



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

October 8, 2004

OFFICE OF THE ADMINISTRATOR  
SCIENCE ADVISORY BOARD

**MEMORANDUM**

**SUBJECT:** U.S. EPA Science Advisory Board (SAB) Regional Vulnerability Assessment (ReVA) Advisory Panel

**FROM:** Thomas M. Armitage, Ph.D. */Signed/*  
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**TO:** Vanessa Vu, Ph.D.  
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This memorandum addresses the set of determinations that were necessary for forming a Science Advisory Board Panel. It provides background information on the subject SAB activity and addresses:

- 1) the charge developed for the Panel;
- 2) the type of panel that will be used to conduct the review, the name of the Panel, and identification of the Panel Chair;
- 3) the types of expertise needed to address the charge;
- 4) Conflict of Interest Considerations (whether the charge involves a Particular Matter and how conflict of interest regulations under 18 U.S.C. 208 apply to members of the Panel);
- 5) how regulations concerning "appearance of lack of impartiality", under 5 C.F.R. 2635.502 apply to members of the Panel;
- 6) how individuals were placed on the "Short List" posted on the SAB website as candidates for the Panel; and
- 7) how individuals were placed on the Panel.

**A. Background**

EPA's Office of Research and Development (ORD) has requested that the SAB conduct an advisory on EPA's Regional Vulnerability Assessment Methods for Multi-Scale Decision-Making (ReVA). ReVA is an approach to conducting comprehensive regional-scale environmental assessments that can inform decision-makers about anticipated environmental vulnerabilities. A suite of predictive tools and methods is incorporated into ReVA.

The predictive tools in ReVA provide decision-makers with information about current and future cumulative stresses throughout a region and spatially explicit identification of anticipated environmental problems. These predictive tools can be used to illustrate the trade-offs associated with alternative environmental and economic policies. ReVA relies heavily upon the use of geographic information system technologies and quantitative integration and assessment methods to develop useful measures of a suite of decision-criteria for decision-makers at multiple scales.

## **B. Determinations**

- 1) The charge to the Panel: The SAB Staff Office, EPA's Office of Research and Development, and the Chair of the Panel negotiated the following charge.

The U. S. Environmental Protection Agency's (EPA) Office of Research and Development is developing approaches to comprehensive regional-scale environmental assessments that can inform decision-makers at multiple scales about current and anticipated environmental conditions and vulnerabilities. The Regional Vulnerability Assessment (ReVA) incorporates a suite of predictive tools and methods that can inform decision-makers about the magnitude, extent, and distribution of current and anticipated environmental vulnerabilities within a geographic region (e.g. multi-state, EPA region).

In the context of ReVA, environmental vulnerabilities have been defined as risks of serious degradation of ecological goods and services that are valued by society. Spatial data are used in ReVA to depict: 1) the current patterns of condition and distribution of resources and human demographics in a region, 2) variability in sensitivity of resources and human populations to various stresses in a region, and 3) estimated spatial distribution of stressors in a region. Geographic information system technologies and quantitative integration and assessment methods are used in ReVA to derive future vulnerability estimates that include syntheses of modeled ecological drivers of change (i.e., estimated changes in pollution and pollutants, resource extraction, spread of nonindigenous species, land use change, and climate change) and resulting changes in stressor patterns.

ReVA provides decision-makers with information about current and future cumulative stresses throughout a region and spatially explicit identification of anticipated environmental problems. Application of the ReVA approaches using these integrative and visualization tools can be used to illustrate the trade-offs associated with alternative environmental and economic

policies in the context of dynamic stakeholder values. As this information becomes accessible to decision makers at different scales, issues of risk communication, quantification of uncertainty, and applicability of regional-scale information arise.

EPA is applying ReVA in two regional case examples: 1) an assessment of data from the Mid-Atlantic region of the U.S. and 2) an assessment of data for decision-makers in a 15-county region around Charlotte, NC. EPA has requested advice from the Science Advisory Board on the approach used in ReVA, and on improving the effectiveness of the ReVA integration toolkit (the ReVA web-based Environmental Decision Toolkit or EDT) for communicating current and future condition and risk to clients and users. Specifically, EPA is seeking advice regarding the following questions.

**Question 1.** ReVA is intended to provide an overview of current and future regional conditions. ReVA may also serve as a priority setting tool to target areas for more focused risk assessments of specific problems. Please comment on the strengths and limitations of the ReVA approach as it applies to these uses.

**Question 2.** Please comment on the effectiveness of the web-based ReVA Environmental Decision Toolkit (EDT) in communicating ecological condition and vulnerability to decision-makers at regional to local scales. Please provide input as to the level of analytical capability needed in ReVA for intended audiences as well as approaches to presenting available information and uncertainty.

**Question 3.** Please comment on the usefulness of the ReVA approach to decision makers in allowing them to see the overall consequences of future development, and mitigation, conservation, and restoration activities.

