

EPA Office of Research and Development National Center for Environmental Assessment (NCEA) Science Integration for Decision Making Fact-Finding Interview Telephone discussion, February 3, 2010

Four members of the SAB Committee on Science Integration for Decision Making conducted an interview with the National Center for Environmental Assessment (NCEA) Director and NCEA managers and scientists. Drs. James Bus, Terry Daniel, Thomas Theis, and Lauren Zeise conducted the interview by telephone. For the interview, Dr. Vanessa Vu, Director of the SAB Staff Office, provided a brief introduction to the purpose of the interview and the Designated Federal Officer, Dr. Angela Nugent, took notes to develop a summary of the conversation. All interviewees were provided a copy of the committee's Preliminary Study Plan in advance.

Dr. Vu noted that the purpose of the interview was to help SAB Committee members learn about NCEA's current and recent experiences with science integration supporting EPA decision making so that the SAB can develop advice to support and/or strengthen Agency science integration efforts. Dr. Vu thanked participants for taking time for the interview.

Meeting with National Center for Environmental Assessment (NCEA) Director and NCEA managers and scientists (2:00 p.m. - 3:30 p.m.) Participants:

Dr. Peter Preuss, Center Director
Becki Clark, Deputy Center Director
Dr. Lynn Flowers, Associate Director for Health
Dr. Mike Slimak, Associate Director for Ecology
Anne Grambsch, Global Team Lead
Kathleen Deener, Program Support Coordinator
David Bussard, Division Director
Dr. Mary Ross, Branch Chief

The National Center for Environmental Assessment (NCEA) Director opened the discussion by noting that NCEA is a key point at which science comes together to support decisions and issues are raised to influence critical future research for decision making. For example, NCEA's Integrated Risk Information System (IRIS) health assessments support many Agency programs. NCEA also develops Integrated Science Assessments (ISAs) for criteria air pollutants in direct support of the Office of Air and Radiation (OAR). NCEA's ecological program develops causal analysis schemes to understand deterioration in surface waters and streams, working with and supporting the Office of Water. NCEA staff in Cincinnati develops Provisional Peer Reviewed Toxicity Values, or PPRTVs, which are "short turn-around values" for use in the Superfund program.

In developing ISAs, NCEA works with OAR and EPA's air pollution research programs. NCEA works with other parts of ORD to help plan needed research. NCEA especially works with ORD's National Center for Environmental Research to develop Requests for Applications (RFAs) to meet the needs of NCEA assessments. A large number of the articles cited in ISAs come from ORD research or ORD-supported research grants.

NCEA's climate change assessment program has published a series of assessments of the impacts of climate change over the past five years. The assessments target an audience within EPA and a broader inter-agency and international audience.

The nature of NCEA's integration activities varies. For climate change assessments, NCEA works across ORD laboratories and centers and across federal agencies. For a 2002 air quality assessment, NCEA drew on information from ORD laboratories and centers and external research organizations to create an assessment that defined research needs for the Pacific Northwest Research Laboratory and Department of Energy research on air quality.

An NCEA synthesis report, *Assessment of the Impacts of Global Change on Regional U.S. Air Quality: A synthesis of climate change impacts on ground-level ozone* (EPA/600/R-07094P) provided key information for the Agency's Endangerment Finding on greenhouse gases. The assessment resulted from a long-term collaborative process that involved engaging the external research community through the STAR program and internal scientists in constructing a variety of climate change models and then working with the external academics, ORD scientists, and OAR representatives to prepare NCEA's synthesis and assessment report. An extensive and transparent review process, combined with NCEA's approach to the assessment, increased the confidence lawyers felt in the results of the synthesis report. In addition, NCEA's Global Team worked with OAR to address the more than 400,000 comments that were received during the public comment process for the Endangerment Finding. NCEA's climate work involves major efforts to collaborate with program offices, EPA scientists and external scientists in academia and other federal agencies. This collaboration has contributed to the value of NCEA work products.

For its global program, NCEA generally relies on a "participatory research approach" for involving external stakeholders and scientists. To follow up on studies on the mid-Atlantic region, Great Lakes, and Climate Ready Estuaries, NCEA's Global Team has sought information about the users of NCEA reports to determine if they find them useful. The center would like to conduct this type of follow-up for other NCEA work products.

In applying the causal analysis system to deterioration of streams, NCEA worked with stakeholders and states to determine needs for the model with the goal of making the model usable while meeting their needs.

For criteria air pollutants, NCEA interacts on a continuous basis with its OAR client and brings work products to the Clean Air Scientific Advisory Committee for iterative review. For these pollutants, problem formulation is part of the analytical process. ORD and OAR focus on defining policy-relevant questions at the start of a National Ambient Air Quality Standard (NAAQS) review. The questions guide development of the ISA, along with a causality framework that calls for use of consistent language about causality in ISA's. NCEA's ISA provides the scientific foundation for Risk, Exposure and Policy Assessments that are prepared by OAR, as well as the decision-making process. The NAAQS review process is highly structured. A description of the NAAQS review process is available at <http://www.epa.gov/ttn/naaqs/review.html>. These processes incorporate many of the

recommendations in the National Research Council's report, *Science and Decisions: Advancing Risk Assessment*.

