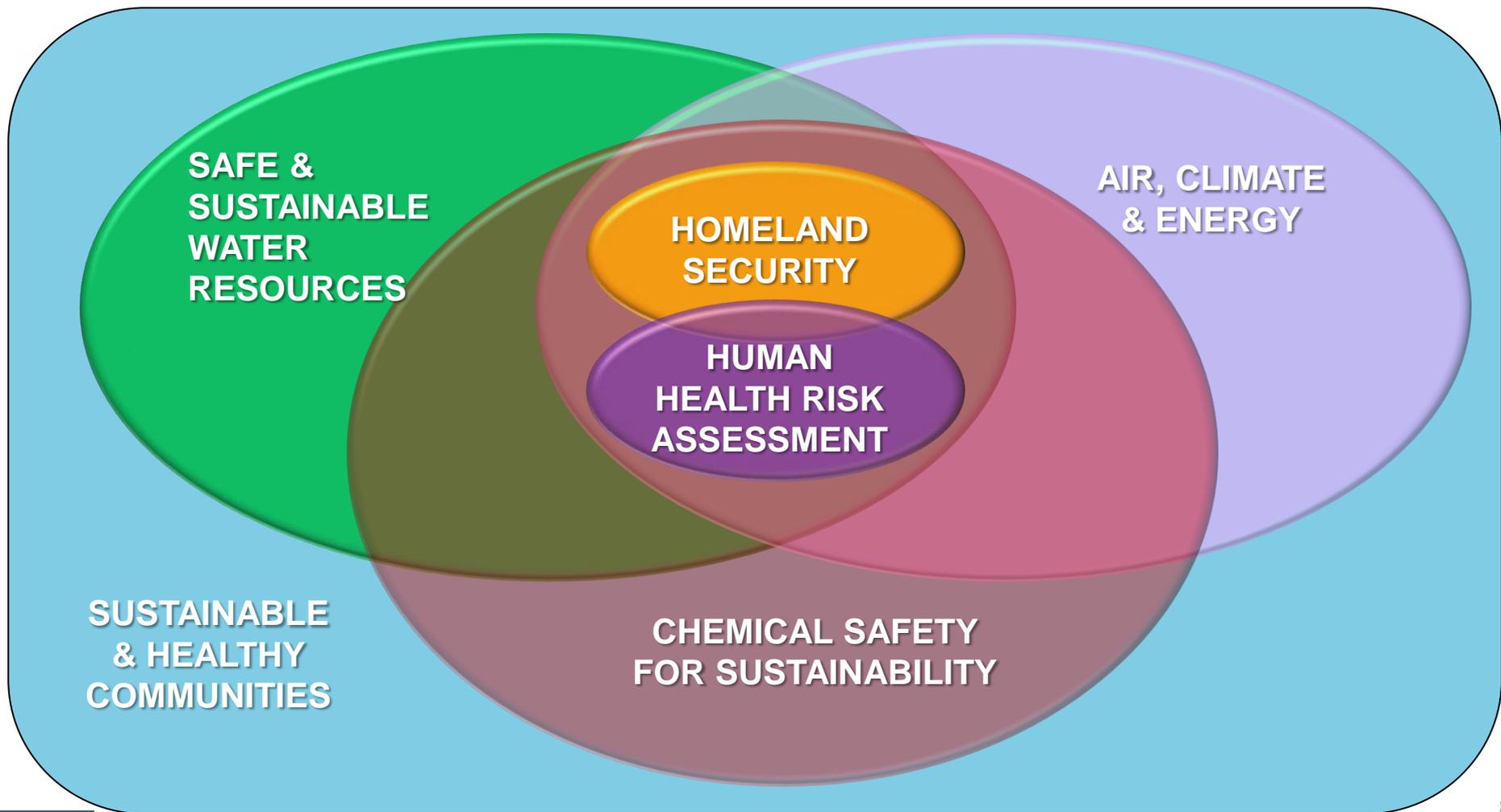
## **Air, Climate and Energy**

- Previously: Clean Air; Biofuels; Global Change
- Now: One integrated research program with three cross-cutting themes
- Example: Analyzing trade-offs and synergies of air quality policy on climate change

