



# RISK newsletter

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## Specialty Group Reports from the Field

A brief look at what is new and exciting  
in the risk analysis field, provided  
by SRA specialty group chairs

### Emerging Nanoscale Materials

*Jo Ann Shatkin*

#### Highlights of Governmental Developments for Engineered Nanoscale Materials

One year ago, Berkeley, California, was the only governmental entity with a nano-specific regulation on the books. Plenty of regulatory agencies and expert groups had weighed in on governance and policy, and even offered guidance. For example, the U.S. Environmental Protection Agency (EPA) and Environment Canada had released documents that clarified the reporting of engineered nanoscale materials (ENM) under new chemicals legislation. That was then.

Now, there are several international developments in the regulatory arena for ENM and, most likely, more will develop between the writing and publication of this piece. The following is a brief survey of recent developments and should not be considered comprehensive.

At the SRA-organized Nano Risk Workshop in Washington, DC, in September 2008, representatives from the U.S. Food and Drug Administration (FDA), European Commission, EPA, and Environment Canada expressed their intention to adopt a case-by-case approach to risk assessments for engineered nanomaterials. This incremental approach is favored because of existing data gaps, as well as the breadth of potential applications and materials, that make it difficult to derive legislation specific for nanomaterials.

EPA completed the first round of submissions to its Nanomaterials Stewardship in July, summarized in an interim report in December.<sup>1</sup> Perhaps as a result of the data received, EPA issued several Significant New Use Rules (SNURs) under the Toxic Substances Control Act, including SNURs for carbon nanotubes and aluminum silicates, as engineered nanomaterials. EPA was petitioned by a coalition of nongovernmental organizations (NGOs) for fail-

*(Reports from the Field, continued on page 4)*



## New Ideas for Risk Regulation



Conference Sponsored by SRA and  
Resources for the Future  
Washington, DC, 22-23 June 2009

*Lisa Robinson*

The Obama Administration is taking regulatory policy in important new directions, including a new Executive Order on regulatory review. As an open forum for all those interested in risk analysis, the Society for Risk Analysis (SRA) is uniquely positioned to provide and facilitate a discussion of innovative ideas in risk regulation. Early actions by the Administration, such as requesting public comments on reforming the process by which the Executive Branch reviews and analyzes draft regulations, signal a strong interest in considering innovative regulatory approaches to the many challenges facing the United States and the world.

In order to contribute to this discussion, SRA's Economics and Benefits Analysis and Risk Policy and Law Specialty Groups, in partnership with Resources for the Future (RFF, [www.rff.org](http://www.rff.org)), are sponsoring the conference "New Ideas for Risk Regulation" to be held at RFF in Washington, DC, 22-23 June 2009. The conference features leading scholars and government officials with expertise in a wide array of regulatory topics.

The SRA/RFF conference will provide an opportunity to discuss and propose creative ideas on new approaches to Executive oversight of environmental, health, safety, security, and other risks regulated by U.S. federal government agencies. (See related newsletter story on the submission to OMB by an SRA Committee of Past Presidents, page 9.)

"This event is being held at an ideal time to contribute to new thinking on risk regulation," enthused SRA President Alison Cullen. "There is a real opportunity now to update risk regulation based on the past two decades of learning," echoed SRA Past President Jonathan Wiener.

The core planning committee includes SRA members Lisa Robinson (chair), Matt Adler, Alberto Alemanno, Laina

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**2009 SRA Annual Meeting, 6-9 December, Baltimore**

## President's Message

*Alison Cullen*

The year 2009 is off to an exciting start for the Society for Risk Analysis (SRA)! Our usual activities are well underway, bringing many opportunities for involvement by members. In addition, the U.S. government is experiencing a time of reflection and renewal under the Obama Administration regarding how science and policy interact, how risks are weighed and managed, and the roles of various players in these interactions around the globe. In short, it is a great time to be a risk analyst!

