



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460**

**OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD**

May 5, 2009

EPA-SAB-09-013

The Honorable Lisa P. Jackson
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Subject: Science Advisory Board (SAB) Comments on EPA's Immediate Science Needs

Dear Administrator Jackson:

It was a great honor to meet with you in February and to introduce you to the SAB. As you know, the SAB is a multi-disciplinary, multi-sector board of experts that provides independent objective scientific advice to you to assist and inform you in decision-making. We are pleased to welcome you as the leader of the US Environmental Protection Agency and to your role as the nation's chief environmental protection official. We thank you for your April 21, 2009 letter responding to the SAB's advisory report on EPA's strategic research vision. We are pleased it reaffirms your commitment to science as the backbone of the Agency's practice as well as to scientific integrity and the clear articulation of EPA's policy judgments and actions in ways that account for knowledge gaps and scientific uncertainties. We look forward to working with you in the coming years as the nation addresses its most critical environmental issues.

Since 1979, the SAB has provided independent advice to EPA Administrators on a wide range of scientific and technical topics, especially key EPA scientific assessments, models, guidelines, and research plans. It has become increasingly apparent that for EPA to respond successfully to the changing nature of the nation's environmental problems, EPA should improve its science program, including an emphasis on research that develops the knowledge and methods to assess and manage environmental problems. The Office of Research and Development (ORD) "transformation initiative" that you mention in your letter will be a key part of gaining the knowledge that we now lack on many of the large, and as we are increasingly learning, connected environmental problems faced by the nation and the world.

The issues identified in the following paragraphs highlight key observations that the SAB has made during interactions with EPA over many years. At our recent SAB retreat we highlighted some key issues, identified in the paragraphs below, that we felt you should consider as early as possible as part of the EPA science program. It is very reassuring that some of these

were mentioned in your April 21st letter. However, we state them again because the SAB believes they are foundational to a transformed EPA research program that meets the needs of a more complex view of human and environmental health. The ordering of these issues does not imply any particular prioritization.

- **EPA should increase its efforts to address issue evaluation and management in an integrated manner that recognizes the complexity of the world in which the problems occur.**

As your letter recognizes, we now see more clearly than ever that human health and environmental problems are interrelated, are often associated with multiple stressors, and often involve exposures from more than one medium. Although such complexity makes designing effective solutions ever more challenging, the SAB believes effective integration of the science is the key to generating knowledge essential for credible science-based decision-making. This message was certainly emphasized in the SAB “Reducing Risk” report of 1990ⁱ, the SAB’s 2000 report “Toward Integrated Environmental Decision Makingⁱⁱ,” as well as in a recent National Research Council report, “Science and Decisionsⁱⁱⁱ,” that addresses risk assessment in decision-making.

- **EPA should support new research frameworks to overcome barriers that now limit development of knowledge of integrated environmental problems and their solutions.**

As you suggest, through its strategic planning process, EPA has already begun to design a program to conduct integrated multidisciplinary research on complex environmental issues. However, if integration is to be more than a slogan, EPA must expand its investments in new interdisciplinary research fields that will require sustained financial commitments in order to be successful. The SAB stands ready to provide the external scientific perspectives and advice necessary to assist in this transformation.

- **EPA should move to restore the budget for research and development in order to maintain the U.S. as an international leader in environmental protection.**

The SAB understands the challenges raised by the current state of the economy. EPA must commit to establishing a research base that will make it possible for the nation to acquire the knowledge needed to address the difficult environmental problems that we now face and which will only grow in complexity and magnitude in the future. Examples of such challenging issues include urban sustainability and the built environment; land use, renewable energy, water resources and climate change; materials management and human health; and the wise conservation of resources.

- **EPA should develop more robust partnerships and innovative approaches to supporting cutting-edge research and development, both domestically and internationally.**

Your letter notes that EPA has long worked with other organizations on environmental issues. Because of its unique role as an agency established to provide overarching consideration and management of the nation's environmental problems, EPA should take a leadership role in advocating for an even richer cooperative and collaborative approach to learning about and solving complex environmental problems. Therefore EPA should seek new and innovative opportunities to expand the ways in which it both supports R&D and cooperates with government and other organizations, including those in the international arena.

- **Research and operational capacity in the social sciences should be augmented.**

Decision, Behavioral and Social Sciences are critical to framing, designing and implementing EPA decision processes and to the effective and credible resolution of environmental problems. These sciences are key elements in effective problem formulation, risk characterization, benefits evaluation, and to engaging with citizens and stakeholders on needed actions on these problems.

- **EPA should take the lead in assessing the environmental and health implications of energy and climate change policies.**

Energy and climate change issues stand out in their importance to the nation's and the world's well-being. The EPA should be the nation's lead agency in analyzing the human health and environmental implications of energy and climate change policies and guiding the country to optimal strategies.

Members of the SAB look forward to discussing our initial recommendations in this letter with you at your earliest convenience. We plan to provide more specific advice regarding longer-term science needs as the result of the study that I discussed with you recently aimed at strengthening EPA's risk assessment practices in a more integrated way. We intend to report to you on that study in 2010.

Sincerely,

/Signed/

Dr. Deborah L. Swackhamer
Chair
US EPA Science Advisory Board

ⁱ US EPA SAB (1990) *Reducing Risk: Setting Priorities and Strategies for Environmental Protection*, SAB-EC-90-021, September 1990. The SAB recommended that EPA target opportunities for the greatest risk reduction and that a stove-pipe approach to environmental protection was no longer suited for use in addressing real world environmental problems.

ⁱⁱ US EPA SAB (2000) *Toward Integrated Environmental Decision-Making*, EPA-SAB-EC-00-011, April 2000. In this report, the SAB reinforced its call for a more integrated approach to environmental management noting that a “...focus on assessing and controlling chemical contaminants pollutant by pollutant in single media has resulted in a regulatory system that is neither systematic nor comprehensive,” and which “...can be inefficient both in reducing the major burdens of environmental impacts on human health and ecosystems and in allocating society’s resources in the face of multiple demands on limited budgets.”

ⁱⁱⁱ National Research Council (2009) *Science and Decisions Advancing Risk Assessment*, Committee on Improving Risk Analysis Approaches Used by the U.S. EPA., Board on Environmental Studies and Toxicology. reinforces the call for integration in its framework for risk-based decision-making that imbeds risk assessment within a phased process that links assessment to existing real-world conditions and the ultimate use of the assessment itself in managing that risk.