Interactions with other scientific organizations nationally and internationally can take many forms. For IRIS chemicals, NCEA has coordination efforts within the United States. For example, NCEA has signed a Memorandum of Understanding with Cal/EPA to work more closely on risk assessments, share information, and avoid overlapping efforts. On the international front, Dr. Preuss sits on the steering committee of the International Program on Chemical Safety (IPCS) and NCEA scientists serve on all the subcommittees of the IPCS. The Organization for Economic Cooperation and Development (OECD) has agreed to include IRIS information on OECD's list of assessments. Additionally, NCEA is working with the Netherlands on new methods and approaches to probabilistic risk assessment. NCEA participates in the Convention on Biodiversity to develop guidelines to address risks of invasive species, and NCEA scientists have played a large role in developing the guidelines. NCEA's climate change work requires a lot of staff involvement with the Intergovernmental Panel on Climate Change. NCEA staff participate in a variety of professional societies.

NCEA employs several strategies to adapt to changing needs for assessments and changing science. There has been a global change group within NCEA since the mid 1990s as a result of the 1990 Global Change Research Act. The group has been multidisciplinary, and it helped lead the first National Assessment in 2000. There have been recent hires to build expertise in regional modeling. NCEA supplements its expertise through the American Association for Advancement of Science fellows and through use of contractors. NCEA has a unique multi-disciplinary capacity and is looking to see how it could contribute to ORD's new integrated, multidisciplinary research efforts.

Although some NCEA activities serve a single program (e.g., ISAs for OAR and PPRTVs for Superfund), other activities cut across EPA programs. NCEA, for example is responsible not only for IRIS chemicals, but also is responsible for providing a report on biofuels and alternative energy sources and for climate change assessments. In these efforts, NCEA works without the constraints of EPA's "stove-piped" organization by focusing on the needed science product, forming Agency work groups, and coordinating across federal agencies and with outside scientists. Sometimes it is difficult to provide science products in all these arenas when customers need them.

It is also sometimes difficult to take sufficient time for planning NCEA activities, problem formulation, and communicating NCEA results to interested and affected individuals. The daily press of business can overwhelm NCEA schedules. With the goal of ensuring good communications, NCEA has initiated trips to all EPA regions to talk about its activities, answer questions, and "make connections." Regional staff are interested in NCEA's programs, including IRIS health assessments and assessments of regional impacts of climate change. NCEA also participates in annual meetings of regional risk assessors as a way of strengthening ties with regional risk assessors and providing information about relevant activities and assessments within NCEA.

NCEA also devotes resources to responding to regional queries. NCEA has designated one of its scientists to respond to regional questions. NCEA staff in Cincinnati report that they received 198 different information requests from regions in 2008 and were able to respond to 158 immediately. NCEA staff in Washington, D.C. provide guidance for regions on requests. High priority regional requests (e.g., PCBs in caulk or Libby asbestos issues) may be identified in the weekly Administrator's staff meeting for immediate attention.

There is a process that allows regional needs for IRIS and PPRTVs to feed into a prioritization process and timeline for these chemicals. NCEA is currently setting priorities for its work on chemical assessments and has sought feedback from EPA's regions and program offices. As one example of NCEA's response to regional needs, the center has accelerated its health assessment of Chromium 6. NCEA would like to continue such efforts to adjust its priorities for chemical risk assessment to meet EPA users' needs.

NCEA also provides regions with assistance in the absence of an IRIS assessment. NCEA often receives requests for help for especially difficult compounds, such as formaldehyde, trichloroethylene, and dioxins. NCEA scientists listen to the requests for information and describe the kinds of existing assessments that are available in the literature [e.g., Cal/EPA values, Agency for Toxic Substances and Disease Registry (ATSDR) non-cancer values], whether those assessments are reasonably complete, and how those assessments relate to EPA's risk assessment guidelines. NCEA staff "typically do the best we can to do quick work with them to help them move forward, but we don't say EPA endorses" external assessments if IRIS values don't exist. NCEA relies on program offices, such as Superfund, to provide regions with guidance about default assessments to use if IRIS information is not available.

For NCEA, the principal barrier to science integration is lack of resources. There are "too many assignments and not enough people." NCEA prioritizes among the many requests for support by seeking projects and developing assessment products that allow the center to produce a "common good." If a request is unique to a particular setting, NCEA aims to develop an assessment product that will help EPA address environmental issues in other contexts.

There is a tremendous resource burden in responding to hundreds of freedom of information act requests, enquiries from constituent groups affected by regulations that depend on science, requests with congressional committees, and needs for clear communication about environmental assessments. All these needs, however, are part of NCEA's work in the context of conducting assessments in a regulatory agency. All the processes are time consuming, but necessary.