I am pleased to announce two recent initiatives:

- First, please join us at a special conference—New Ideas for Risk Regulation—sponsored by the Society for Risk Analysis (joint effort of the Economics and Benefits Analysis and the Risk Policy and Law Specialty Groups) and Resources for the Future (RFF). The event will be held in Washington, DC, 22-23 June 2009. In the past few months the Obama Administration has raised, discussed, and in some cases implemented new ideas for improving regulations, the institutions that oversee their development, and the approaches used to assess their impacts. The SRA/RFF conference will develop additional ideas. It will focus on the regulation of environmental, health, safety, security, and other risks. It will consider the national and international role of the Office of Information and Regulatory Affairs as it relates to regulatory review and analysis. See page 1 of this newsletter for additional information about this conference.
- Second, inspired by a suggestion from SRA Past President Jonathan Wiener and in response to the U.S. Office of Management and Budget's public request (74 Fed. Reg. 8819) for ideas on how to revise the system of regulatory review, I convened an ad hoc committee, inviting all SRA past presidents to collaborate. Eighteen SRA past presidents, chaired by Past President Wiener, produced a thoughtful set of recommendations to encourage discussion and debate

([www.sra.org/OMB\\_regulatory\\_review.php](http://www.sra.org/OMB_regulatory_review.php)). See page 9 of this newsletter for additional information about the effort.

Opportunities to engage, present, propose initiatives, innovate abound:

The 2009 SRA Annual Meeting will take place in Baltimore 6-9 December. The theme is "Risk Analysis: The Evolution of a Science." President-elect Rick Reiss and his Annual Meeting Program Committee are energetically moving ahead with planning. Abstracts are due by 26 May 2009—please submit your ideas for symposia and papers! Visit the SRA Web site ([www.sra.org/events\\_2009\\_meeting.php](http://www.sra.org/events_2009_meeting.php)) or see page 3 of this newsletter for more details.

New Initiatives proposals are now invited on a quarterly basis. Upcoming deadlines include 13 July 2009, 12 October 2009, and 11 January 2010. The selection criteria, as well as complete submission information, are available at the SRA Web site in the Members Only section ([www.sra.org/finance\\_committee\\_initiatives\\_new.php](http://www.sra.org/finance_committee_initiatives_new.php)). Please contact SRA Treasurer Jack Fowle for assistance with proposal development or concept clarification.

Regional meetings of SRA around the globe provide exciting chances to connect:

- SRA-Russia Meeting, Moscow, 22-25 April 2009
- SRA-Europe Annual Conference, Karlstad, Sweden, 28 June-1 July 2009
- SRA-Australia/New Zealand Annual Meeting, Wellington, New Zealand, 28-30 September 2009
- 2<sup>nd</sup> International Conference on Risk Analysis and Crisis Response (RACR-2009), 19-21 October 2009, Beijing, China, <http://www.iee.pku.edu.cn/racr2009>
- SRA-Japan Annual Research Conference, 28-29 November 2009

Please stay posted on upcoming meetings and other opportunities by reading the SRA Web site.

## SRA Inducts Past Pioneers into the Pantheon of Risk Analysis

*Jonathan B. Wiener, Past President*



Photo by John Collings

The Pantheon of Risk Analysis, launched in 2008, honors deceased giants in the field on whose shoulders we now stand and showcases how high-quality risk analysis can advance knowledge and the public good.

Any Society for Risk Analysis (SRA) member may nominate a candidate to the past president. The SRA Council then selects the inductees.

In late 2008, the SRA Council voted to induct 35 initial honorees into the Pantheon of Risk Analysis. They are listed on the SRA Web site, with links to the relevant Wikipedia page on each honoree ([www.sra.org/about\\_pantheon.php](http://www.sra.org/about_pantheon.php)).

The SRA Council may induct additional honorees in 2009. New nominations are welcome. To nominate other legends in the field, please contact Past President Jonathan Wiener ([wieners@law.duke.edu](mailto:wieners@law.duke.edu)).

# Risk Analysis: The Evolution of a Science

SRA Annual Meeting, 6-9 December 2009

Call for Papers

Deadline 26 May 2009

Society for Risk Analysis



**SAVE THE DATE:** The 2009 Society for Risk Analysis (SRA) Annual Meeting will be held at the Renaissance Harborplace Hotel in Baltimore, Maryland, 6-9 December 2009. In celebration of the 200<sup>th</sup> anniversary of Charles Darwin's birth, this year's theme is "Risk Analysis: The Evolution of a Science." Join nearly 1,000 colleagues dedicated to the science of risk analysis—risk assessors, managers, communicators, and more—in settings ranging from government to academia and from nonprofits to business. At night, catch up with old friends at one of the many fine restaurants on the Baltimore waterfront.

The planning for the meeting is already underway and we expect to line up some excellent plenary speakers. We are currently planning sessions on natural disaster and financial risk analysis.

What can you do now? Well, in honor of the 5 Ds of Dodgeball (Dodge, Duck, Dip, Dive, and Dodge) from the movie *Dodgeball: A True Underdog Story*, here are the 5 Ss of the 2009 SRA Annual Meeting: Share, Symposia, Specialize, Sponsor, and Share.