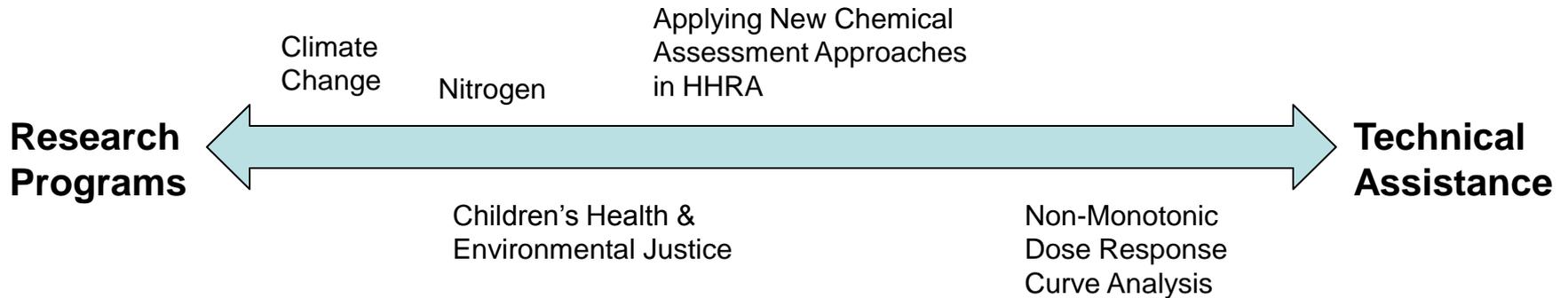
## **Chemical Safety for Sustainability**

- Previously: Comp Tox; Nanomaterials; Endocrine Disruptors
- Now: One integrated research program with eight cross-cutting themes
- Example: Using EPA's ToxCast and ExpoCast to integrate considerations of hazard and exposure for screening existing and emerging materials such as EDCs and nanomaterials for potential to cause harm to human health and the environment.

# Integrating across Research Programs



# Integrating across ORD Research Programs



- Striving for balance between effectively integrating cross-cutting issues, but not creating additional, stand alone research programs
- Examples highlight efforts that range from broad agency-wide interest to more focused technical assistance; from more experience with research integration to early effort

# Advice on Cross-Program Integration

## Recent Progress

- Senior staff assigned to facilitate integration on selected topics
- Hiring post-docs to work specifically in areas where they can enhance integration efforts
- Six NPD teams meet weekly, enhancing cooperation

- **Charge Question: Based on the presentation of five integrated topics, what advice can the SAB and BOSC provide to help ORD succeed in integrating research across the ORD programs? How can different approaches to integration help us achieve our research goals?**

## Focus on Sustainability

Our six research programs support EPA and others in making environmentally sustainable decisions

- Research results, analytical tools and models all contribute to informing sustainable decisions
- Emphasizes a systems approach to environmental issues
- Research helps decision makers quantify and value all three dimensions of sustainability: environment; society and economy.
  - Awareness that EPA decisions must comply with statutory criteria for decision-making, (e.g., whether or not to take costs into account)



## Response to SAB/BOSC comments on Sustainability

- Adopted a consistent definition of sustainability
- Revised our STRAPs to reinforce sustainability in the vision for each program
- Commitment to support priority research important to sustainability
- In the process of considering *Green Book* recommendations

*“to create and maintain conditions, under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic, and other requirements of present and future generations.”*

-- National Environmental Policy Act, 1969

# National Atlas for Sustainability

The Atlas is a tool to foster consideration of ecosystem services as part of the full accounting process informing decisions that will affect sustainability

- Provides communities with a suite of interactive maps showing indicators of ecosystem services production, demand, and drivers of change
  - clean water for drinking, recreation, aquatic habitat; adequate water supply; food; fuel and fiber; recreation; cultural and aesthetic amenities; contributions to climate stability; protection from hazardous weather; maintenance of biodiversity; and clean air
- Contains measures related to transportation, land use, building infrastructure, and waste and materials management
- Provides geographically explicit data, including a high resolution analysis for selected communities
- Part of multi-organization effort, with USGS, USDA, and others
- First public release scheduled for 2013

# 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



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

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

- linking ecosystem services to human health and well-being
- Allowing queries on populations of concern
- Identifying actions to mitigate pollution and reduce energy costs

# Increasing Emphasis on Social and Decision Sciences

- Plans for internal EPA workshop in Fall 2012 with ORD and the EPA's National Center for Environmental Economics to pursue partnerships and collaboration on economics, behavioral sciences and decision analysis support
- Several social scientists already hired in ORD labs and centers
- Beginning to support research programs with Post-Doc positions and AAAS fellows
- Recent STAR RFAs incorporate social science research
  - Sustainable Chesapeake: A Community-Based Approach to Stormwater Management Using Green Infrastructure
  - Jointly with NIH: Centers of Excellence in Health Disparities

## Advice on 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??**

## Advice on Innovation

- Many Innovation activities ongoing
  - Next presentation
- Special focus this year on integrating these efforts into the fabric of the National Research Programs
- **Charge Question: How can ORD's initial innovation activities be improved to ensure continued and long term benefits for EPA? Are there useful experiences and lessons from other research organizations about managing innovation? What guidance can the SAB and BOSC provide for ORD in developing metrics that would be most effective in assessing the success of our innovation efforts?**

## Moving Forward

- Moving full speed ahead with a bold vision, new leadership positions and budget realities
- SAB and BOSC advice is very helpful in guiding us in the initial stages of these programs
- As we move forward with implementation, our plans are to establish a BOSC advisory group to for each research program for continuity and focused advice and guidance.