



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

**OFFICE OF THE ADMINISTRATOR  
SCIENCE ADVISORY BOARD**

March 7, 2014

EPA-SAB-14-005

The Honorable Gina McCarthy  
Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

Subject: Science Advice and EPA Priority Topics

Dear Administrator McCarthy:

After reflecting on your remarks at the December 4-5, 2013 meeting of the chartered Science Advisory Board (SAB) and the comments received from other senior agency leaders at that time, the Board has identified several areas where science advice would be helpful in advancing the agency's mission. This advice can come in the form of early consultations, reviews, short commentary letters, or original studies. For each of the areas below, the SAB suggests some of the opportunities that external science advice can provide.

Climate change – adaptation and mitigation

In your December 2013 remarks you were clear that addressing climate change is a top priority for the agency. Following the Board's discussion with you, members had a robust conversation with the EPA's senior leadership and senior scientists about science and research supporting the agency's climate adaptation and mitigation efforts. Informed by those discussions, the SAB can be a resource on a wide range of related scientific and technical topics.

It will be important to integrate climate change considerations into agency assessments of human health risks and ecological risks (including impacts on biodiversity) and to clearly communicate the results of such assessments. The Board can provide advice and peer review on innovative frameworks for risk assessments that consider climate change factors and on individual high-profile assessments that must consider the effects of climate change.

The Board also can assist the agency in prioritizing among science and research activities relating to adaptation and mitigation. The Office of Research and Development (ORD) has recently asked the Board to provide additional advice on its strategic research action plans, including a new plan for the Air, Climate and Energy program. The SAB is particularly interested in the Climate Roadmap that ORD has developed in concert with other agency programs and expresses the desire to review that document

in detail this summer. The Board may also provide science advice to assist with regional and program adaptation plans and may be able to identify opportunities to leverage science and research being developed by other entities.

#### Scientific and technical aspects of sustainability and environmental justice

The SAB supports the EPA's policy of integrating the goals of sustainability and environmental justice into agency programs, decisions and actions. The agency has requested SAB peer review of the Draft *Technical Guidance for Assessing Environmental Justice in Regulatory Analysis* (May 1, 2013 Draft); this peer review is currently under way. In addition to this review, technical peer review is needed for related guidance, frameworks and tools, especially in the multi-disciplinary area of sustainability science. The SAB welcomes the opportunity to provide the review and science advice needed to institutionalize these important initiatives.

#### Risk assessment

Human health and ecological risk assessment are important tools for the EPA. The SAB looks forward to continuing to provide peer review to the agency on the chemical-specific human health toxicological assessments the EPA is developing as part of agency's Integrated Risk Information System (IRIS). The increased transparency and accountability of the IRIS program, and the agency's request for peer review by the new SAB Chemical Assessment Advisory Committee through the chartered SAB are important new developments.

Even as these chemical-specific assessments are developed, however, there is a need for new guidance and frameworks for the application of 21<sup>st</sup> century toxicology and exposure approaches. The SAB can assist in providing advice and peer review as the EPA develops these new approaches. Finally, the SAB can be helpful to the agency as it considers how to access, learn from and further develop risk assessment communities outside the agency. Board members' experience with a broad range of professional associations and disciplines can help the agency build networks with risk professionals outside the agency.

#### Decision science

The SAB was particularly delighted by your interest in potential applications of decision science at the EPA. For many years, the SAB has recommended that the agency strengthen its capabilities in the behavioral and decision sciences. We would welcome an opportunity to provide advice that would illustrate how insights from decision sciences can help the agency structure complex decision making processes that may involve multiple stakeholders, conflicting goals and objectives, long planning horizons, and high uncertainty. Insights from the decision sciences may be used by the agency across a wide range of applications; these include regulatory rule making, agency priority setting, identifying indicators of environmental change, and decisions that may require formal tradeoff analysis. The SAB also could provide advice on how to develop empirically based and scientifically validated tools to help communities and individual decision makers untangle and structure complex problems and identify opportunities to make choices and implement actions that serve their long-term best interests.