**Question 4.** Please provide input on issues encountered as the information and approaches in ReVA are used at finer scales. Please also provide input on future ReVA research priorities and alternative applications of ReVA methods for decision-making at multiple scales.

2) Type of panel that will be used to conduct the review, the name of the panel, and identification of the panel chair, and types of expertise needed to address the charge:

The SAB will conduct this advisory using the EPA SAB's Ecological Processes and Effects Committee (EPEC). The EPEC is an SAB Standing Committee which is responsible for reviews and advice relating to: ecological issues, including environmental monitoring and assessment, ecological risk assessment, and ecological criteria. The advisory on the ReVA requires a panel with broad expertise in decision science and environmental decision-making, landscape ecology, analysis of land use change, ecology and the use of geographic information system technology to analyze environmental stressors and effects, ecological risk assessment and environmental statistics. EPEC members available for this review provide the required expertise in ecological theory, and this expertise is being augmented to address additional aspects of the charge

questions. Dr. Virginia Dale, the Chair of the EPEC, has participated in previous peer reviews of the ReVA. The Panel will therefore be chaired by SAB member Dr. Kenneth Cummins. A *Federal Register* notice was published on July 29, 2004 (widecast) requesting nominations to augment the expertise available on the EPEC. A “short list” of candidates for the Panel was selected from the nominations received, and was posted on the SAB website on September 3, 2004 (Attachments 1, 2; [http://www.epa.gov/sab/panels/reva\\_rev\\_panel.htm](http://www.epa.gov/sab/panels/reva_rev_panel.htm)). The *Federal Register* notice indicated the expertise needed to augment the EPEC: *decision science and environmental decision-making, landscape ecology, analysis of land use change, ecology and the use of geographic information system technology to analyze environmental stressors and effects, ecological risk assessment, and environmental statistics.*

3) Identification of parties who are potentially interested in or may be affected by the topic to be reviewed:

The ReVA will potentially provide environmental decision-makers with information about current and future cumulative environmental stresses in a region and spatially explicit identification of anticipated environmental problems. The ReVA will also potentially provide decision-makers with information that may be used to illustrate the trade-offs associated with alternative environmental and economic policies. Interested and affected parties will be: 1) federal, state, and local government agencies, elected officials, and non-government organizations that focus on environmental policy development (e.g., NRDC, EDF, ACC), and 2) those involved with the interests of industries and governments that may be affected by policies developed on the basis of analyses conducted using ReVA. Academic researchers involved with decision science, landscape ecology, and the application of geographic information system technology to the development of environmental policy will also be interested in this topic. Within EPA, the Agency’s Regional Offices may be interested in the use of ReVA for ecological assessment and policy development.

4) Conflict of Interest Considerations:

For Financial Conflict of Interest (COI) issues, the basic 18 U.S.C. 208 provision states that: “An employee is prohibited from participating *personally and substantially* in an official capacity in any *particular matter* in which he, to his knowledge, or any person whose interests are imputed to him under this statute has a *financial interest*, if the particular matter will have a direct and predictable effect on that interest [emphasis added].” For a conflict of interest to be present, all elements in the above provision must be present. If an element is missing the issue does not involve a formal conflict of interest; however, the general provisions in the appearance of impartiality guidelines must still apply and need to be considered.

Does the charge involve a Specific Party Particular Matter? A “particular matter” refers to matters that “...will involve deliberation, decision, or action that is focused upon the interests of specific people, or a discrete and identifiable class of people.” It does not refer to “...consideration or adoption of broad policy options directed to the interests of a large and diverse group of people.” [5 C.F.R. 2640.103 (a)(1)]

The SAB panel's activity in addressing the ReVA charge does not constitute a particular matter in that it does not include matters that involve deliberation, decision or action that is focused upon the interest of specific people or a discrete and identifiable class of persons. The SAB Panel's activity does not include matters which involve formal parties or extend to legislation or policy making that is narrowly focused upon the interest of a discrete and identifiable class of persons. The ReVA will provide local and regional decision-makers with analytical tools to identify future cumulative environmental stresses and anticipated environmental problems. The ReVA will also potentially provide decision-makers with information that may be used to illustrate the trade-offs associated with alternative environmental and economic policies. As such, this is something that is directed to the interests of a large and diverse group of people and is not a particular matter. Thus, the criteria for particular matter concerning specific parties is not met and no financial conflict of interest as defined in 18 USC 208 exists.

5) How will regulations concerning "appearance of lack of impartiality" under 5 C.F.R. 2635.502 and other ethics factors, apply to members of the Panel:

The Code of Federal Regulations [5 C.F.R. 2635.502(a) states that: "Where an employee knows that a particular matter involving specific parties is likely to have a direct and predictable effect on the financial interest of a member of his household, or knows that a person with whom he has a covered relationship is or represents a party to such matter, and where the person determines that the circumstances would cause a reasonable person with knowledge of the relevant facts to question his impartiality in the matter, the employee should not participate in the matter unless he has informed the agency designee of the appearance problem and received authorization from the agency designee." Further, 5 C.F.R. 2635.502(a)(2) states that, "An employee who is concerned that circumstances other than those specifically described in this section would raise a question regarding his impartiality should use the process described in this section to determine whether he should or should not participate in a particular matter."

