

**U.S. Environmental Protection Agency  
Science Advisory Board  
Committee on Science Integration for Decision Making  
Preliminary Study Plan**

In response to an Agency request, the chartered Science Advisory Board (SAB) is undertaking a study to evaluate the extent to which EPA's scientific assessments are integrated into and for environmental decision making. To conduct this study, the SAB formed the Committee on Science Integration for Decision Making. The SAB committee held an initial public meeting on June 9-10, 2009 to develop its study plan. Subgroups of the SAB committee held subsequent discussions to develop the study objectives and refine the plan.

**Study Objectives:**

Since it is important that there is a common understanding of what is meant by science integration, the SAB Committee has adopted the definition as described in the SAB 2000 report. "Integrated decision-making approaches should draw upon concepts and methods originating in many different scientific, technical, and scholarly fields (e.g., physical and biological sciences, public health, environmental engineering, political science, social science, philosophy, and economics), as appropriate for any given case....Integrated environmental decision-making is not just a series of methodologies, but rather is a way of thinking, in a whole and complete way, about any environmental problem in order to maximize the efficient reduction of aggregate risk to populations or ecological systems."

Based on the SAB charge and this definition of integration, the SAB committee developed the following initial set of objectives for the study. These initial study objectives may need to be refined as information is obtained through the SAB's fact-finding efforts.

- Evaluate EPA practices for integrating science into decision-making: The SAB will examine existing decision-making processes and approaches used by EPA programs, and how these processes might vary between program offices. The SAB members will evaluate what models work well and why.
- Evaluate consideration of public and stakeholder input in science assessment for decision making: The SAB will examine when and how public and stakeholder (e.g., international, federal, state, or tribal governments; non-governmental organizations; regulated community) input occurs when integrating science into decision-making. Differences between headquarters and regional offices on their use of public input will be examined.
- Evaluate drivers and impediments to implementing past recommendations: The SAB will determine to what extent EPA scientists and decision makers have implemented past recommendations of the EPA SAB and the National Research Council of the National Academies (NRC). The members will examine why and how success was achieved.
- Evaluate ways the agency receives feedback on how science is used in decision-making: The SAB will identify ways in which the Agency receives feedback on how science is

used in decision-making and where feedback can be used to identify emerging science and opportunities for future policy.

- Evaluate EPA workforce to support science integration for decision making: The SAB will determine how EPA adapts its workforce to shifts in priorities, resources and scientific expert need. Also, it will examine how scientists in the Agency stay current in their areas of expertise, or expand their expertise based on current and future scientific needs.

### **Overall Plan and Timeline:**

The SAB will hold structured interviews with Agency personnel to learn more about current science assessment and decision-making practices. Those interviewed will include scientists, policy analysts and senior managers in Headquarters Program Offices, EPA Regions, and the Office of Research and Development (Attachment 1).

In addition, the SAB will conduct a public workshop to seek input from EPA and interested stakeholders. Following the workshop, the SAB will hold public meeting(s) to discuss its findings and prepare a draft advisory report. The draft report will be subsequently reviewed and approved at a public meeting of the chartered SAB.

### **Study Timeline:**

The following timeline contains proposed milestones and dates for completing the study on Science Integration for Decision Making.

<b>Date</b>	<b>Milestones</b>
<b>June-Sept 2009</b>	Develop preliminary study plan
<b>Oct - Nov</b>	Fact-finding interviews with EPA offices (see Attachment 1) conducted by Committee subgroups
<b>December</b>	Committee public meeting to discuss: <ul style="list-style-type: none"> <li>- Fact-finding lessons learned</li> <li>- Identify external input needed on preliminary lessons learned</li> <li>- Workshop planning</li> <li>--Identification of any additional information needed</li> </ul>
<b>March 2010</b>	Public workshop to seek EPA and stakeholder input on preliminary lessons learned
<b>May - Sept</b>	Committee meeting(s) to discuss draft advisory report
<b>November</b>	Review of Committee draft report by chartered SAB
<b>December</b>	Publication of final report

## Attachment 1: Interview Sessions with EPA Offices

The SAB will conduct interviews with relevant EPA Offices and Regions (see list). For each interview session, generally there will be at least one SAB committee member that will be present in person to lead the interview, two or more SAB members participating via conference call, the Director or Deputy Director of the SAB Office Staff will be present for introductions, and one SAB Staff member will take notes and assist the SAB committee in consolidating and summarizing information gleaned from the interview sessions. The composition of the fact-finding groups is based on a SAB member's expertise and interest, as well as their geographical location.