#### Identifying future environmental challenges and opportunities

The SAB has a long history of engaging the EPA in discussion of future environmental challenges. In calling for the establishment of the EPA in 1970, the Ash Commission noted that "The environment,

despite its infinite complexity, must be perceived as a unified, interrelated system”<sup>1</sup> The Board has a strong interest in helping the EPA identify and characterize future environmental challenges and opportunities in an integrated manner. The Board’s report on integration of science into decision-making<sup>2</sup> and the report on reactive nitrogen flows, consequences and management options<sup>3</sup> are examples of the types of forward-looking and systems-based advice and guidance that the Board can provide.

#### Highlight the role of science in the EPA’s decision making

Finally, we note the central role that science has played in EPA decision-making from the beginnings of the agency. Again, the Ash Commission noted that an environmental protection agency must have capabilities “to conduct research on the adverse effects of pollution, to gather information on environmental conditions and use it in modifying programs or recommending policy changes.” The Board welcomes the opportunity to support the EPA through consideration of the science supporting actions in the agency’s regulatory agenda, peer review of scientific work products and other advisory activities. The SAB’s semi-annual consideration of the science basis for regulatory actions announced in the regulatory agenda, as well as individual SAB reviews of significant scientific and technical documents, provide public opportunities for the EPA to highlight its scientific processes. In these advisory activities, the SAB learns about and reviews agency efforts, takes public comment, and commends the science and research efforts of the agency where appropriate, while providing advice to strengthen such efforts, as needed.

The Board appreciates this opportunity to reflect on the strategic insights that you and other senior leaders provided in December. We hope that the significant topics that you identified for Board attention will develop into well-conceived advisory activities for the SAB. The SAB Staff Office is also exploring new processes to help the SAB be responsive to the agency’s evolving needs and priorities.

We look forward to your response regarding opportunities to engage with the agency on the priority topics in this letter.

Sincerely,



Dr. David T. Allen, Chair  
Science Advisory Board

Enclosure  
Roster of SAB Members

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<sup>1</sup> Ash, Roy L. et al. 1970. Memorandum to the President entitled “Federal Organization for Environmental Protection,” April 29, 1970. <http://www.epa.gov/aboutepa/history/org/origins/ash.html> (accessed 11/09/2011).

<sup>2</sup> U.S. Environmental Protection Agency Science Advisory Board. 2012. *Science Integration for Decision Making at the U.S. Environmental Protection Agency*. EPA-SAB-12-008. [http://yosemite.epa.gov/sab/sabproduct.nsf/8AA27AA419B1D41385257A330064A479/\\$File/EPA-SAB-12-008-unsigned.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/8AA27AA419B1D41385257A330064A479/$File/EPA-SAB-12-008-unsigned.pdf) (accessed 02/12/2014).

<sup>3</sup> U.S. Environmental Protection Agency Science Advisory Board. 2012. *Reactive Nitrogen in the United States: An Analysis of Inputs, Flows, Consequences, and Management Options - A Report of the Science Advisory Board*. EPA-SAB-11-013. [http://yosemite.epa.gov/sab/sabproduct.nsf/67057225CC780623852578F10059533D/\\$File/EPA-SAB-11-013-unsigned.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/67057225CC780623852578F10059533D/$File/EPA-SAB-11-013-unsigned.pdf) (accessed 02/12/2014).

## **NOTICE**

This report has been written as part of the activities of the EPA Science Advisory Board, a public advisory group providing extramural scientific information and advice to the Administrator and other officials of the Environmental Protection Agency. The Board is structured to provide balanced, expert assessment of scientific matters related to the problems facing the Agency. This report has not been reviewed for approval by the Agency and, hence, the contents of this report do not necessarily represent the views and policies of the Environmental Protection Agency, nor of other agencies in the Executive Branch of the Federal government, nor does mention of trade names or commercial products constitute a recommendation for use. Reports of the EPA Science Advisory Board are posted on the EPA website at <http://www.epa.gov/sab>.

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