As noted above, the SAB panel's activity in addressing the ReVA charge does not constitute a particular matter. There may be some individuals nominated to serve on this panel who have in place, or are applying for, EPA grants, cooperative agreements and contracts broadly related to the underlying methods in the ReVA. Cooperative agreements and contracts may present a different situation and each member was evaluated to determine whether his or her financial interest in existing cooperative agreements and contracts constitutes an "appearance of a lack of impartiality" as defined under 5 C.F.R. 2635.502.

Candidates were evaluated for potential ethics issues using information submitted by each panel member through the EPA 3110-48 form (Confidential Financial Disclosure Form for Special Government Employees Serving on Federal Advisory Committees at the U.S. Environmental Protection Agency) and other staff research. To further ascertain whether there was any potentially disqualifying involvement with the topic of the ReVA advisory, which would indicate the appearance of a lack of impartiality, the following five (5) questions were posed to all candidates for the ReVA advisory:

a) Do you know of any reason that you might be unable to provide impartial advice on the matter to come before the Panel or any reason that your impartiality in the matter might be questioned?

b) Have you had any previous involvement with the issue(s) or document(s) under consideration, including authorship, collaboration with the authors, or previous peer review functions? If so, please identify those activities.

c) Have you served on previous advisory panels or committees that have addressed the topic under consideration/ If so, please identify those activities.

d) Have you made any public statements (written or oral) on the issue? If so, please identify those statements.

e) Have you made any public statements that would indicate to an observer that you have taken a position on the issue under consideration? If so, please identify those statements.

*As a result of a review of the EPA Form 3110-48 and the responses to the above (5) questions provided by each prospective ReVA Panel member, the ReVA DFO and SAB Ethics and FACA Policy Officer, in consultation with the Alternate Agency Ethics Official and with the approval of the SAB's Deputy Ethics Official, have determined that there is no appearance of a lack of impartiality on the part of the selectees for the ReVA Panel.*

6) How individuals were placed on the short list:

Twelve (12) individuals were nominated to augment the expertise of the EPEC on the ReVA Advisory Panel. On the basis of the candidates' qualifications and availability to participate in the review meeting, the SAB Staff Office made the decision to put six nominees on the "short list". On September 3, 2004, the SAB Staff Office posted a notice on the SAB Web site inviting public comments on the "short list" of six prospective candidates to augment the expertise of the EPEC on the Panel. That notice stated that SAB staff reviewed the nominations for the Panel and identified a "short list" of six based on qualifications, interest, and availability of the nominees.

The SAB Staff Office requested public comments on the list of the ReVA Panel candidates. In particular, the notice on the Web site stated that the Staff Office would welcome any information, analysis or documentation that the SAB Staff Office should consider in evaluating the candidates on the "Short List", and asked that any advice, observations or comments which would be helpful in selecting the final candidates be provided to the SAB Staff Office no later than September 25, 2004. *The SAB Staff Office received no comments on any "short list" candidate for the ReVA Panel.*

7) How individuals were selected for the final Panel:

The SAB Staff Office Director - in consultation with the ReVA Panel Chair - makes the final decision about who serves on the Review Panel during the “Panel Selection” phase. The final Panel was selected by augmenting the expertise available on the EPEC with nominees from the “short list”. Selection criteria included: scientific and technical credentials and expertise; the need to maintain a balance with respect to members’ qualifying expertise background and perspectives; willingness to serve on the Panel, and availability to meet during the proposed time period; and a candidate’s prior involvement with the topic under consideration. Selectees for the ReVA Review Panel have backgrounds that include experience with academia, government, and consultant groups.

*Accordingly, based on the above specified criteria a ReVA Review Panel of the following thirteen experts was selected:*

1. Dr. Kenneth Cummins, Humbolt State University (CA) (Chair)
2. Dr. John Crittenden, Arizona State University (AZ)
3. Dr. Cynthia Gilmour, Smithsonian Environmental Research Center (MD)
4. Dr. Charles Hawkins, Utah State University (UT)
5. Dr. Ori Loucks, ICIValue, Inc. (OH)
6. Dr. William Mitsch, Ohio State University (OH)
7. Dr. Michael Newman, College of William and Mary (VA)
8. Dr. Ganapati Patil, Pennsylvania State University (PA)
9. Dr. Charles Rabeni, U.S. Geological Survey (MO)
10. Dr. Mark Ridgley, University of Hawaii (HI)
11. Dr. James Sanders, Skidaway Institute of Oceanography (GA)
12. Dr. David Stoms, University of California at Santa Barbara (CA)
13. Mr. Timothy Thompson, RETEC Group (WA)

Concurred,

*/Signed/*

*10/14/04*

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Date