**SHARE:** Now is the time to share your latest research with your colleagues. Be sure to prepare and submit your abstract for an oral presentation or poster no later than Tuesday, 26 May 2009, via the online submission form already available at [www.sra.org/events\\_2009\\_meeting.php](http://www.sra.org/events_2009_meeting.php). The submission deadline is firm; the Web link will be closed after that date.

As in past years, there is a limit on presentations by a single person: each individual may submit one oral presentation, one symposium proposal, and one poster presentation (although a person may also be listed as a coauthor on other submittals). Each oral presentation should last 15 minutes, with an additional five minutes allotted for questions and discussion.

**SYMPOSIA:** Symposia on specific topics are encouraged! Consider organizing a symposium with multiple speakers

using the online form (Web site address below). Be sure to submit your symposium proposal in advance of the 26 May deadline in order to obtain a symposium number. This identifying number must be referenced by each individual submitting an abstract for inclusion in the symposium.

Please note that the overall conference deadline will apply to all abstracts, including those submitted as a part of a symposium.

**SPECIALIZE:** Every specialty group chair should email his or her members to organize a symposium sponsored by the specialty group. These symposia themes can be generated by a single specialty group or can be proposed jointly by multiple groups.

Also, every regional organization of the SRA should seek out its members and gather ideas for interesting symposiums, alone or as a joint venture with another chapter or region. For example, regional organizations in two countries could collaborate on a symposium about the comparative approaches to a risk analysis topic in their two locations.

**SPONSOR:** To be a sponsor of the 2009 SRA Annual Meeting, or to sponsor your organization's exhibit booth, or to include your book in the book exhibit, please contact Lori Strong at [lstrong@burkinc.com](mailto:lstrong@burkinc.com) no later than 1 June 2009.

**SHARE:** Share your acquired knowledge with others (and possibly turn a profit). Organize a continuing education workshop to be held on the Sunday preceding the annual meeting (6 December).

The Workshop Proposal information is online at the main Web site (see below).

Additionally, students are eligible to apply for a Travel Award (Student or International) or Specialty Group Student Award by checking the relevant box on your online submission form.

To communicate your ideas and suggestions for the meeting, please contact me: Rick Reiss ([treiss@exponent.com](mailto:treiss@exponent.com)).



See you in Baltimore!

Meeting information and online forms: [www.sra.org/events\\_2009\\_meeting.php](http://www.sra.org/events_2009_meeting.php)

(*Reports from the Field*, continued from page 1)

ure to regulate products containing nanosilver as antimicrobial additives. This coalition also petitioned FDA last year over nanomaterials in cosmetics. The FDA held a public hearing on nanotechnology across several regulatory programs, seeking input on whether to issue specific guidance for nanomaterials and nanotechnologies. It remains unclear how the Obama Administration will view regulation of nanotechnology and nanoscale materials.

In January 2009 California's Department of Toxic Substances Control (DTSC) sent information request letters to California manufacturers who produce or import carbon nanotubes or who may export carbon nanotubes into the state. DTSC is requesting information about analytical test methods, fate and transport in the environment, and other relevant information from manufacturers of carbon nanotubes.<sup>2</sup>

Environment Canada recently announced a mandatory reporting program requiring companies and institutions that manufactured or imported a total quantity greater than 1 kilogram of an ENM during the calendar year to provide data. The policy will require basic information on the quantity of the substance that is manufactured or imported, details about the use of the substance, any data on physical and chemical properties, toxicity data that are currently available to respondents, and information on the procedures, policies, and technological solutions that have been put in place to prevent or minimize releases of the substance to the environment and exposure to individuals.<sup>3</sup>

And in Europe, the European Commission recently clarified that it will require companies to provide data on the risks of nanomaterials (note: this policy does not distinguish "engineered" nanomaterials) under its chemicals management program—Registration, Evaluation, Authorisation and Restriction of Chemical substances (REACH). As with existing substances, a "registration dossier" will have to be provided for companies that manufacture or import more than one ton of the nanoscale materials, with a chemical safety report required if more than 10 tons of the chemicals are imported or manufactured—the same standards for bulk chemicals. For nanomaterials, dossiers will have to include specific properties of the nanoform of that substance even when the bulk material is already in the market. If deemed necessary, the European Chemicals Agency can require any information about nanoscale substances, regardless of any other information required under REACH.<sup>4</sup> The European Food Safety Authority also released its opinion about the potential risks of nanomaterials in food, suggesting that "...widespread consumer and animal exposure to ENMs ingredients in food and feed is currently not likely within the EU, though there may be exposure to nanoscale fractions within existing micro/macroscale food/feed ingredients."<sup>5</sup>

Stay tuned; 2009 is likely to also bring new developments on the nano-front.

