

Summary points for charge questions from breakout group on “Safe and Sustainable Water Resources” and “Homeland Security” research frameworks

June 30, 2011

Charge Question A: alignment with strategic goals

How well do ORD’s research programs align with the strategic program priorities identified by EPA’s National Program and Regional Offices? If resources allow, what are areas for increased emphasis? If resources decline, what areas might be appropriate for decreased emphasis?

- There is alignment of the SSWR and HSRP research frameworks with strategic goals and an effective prioritization process for identification of research focus areas.
- The integration of the drinking water and water quality research programs is a very positive development and will provide important new synergies, e.g., with respect to water treatment technologies relevant to drinking water, wastewater, and stormwater; evaluation of microbial risks; evaluation of aquifer storage and recovery for water supply)
- The prioritization process was integrated with development of the research frameworks, which involved engagement with a wide range of stakeholders.
- It will be important for SSWR to continue to engage with wide range of stakeholder groups, including EPA program offices and regions
- The HSRP has developed effective ongoing engagements with numerous stakeholders and partners, including a formal program of continuous partner engagement.
- If budget cuts require effort reductions, the prioritization process now in place should enable determination of what can be cut while ensuring that SSWR and HSRP continue to meet highest priority needs.
- The HSRP is not as far along in developing their framework as SSWR.
- Regions that have natural disasters can help with identification of research needs for HSRP in unique ways.
- The HSRP is well positioned to address natural disasters and is doing so in some ways already. The HSRP should consider expanding research and capabilities in relation to natural disasters. There appear to be important needs and opportunities in several areas, including climate change and adaptation.

Charge Question B: coordination of research programs

How can ORD enhance coordination among its research programs, and better ensure that they complement each other?

- Interdisciplinary collaboration and research coordination across all areas could be strengthened by development of community of practice “core” teams, e.g., communication, decision tools, and modeling, that are engaged with all six programs
- Cross-program research topics such as the efforts related to nitrogen and climate are a good vehicle for research coordination and building of interdisciplinary culture. Additional cross-cutting research topics should be explored in the future, such as multiple stressors, measures of ecosystem function, ecosystem services, energy, and green infrastructure.
- Community of practice “core” groups could be important contributors to most of the cross-program research projects.
- The HSRP model of coordination within and outside agency can be a model for other areas.
- The readily apparent increase in the amount of communication between the NPDs and lab directors for development of the research frameworks is a very positive development, including with respect to coordination of research programs.
- Formal mechanisms to promote networking among internal researchers could help improve research coordination. Examples of such mechanisms include “speed dating,” use of social network technology, co-location of researchers, and exchange programs.

Charge Question C: consistency of research directions with sustainability

How well do ORD’s proposed research directions reflect its commitment to sustainably protecting human health and the environment?

- The SSWR topics were clearly formulated with the sustainability theme as guide.
- The linkage of the HSRP topics with sustainability is not as transparent, but the overall HSRP objective of helping communities become more resilient is the sustainability link. This should be explained in the introduction of the HSRP research framework.
- Because of both the policy and social aspects of sustainability, explicitly integrating social science and behavioral research into the research frameworks is important to demonstrate commitment to the sustainability theme.
- It’s good that ORD is aligning its programs to build a sustainability-oriented culture within EPA. Integration of the sustainability theme across the agency, especially in the program offices, will require sustained attention.

Charge Question D: integration of six programs

How do the six programs fit together as an integrated environmental research strategy, charged with informing the nation's most-critical environmental issues? Are these programs positioned to address the nation's highest priority, emerging environmental issues in the coming years?

- A committee of cross-program futurists, with representatives from each program, would be helpful to identify emerging issues. The committee could consult with the BOSC, SAB and other EPA groups and external stakeholders.
- It would be helpful to develop a SWOT-type team to address examine emerging issues (e.g., fracking, nuclear contamination), and identify expertise that needs to be assembled to start understanding the issue.
- Need formal mechanisms to provide safeguards that ORD is on top of emerging issues.
- In considering mechanisms to develop responses to emerging issues, look back at examples of how EPA has responded to emerging topics such as nanomaterials, the BP oil spill, etc. Identify which processes worked and which were not effective.
- Integration of the six programs can be strengthened by cross program research efforts. Multiple stressors, measures of ecosystem function, green infrastructure, ecosystem services, and energy are potential cross-cutting topics in addition to nitrogen and climate.

Charge Question E: leveraging and collaboration with external research

Based on Board members' familiarity with efforts in the broader scientific community, how well do ORD's research programs appear to catalyze and complement environmental science programs elsewhere? What suggestions do the members have for how EPA's research programs could improve upon their leveraging with those of others?

- It is important for ORD to build on and expand external collaborations, including international collaborations. Large scale environmental issues with aspects outside the domain of EPA authorities require external collaborations. Also, EPA does not have the resources to go it alone on many large-scale issues.
- ORD should explore aggressively creative new ways of under-taking inter-agency collaborations. New paradigms for collaboration should be considered.
- There are some good models of EPA collaboration to learn from and build upon, e.g., FERN, SERDP, Chesapeake Bay Program.
- There are numerous opportunities for engagement with USDA/NRCS and leveraging of their programs, e.g., on the Mississippi River Healthy Basins Initiative, on rural programs for small communities, on animal feedlot management programs, etc.
- ORD could effectively use formal mechanisms to promote networking with external researchers, just as in promoting greater internal collaboration. Examples of such

mechanisms include social network technology, co-location of researchers from different agencies (e.g., Chesapeake Bay), and exchange programs among agencies.

Charge Question F: stimulating innovative research

Based on Board members' familiarity with efforts in the broader scientific community, how well do ORD's research programs appear to catalyze and complement environmental science programs elsewhere? What suggestions do the members have for how EPA's research programs could improve upon their leveraging with those of others?

- ORD having a Chief Innovation Officer is very positive and bold.
- Pathfinder Innovation Program (PIP) is a creative and important initiative.
- ORD should consider a multi-agency PIP.
- ORD should consider implementing several awards for innovation
- The SBIR program should be used carefully to support innovation goals within ORD, especially in relation to technology development.
- The Technology Cluster initiative and STAR grants targeted to innovation are important.

Charge Questions on Social, Behavioral, and Decision Sciences

- Social science issues permeate all of the priority research topics for SSWR and HSRP. Social science research should be integrated in all of the programs in explicit ways.
- Important areas of need for social science research in ORD are: (i) Economic models to improve understanding of behavioral change and influence of incentives, (ii) economic analyses of potential solutions to environmental challenges (including, e.g., various forms of green technology) to ensure their sustainability, (iii) improved understanding of behavior and decision making; and (iv) understanding how public officials can communicate on environmental issues more effectively.
- In research on how public officials communicate about environmental issues and make decisions on environmental issues, there is good opportunity for investigation through case studies.
- There is also a need to understand how science is communicated to public officials by EPA and environmental professionals from other agencies and organizations.