

Issues for Consultation

Background

Purpose and History of EPA's Report on the Environment (ROE)

In 2001 EPA initiated work to assemble an extensive set of environmental indicators in order to provide high quality information on the state of the environment. A goal of this effort was to compile and present indicator status and trend information that would enable EPA and the public to assess progress toward accomplishing EPA's goals of cleaner air, purer water and better protected land. EPA presented these indicators in its 2003 *Draft Report on the Environment Technical Document* and its summary *Draft Report on the Environment Highlights Document*.

Following Science Advisory Board (SAB) reviews of the 2003 draft ROE and a revised 2007 draft of the report, EPA published its 2008 Report on the Environment. In 2008 EPA also published a shorter ROE document that highlighted national trends. EPA's 2008 ROE provided indicator information to answer 23 "policy- relevant" questions that the Agency found to be critically important to its mission. Thus, although the 2008 ROE provided information on a broad range of indicators, the focus of the report shifted toward providing information that was relevant to EPA's mission.

In September 2008, EPA also released an online electronic Report on the Environment, or eROE. The eROE (www.epa.gov/roe) contains the current indicator data that are updated quarterly.

SAB Recommendations to Improve the draft 2007 ROE

In its peer review of the draft 2007 ROE, the SAB emphasized the value and importance of the report. The SAB strongly supported continued development of the ROE and provided recommendations to improve the report before its publication in 2008. The SAB also provided long-term recommendations to improve future versions of the ROE. In general, the SAB found that:

- The ROE lacked a framework describing the scientific understanding of relationships between indicators and the basis for including them in the report.
- The ROE presented status information to establish baselines for reporting future trends, but the lack of long-term trend information in the document precluded trend analysis for many indicators.
- The rigid application of indicator selection criteria resulted in the exclusion of valuable and relevant information that could be used to further analyze trends.
- The ROE was limited because it contained little data interpretation and no conclusions supported by statistical analysis.

The current SAB consultation focuses on issues regarding the first three bullets.

Scope of the ROE 2008

The 2008 ROE was organized around five main chapters, “Air,” “Water,” “Land,” “Human Exposure and Health,” and “Ecological Condition.” Each chapter was organized around a set of critical “policy-relevant” questions that EPA wanted to answer with confidence in order to be adequately informed about important environmental trends. However, EPA stated that these questions could not necessarily be fully answered with indicators that met the Agency’s indicator definition and six indicator selection criteria in the report. In the ROE 2008 EPA defined an indicator as a numerical value derived from actual measurements of a stressor, state, or ambient condition, exposure, or human health or ecological condition over a specified geographic domain, whose trends over time represent or draw attention to underlying trends in the condition of the environment. The ROE 2008 did not include presentations of statistical confidence in the status of and trends in the indicators. When indicator trends were reported they were interpreted as the direction of change, and did not imply statistical significance. EPA recognized that uncertainty is an important issue and stated that it planned to quantify uncertainty in future versions of the ROE and its indicators.

Future Direction of the ROE

EPA intends to publish the next full edition of the ROE in 2012. Emphasis will be placed on presenting the status of and trends in environmental and human health conditions of interest to the EPA in order to inform the Agency’s planning and decision making. EPA intends to restructure the ROE to more directly align chapters of the report with EPA’s Strategic Plan goals, and to align the policy questions in the ROE with objectives in the Agency’s Strategic Plan. Any revision of the ROE in this regard must take into account the new Administration’s long-term perspectives on strategic planning. Although a draft of EPA’s new strategic plan for 2009-2014 has not yet been released, the overall architecture of the Strategic Plan (with goals, objectives, and sub-objectives) is not likely to change. As stated above, EPA also plans to enhance indicator information in future versions of the ROE to include quantitative uncertainty information.

Issues for the SAB Consultation

Overarching Issues

In its review of the draft 2007 ROE, the SAB recommended including conceptual frameworks in the report to illustrate scientific understanding of relationships between indicators and the basis for including them in the report. The SAB also recommended that EPA relax restrictive indicator selection criteria to enable the use of additional indicators that could inform the stated questions. EPA’s Office of Research and Development (ORD) is seeking early consultation with the SAB on conceptual models for restructuring and refining the next version of the ROE in

order to better support Agency planning, problem formulation, and decision making and make the conceptual underpinnings of the questions and indicators clearer to the reader. ORD is also seeking consultation with the SAB on the proposed use of regional and sub-regional indicators and supplemental information to help answer ROE questions.

ORD has developed an issue paper for the consultation describing how EPA proposes to restructure and refine the next version of ROE. The issue paper contains two examples of conceptual models to illustrate the scope of the questions and to select indicators. One example is a generalized conceptual model framing the 2008 ROE question, “What are the trends in the quality of drinking water and their effects on human health?” The other example is a conceptual model framing the 2008 ROE question, “What are the trends in outdoor air quality and their effects on human health and the environment?” Section 4 of the issue paper discusses EPA’s proposed use of supplemental information in the next version of the ROE. Specifically, ORD has requested consultation on the following issues.

Specific Issues for Consultation

1. Please comment on whether EPA’s proposed conceptual modeling approaches are logical and useful for:
 - Aligning the ROE questions with the Agency’s strategic goals and objectives.
 - Communicating the intent and scope of questions in the ROE.
 - Presenting the underlying scientific foundation of questions in the ROE.
 - Providing a framework for selecting indicators and identifying associated gaps, limitations, and useful supplemental information.
2. Does the Committee have recommendations concerning other possible approaches to conceptual model development that would be useful in identifying or highlighting important ROE topics, indicators for consideration, research, or development?
3. Please comment on the logic and utility of EPA’s proposed use of supplemental information to answer questions in the next version of the ROE.
4. Does the Committee have recommendations for criteria to assure that supplemental information included in the ROE is objective, free from bias, scientifically valid, and supports intended purpose of the report?