<sup>1</sup>Environmental Protection Agency. Nanoscale Materials Stewardship Program: Interim report. 2009. Available at <http://www.epa.gov/oppt/nano/nmsp-interim-report-final.pdf>

<sup>2</sup><http://www.dtsc.ca.gov/TechnologyDevelopment/Nanotechnology>

<sup>3</sup>[http://www.ec.gc.ca/substances/nsb/eng/nanoproposition\\_e.shtml](http://www.ec.gc.ca/substances/nsb/eng/nanoproposition_e.shtml)

<sup>4</sup><http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2008:2036:FIN:EN:PDF>

<sup>5</sup>European Food Safety Authority. Scientific opinion of the Scientific Committee on a request from the European Commission on the potential risks arising from nanoscience and nanotechnologies on food and feed safety. The EFSA Journal 958:13-39; 2009.

## Decision Analysis and Risk

Thomas P. Seager

### Towards Further Integration of Risk and Decision Analytics

Decision analysis is increasingly becoming an important complement to environmental and toxicological risk analysis, as evidenced by a new National Research Council (NRC) report titled *Science and Decisions: Advancing Risk Assessment*. This text traces progress in environmental risk assessment since the 1983 publication of *Risk Assessment in the Federal Government: Managing the Process*, better known as the "Red Book." A consistent theme that emerges from the numerous volumes that have followed the Red Book is an increasing emphasis on a decision-analytic approach to prioritizing risk assessment research, guiding stakeholder and public participation, and interpreting risk characterizations. The *Science and Decisions* book is no exception. While the committee of authors defends the paradigm of risk characterization first explicated in the Red Book (i.e., hazard identification, exposure assessment, dose-response assessment, and risk characterization), it recognizes that the Red Book recommendation to maintain a clear "distinction between assessment of risk and consideration of risk management alternatives" is now an impediment to timely and cost-effective decision making. Its principal new finding is that greater emphasis should be placed on the front-end contextual issues that frame risk characterization, such as problem formulation and risk management options. In the committee's view, linking risk characterization and assessment to management alternatives will make risk assessment more useful to decision makers who are confronted with high levels of complexity and practically irreducible uncertainties.

These findings are an extension of the trend set in previous NRC publications on risk, such as *Understanding Risk: Informing Decisions in a Democratic Society* (1996), which recommended a "decision-driven" approach. However, it is ironic that the *Science and Decisions* book should come out concurrently with another NRC report, titled *Review of Federal Strategy for Nanotechnology-Related Environmental, Health, and Safety Research*. While the *Science and Decisions* book makes only passing mention of nanotechnology, the *Review* report specifically addresses risk research related to nanostructured materials. The principal finding here is that the National Nanotechnology Initiative (NNI) lacks the essential elements of "strategy," such as a clear statement of purpose that will be "useful and applicable to decision-making that will reduce the potential environmental and health effects of nanotechnology." In

other words, the trend towards integrated decision- and risk-analytic approaches that has characterized the last 20 years of environmental risk assessment with regard to conventional chemicals has evidently failed to inform risk research in the nanotech domain—where the uncertainties are great- est and an integrated approach most necessary.

The work in the domain of the Decision Analysis and Risk Specialty Group now seems more pressing than ever. It is no longer sufficient to undertake the collection of data (e.g., with regard to dose response for nanomaterials) as an end unto itself. We must provide a decision-analytic basis for interpreting results, prioritizing new research, and making risk analysis credible and useful to policy makers, designers, and decision makers. Curiously enough, this necessity is now recognized in the area of climate change, if not environmental toxicology, per se. A new research program at the National Science Foundation, titled Decision Making Under Uncertainty Collaborative Groups (DMUU), seeks to fund research that will “generate fundamental new knowledge as well as information and tools that decision makers will find useful to help them incorporate climate change and related long-term environmental risks in their decision making.”

### Risk Communication

Cindy Jardine

It has been recognized that good risk communication practice is integrally linked to public participation in the risk management process. Well-structured, meaningful, and appropriate participatory processes are widely accepted as a means of producing decisions that are responsive to varying interests and values, including those of the community. Nonetheless, public participation in risk management decision making has had a checkered history. The nature of this is best captured by the comparison of public participation to “eating spinach”—while all people know that spinach is good for them in theory, they don’t necessarily want to eat it themselves or even see it served at their dinner table.<sup>1</sup> Consequently, there continues to be a gap between the concept and reality of stakeholder participation.