The SAB will hold separate interview sessions with decision makers, policy makers, and scientific and technical staff. SAB members will use the following questions as a guide for the interviews. The SAB recognizes that not all questions will be relevant and appropriate for all EPA offices. The interview questions cover topics such as problem formulation methods, public involvement, relevance and fit of science assessments to decision needs, among others.

The EPA offices are asked to review these questions and describe one or two important and representative case examples of science-based decisions specific to their office. The discussions should include what is and is not working well, and what changes are needed to improve science integration into decision making.

### Questions for Policy and Decision Makers:

- What kinds of decisions are made in your organization and what is your role(s) in the decision-making process?
- For each type of decision please describe the process by which the decision is made. What types of assessments do you include to inform your decisions?
- Do the decision-making processes used by your office employ planning and scoping, and problem formulation phases? If yes, how are planning and scoping, and problem formulation conducted? What kinds of preliminary assessments are conducted?
- Are you aware of decision-making processes and approaches such as Framework for Integrated Environmental Decision-Making (SAB 2000), Science and Decisions (NRC, 2009), others?
- Are there perceived or actual barriers for developing and/or implementing new or existing decision-making processes or frameworks that integrate the best available science? If yes, what are they?
- How do you assess the level of analysis needed for a particular science assessment, and when is the analysis judged to be sufficiently completed to allow decision making?
- Is the science assessment decision-making process altered to accommodate different locations in the U.S. or different spatial scales? Do science assessment decision-making processes change to address short-term and long-term needs?
- How does the Agency scientific and technical workforce adapt to shifts in priorities, resources?
- How do scientists stay current in their areas of expertise, or expand their expertise based on current and future scientific needs?
- What is the current balance between near term program support research and longer term research to advance the science?
- What scientific data or information do you need to support decisions? Do you have the data/information that you need, when you need it? If not, what do you do? Are you constrained

from using all available scientific information in decisions or generating new data and information to support decisions?

- How are different assessments in different disciplines (including social and decision sciences) integrated as part of the science decision-making process?
- How do you like information about the uncertainties in scientific assessments presented? What are some examples of presentation of uncertainties in scientific assessments that helped you understand the science related to a decision and had an impact on that decision?
- As applicable, discuss a particular past recommendation that relates to the example/case presented to the Committee. Did the recommendation affect your decision(s)? If it affected the decisions, in what ways did this occur?
- How does the Agency determine the effectiveness of implemented decisions (whether the decision resulted in reduced risk and improvement to public health and the environment)?
- Does the Agency use feedback on decisions to detect emerging science, influence future policy, set priorities? If so, how?

Questions for Scientific and Technical Staff:

- What kinds of decisions are made in your organization and what is your role(s) in the decision-making process?
- What types of science assessments are done to support EPA decisions (e.g., technology, benefits, human health, ecological, behavioral/social/economic, etc.)?
- Who actually conducts science assessments (e.g., contractors, other EPA offices/personnel)?
- How are different assessments in different disciplines (including social and decision sciences) integrated as part of the science decision-making process?
- How do you work within your own office, and with other EPA Offices and Regions to coordinate decision support analyses that are needed for decision-making? What science data, models, analyses, etc. do you obtain from other units to support decision making in your unit?
- What role do stakeholders (regulated community; NGO's; other international, federal, state or tribal governments; general public) play in the science assessment process? If involvement occurs, how is it accomplished? At what steps in the process are stakeholders/public involved?
- Do you conduct formal uncertainty analyses? How are analyses matched to the needs of decision makers? How is uncertainty communicated to decision makers, stakeholders and the public?
- What roles do computational models have in science integration for decision making (EPA's Council for Regulatory Environmental Modeling – Models Knowledge Base)?
- What improvements are needed to integrate science assessments into the overall decision-making processes?
- What are current interactions between the programs and labs?
- Are you aware of the recommendations of the SAB (2001) and NRC (2008) related to public participation in science and environmental protection? Have these reports influenced how public/stakeholder input has been used in science assessments?

EPA Offices and Regions to be interviewed:

Office of Air and Radiation

Office of Environmental Information

Toxics Release Inventory Program

Office of Prevention, Pesticides and Toxic Substances

Office of Solid Waste and Emergency Response

Office of Water

Office of Policy, Economics and Innovation  
National Center for Environmental Economics  
Office of Research and Development  
Office of the Science Advisor  
EPA Regions (1-10)