There is a substantive (and growing) volume of literature on public participation theories, concepts, frameworks, strategies, tools, and effectiveness. New and innovative methods promoting informed and equal deliberation of risk issues among stakeholders, such as consensus conferencing and citizen panels, have emerged in recent years. We are (fairly) certain that these advances are resulting in both higher-quality processes and ultimately more informed decision outcomes—but how do we really know? How do practitioners wade through the literature to determine the best participatory process for their risk issue?

In response to the lack of a single resource that could provide some insights into these issues, the National Academy of Sciences has recently published *Public Participation in Environmental Assessment and Decision Making* (2008). The book was produced from the recognized need “to provide an overall assessment of the merits and failings of participation, to offer guidance to practitioners, and to identify directions for further research.” It concluded that public participation can be valuable and that there are established principles and “best processes” (as opposed to “best practices”) that can be used for more effective partici-

pation. This book represents a wonderful resource for researchers and practitioners alike.

However, it was also recognized that this is a dynamic field and that books like this will inevitably be dated by the time they are published. This is a good thing—it means we are continuing to explore and learn about this highly important and diverse area of risk communication. It also means we need to continue the efforts initiated by the National Academy of Sciences to cumulatively document our knowledge and findings so that we might someday get everyone to “like spinach.”

<sup>1</sup>MacKean G, Thurston W. A Canadian model of public participation in health care planning and decision making. In: Stingl M, Wilson D, eds. Efficiency vs. equality: Health reform in Canada. Halifax, Nova Scotia: Fernwood Books Ltd.; 1999; 55-69.

### Ecological Risk Assessment

Jerry Cura, Kurt Frantzen, Wayne Landis, and Katrina von Stackelberg

Debate continues on how best to integrate ecological risk assessment (ERA) into environmental decisions and policy. Virginia Dale and colleagues (2008) summarize a 2006 U.S. Environmental Protection Agency (EPA) workshop on how to improve ERA.<sup>1</sup> The findings/recommendations included (1) peer review the Problem Formulation Stage, (2) incorporate life-cycle methods, (3) integrate assessment and monitoring to evaluate management outcomes, (4) develop cumulative assessment methods, (5) address levels of biological organization across spatial scales, and (6) use weight-of-evidence methods for complex assessments. The reports below demonstrate how some of these recommendations are coming to life across the basic science, assessor-practitioner, and regulatory/policy levels.

For example, Alessandro Dagnino and colleagues (2008) offer an advance in weight-of-evidence methodology with a new Expert Decision Support System (EDSS).<sup>2</sup> EDSS incorporates the Triad Approach comparing four data types: chemical analyses, bioassays, biomarkers, and ecological parameters (between site and reference areas) producing indices for biological damage/vulnerability and genotoxicity effects.

Extrapolation of ecological risk estimates to higher levels of organization remains difficult. Valery Forbes and colleagues (2008) conclude that the real limitation to population modeling is the paucity of information/data for model parameterization (e.g., laboratory data limitations, difficulties in species extrapolation, uncertainties regarding the critical life stage driving population effects, limited temporal exposure field information, etc.).<sup>3</sup>

Most ERAs conducted for chemical stressors under EPA guidelines focus on organism-level attributes (e.g., survival, growth, reproduction) as assessment endpoints and not population-level attributes (e.g., abundance, age-class structure, or production). While only occasionally evaluated directly, many believe populations to be the focus for protection. In June 2008, the EPA’s Risk Assessment Forum convened a workshop to evaluate the sufficiency of the science/practice of population-level ERA and identify key next steps. The workshop looked at current approaches/meth-

ods/tools, their strengths/limitations, and areas of research and other needs. The insights will inform and influence the Risk Assessment Forum concerning actions to supplement the 1998 Guidelines for Ecological Risk Assessment.<sup>4</sup>

Donald Baird and colleagues (2008) review Trait-Based Ecological Risk Assessment (TERA), which assumes that species with similar roles in an ecosystem are functionally interchangeable and, therefore, the description of communities as combinations of traits (as opposed to combinations of species) provides a more complete description of structure and function.<sup>5</sup> This method is better described as nascent than emergent because the authors recognize the need for ecologists to develop databases linking species with traits, are unclear how to link traits to stressors, and do not explain how TERA is substantially different in concept from the well-used representative species approach.

Cathy Laetz and colleagues (2009) report a concentration-response synergistic interaction between organophosphate and Carbamate pesticides via acetyl cholinesterase inhibition in vivo with salmonids; this is not observed in vitro.<sup>6</sup> Pesticide registration generally requires risk assessment performed chemical-by-chemical without consideration of other chemicals or interactions in the test. Here are two important pesticide classes presenting synergism not normally detected by in vitro screening. While the toxicological implications are important, the implications for ERA call for more care when assuming simplistic additive chemical interactions and that the exposure assessment should consider other stressors, not just the pesticide undergoing registration. Salmonids are a critical focus along the West Coast and under Endangered Species Act management; the implications reach far beyond pesticide registration.

Finally, the push academically, professionally, and at the regulatory level to look at Ecosystem Services is providing concepts, approaches, and tools to better account for the type, quality, and magnitude of environmental goods and services for consideration in environmental management decisions. EPA's \$70 million in-house research program (not counting extramural funding) will greatly influence assessment and management of ecological resources well into the future.

<sup>1</sup>Dale V, et al. Enhancing the ecological risk assessment process. *Integra Environ Assess Manage* 4(3):306–313; 2008.

<sup>2</sup>Dagnino A, et al. A “weight-of-evidence” approach for the integration of environmental “triad” data to assess ecological risk and biological vulnerability. *Integra Environ Assess Manage* 4(3):314–326; 2008.

<sup>3</sup>Forbes V, et al. The extrapolation problem and how population modeling can help. *Environ Tox Chem* 27(10):1,987–1,994; 2008.

<sup>4</sup>Munns W, et al. Toward guidelines for population-level ecological risk assessment. SETAC North America 29<sup>th</sup> Annual Meeting. #326, page 75; November 2008.

<sup>5</sup>Baird D, et al. Trait-based ecological risk assessment (TERA): The new frontier. *Integra Environ Assess Manage* 4(1):2-3; 2008.

<sup>6</sup>Laetz C, et al. The synergistic toxicity of pesticide mixtures: Implications for risk assessment and the conservation of endangered Pacific salmon. *Environ Health Perspec* 117:348-353; 2009.

## Dose Response

*Paul Feder, Peg Coleman, Jeff Gift, Dale Hattis, Ralph Kodell, Glenn Rice, and Rusty Thomas*

The Dose Response Specialty Group (DRSG) encompasses a range of topics broadly related to dose-response assessment. Dose response analysis is applied in many areas of risk assessment including but not limited to environmental exposures, food safety, drug safety, industrial hygiene, and national security.

A significant development in risk assessment and dose response modeling this year is the set of recommendations in the recent draft National Academy of Sciences report on risk assessment methodology titled *Science and Decisions: Advancing Risk Assessment*. The Academy report suggests that exposures that add to background processes and background endogenous and exogenous exposures can lack a threshold. It recommends that:

- Traditional uncertainty factors be replaced with distributions derived from empirical data.
- The RfD (reference dose) be adopted for exposure limits as a risk-specific dose for both noncancer and cancer endpoints.

An important application of dose response analysis is to toxicology and environmental health risk assessment. Major advances in the science are occurring through the use of genetic endpoints. New genomic technologies provide a unique opportunity to evaluate low-dose, precursor effects of carcinogens and identify dose-dependent transitions in their modes of action. Methods have been developed to analyze dose-response gene expression microarray data and generate benchmark dose values for individual genes. Genes can then be grouped by their functional role to estimate doses at which different cellular processes are altered. When analyzed over time and across species, the results can provide insight into the key events in the adverse response in support of a mode-of-action chemical risk assessment.

Another recent direction of advance in the practice of dose response analysis pertains to “model averaging.” For decades, dose-response modeling for risk assessment has generally relied on a single model for setting exposure levels, thus not addressing model uncertainty directly. Recently, model averaging has been explored as a way to incorporate model uncertainty directly into the risk assessment process.

In recent years there has been much activity in the development of risk assessment methods to predict the health effects of simultaneous exposure to mixtures of chemicals. Two categories of methods are proposed based on data availability, those based on whole mixtures and those based on the mixture components (e.g., dose addition, response addition). If whole-mixture toxicity data are available, they are preferred in environmental risk assessments. “Sufficient similarity” in dose response among related mixtures permits risk assessments to be based on tests on one mixture as a surrogate for “sufficiently similar” mixtures.

Much attention has been devoted to dose response analysis of the health impacts of exposure to bioorganisms, either due to epidemics or to bioagents attacks. The need for science-based methods to support decision making for biothreat agents is driving development of validated methodology for predicting human dose-response relationships that result in resistance or susceptibility to biological agents.

Mechanistic dose-response models for host-pathogen interactions build on existing validated physiologically based pharmacokinetic/pharmacodynamic (PBPK/PD) models predicting physical deposition and clearance of particles of similar dimensions in respiratory systems of humans, non-human primates, rabbits, and guinea pigs. Prototype models for anthrax and tularemia presented at SRA leverage existing data from humans and animals.

Over the years, engineering risk assessment of complex engineered systems such as chemical plants and nuclear reactors were based on “event trees” to assess the consequences of low-frequency, high-consequence accidents. In recent years this technology has been adapted to predict the probabilities of various scenarios associated with biological, chemical, and radiological terrorist attacks. Specification of the characteristics of the underlying event probability distributions were based on elicitation of subject matter expert judgment. Mathematical consequence models were built using simulation analysis to summarize, visualize, communicate, and interpret the resulting risk results.

## Biological Stressors

*Steve Anderson*

The challenges posed by biological stressors in our environment traverse many areas such as agriculture, the environment, and public health, to name a few. Members of the Biological Stressors Specialty Group (BSSG) work in all of these areas and deal with many new as well as many persistent challenges. We use a variety of approaches and methods in the endeavor of risk assessment. This coming fall the BSSG, in partnership with other organizations, is planning a day-and-a-half meeting in the Washington, DC, area to explore the “State of the State” of biostressor risk assessment and the issues, approaches, and tools used in this pursuit. The meeting will bring together experts from a broad range of fields to discuss and share their insights in risk assessment and discuss common issues and approaches. Among the proposed topics will be a discussion of the new tools in risk assessment, such as the multidisciplinary applications of “omics” technologies and bioinformatics including genomics, proteomics, and others across diverse risk assessment areas such as environmental, chemical/toxicological, food safety, drug, and medical product risk assessments. Large amounts of data from microarray studies, single

nucleotide polymorphism, and whole genome analyses are being generated to identify biomarkers for diseases and adverse effects; integration of these data and data needs for risk assessments certainly merit discussion by the BSSG and the broader risk assessment community. Another proposed topic is the use of medical informatics and large medical database and public health database information in risk assessments. Large sources of medical data from organizations such as the U.S. Centers for Disease Control and Prevention, Centers for Medicare & Medicaid Services, health maintenance organizations, and other health care providers contain information on the medical condition and treatment of tens of millions of persons in the United States. Risk assessors use large databases to improve estimates of frequency and quantity of medical product used and food consumption. They can potentially be used to estimate the rate of diseases, underlying conditions, and adverse events related to certain environmental exposures, foods, medicines, and medical products and through other products and routes of exposure. These rich sources of database information complement and augment currently available information on the rates of foodborne diseases, and possibly cancers and other adverse effects related to environmental exposures. Certain large medical databases are especially useful since they contain unique patient identifier information, which allows for subsequent follow-up, study, and analysis of patient populations. New methodologies and approaches certainly advance the risk assessment field. Other topics of interest for the meeting will be a discussion of the current state of dose-response modeling approaches for use of animal model data and extrapolation to predict human dose-response for microbial pathogens. The planning committee is also considering sessions for several other methodological and emerging issues and technologies such as nanotechnology, environmental immunotoxicants, and others. More details about meeting content will be forthcoming as we finalize the agenda. The BSSG invites the SRA community to participate in the meeting. We look forward to a lively discussion of emerging technologies and the current state of risk assessment for biological stressors. For more information about the meeting or BSSG please contact the following officers: Chair Steve Anderson ([steven.anderson@fda.hhs.gov](mailto:steven.anderson@fda.hhs.gov)) or Vice-Chair David Oryang ([david.oryang@fda.hhs.gov](mailto:david.oryang@fda.hhs.gov)).



*(Conference, continued from page 1)*

Bush, Alison Cullen, Jim Hammitt, Amber Jessup, Dominic Mancini, Stuart Shapiro, Jonathan Wiener, and Jun Zhuang, as well as Sandy Hoffman and others from RFF. We would also like to thank the George Washington University Trachtenberg School of Public Policy and Public Administration; the Harvard Center for Risk Analysis; Industrial Economics, Incorporated; the Mercatus Center at George Mason University; the Society for Benefit-Cost Analysis; the SRA National Capital Area Chapter; and the University of Maryland, Baltimore County, for supporting the conference. For more information, please see the SRA Web site.

### New Ideas for Risk Regulation

#### Conference Topics

- OIRA Domestically: Towards Better Regulation
- OIRA Internationally: Towards Global Cooperation
- Regulating Highly Uncertain and Potentially Catastrophic Risks
- Integrating Risk Assessment and Risk Management
- What Does Benefit-Cost Analysis Tell Us? Positive and Normative Justifications
- Do We Know What We Prefer? Implications of Behavioral Economics for Research on Preferences
- Beyond Efficiency: Incorporating Equity in Regulatory Analysis
- The Future of Regulatory Oversight



The publication of monthly issues for Volume 29 (2009) of *Risk Analysis* is proceeding well and has been well received by readers.

We begin each issue with an editorial that summarizes the papers and discusses over-arching themes, in addition to highlighting any special features in the issue. In the March issue, we listed and thanked over 500 individuals who reviewed manuscripts in 2008. The lead article in the April issue is a summary and review of the National Research Council's *Toxicity Testing in the 21<sup>st</sup> Century: A Vision and*

*a Strategy* report by Daniel Krewski, Melvin Andersen, Ellen Mantus, and Lauren Zeise. Suresh Moolgavkar, our area editor for Health Risk Assessment, asked six experts with different perspectives and from varied fields to comment on the paper. Each praises the vision and offers suggestions for making it more useful. Krewski and colleagues then respond to the commentaries.

We hope to present more perspective pieces with invited commentaries in future issues and we think that readers will enjoy and appreciate the debates that they raise.

### Call for Nominations for Two Area Editors for *Risk Analysis: An International Journal*

The Society for Risk Analysis Publications Committee seeks nominations for two area editor positions for *Risk Analysis*—in Public Policy and in Engineering. Each position is a three-year appointment to serve on the editorial staff.

**Public policy:** This is a new area editor position. It responds to the crucial role of public policy in our field. The area editor should have published on risk-related public policy topics and be familiar with associated areas of research and of government policy. The area editor should have a background in one or more relevant disciplines, such as anthropology, economics, geography, law, management, political science, psychology, public policy, and sociology.

**Engineering:** After many years of service, Professor Yacov Haimes plans to step down as the area editor for engineering. He will continue until we have identified his successor. The area editor should have published on risk-related engineering topics and be familiar with the associated areas of quantitative risk assessment and risk management. The area editor should have a background in one or more relevant engineering disciplines, such as biomedical, civil, chemical, electrical, environmental, mechanical, nuclear, and complex systems.

**Responsibilities:** Each area editor oversees the peer-review process for submitted manuscripts in this discipline area and makes recommendations about the suitability of submitted manuscripts for publication in the journal. In addition, the area editor is expected to be a prominent scholar in the field and to seek topics and invite submissions to ensure that the journal is publishing on the most prominent topics in the field. The area editors are expected to meet for one half day at the SRA annual meeting (held each December) to discuss their agenda for the coming year. They may also meet at other times during the year. Each area editor position includes a compensation stipend.

Nominations for Area Editor for Public Policy and Area Editor for Engineering should include a brief statement of the nominee's qualifications, relevant experience, plans for the journal, and a CV. The nomination should be submitted to SRA Past President Jonathan Wiener, chair of the Publications Committee, Society for Risk Analysis, by email at [wieners@law.duke.edu](mailto:wieners@law.duke.edu), and to Editor-in-Chief Michael Greenberg by email at [mrg@rutgers.edu](mailto:mrg@rutgers.edu).

We will continue the search until the positions are filled.



## News and Announcements

### 2009 Dues

If you haven't yet paid your dues for 2009, renew now before you miss another issue of *Risk Analysis*. You can pay online at <http://www.sra.org/membership.php>. Click on the Members Only link and then log in with your membership number and password. If you need a paper invoice please contact SRA at [SRA@burkinc.com](mailto:SRA@burkinc.com).

### New National Research Council Committee

Use of Emerging Science for Environmental Health Decisions, a new standing committee of the National Research Council, will provide a public venue for communication among government, industry, environmental groups, and the academic community about the use of new discoveries, new tools, and new approaches for guiding environmental health

decisions. This activity is supported by the National Institute of Environmental Health Sciences.

Sign up to receive workshop announcements, newsletters, and other useful updates on Use of Emerging Science for Environmental Health Decisions at <http://nas.edu/envirohealth>.

### Risk Analysis in Education Conference

The Risk Analysis in Education Conference (14-15 June 2009 at the University of Nevada, Reno) intends to serve as a bridge between the concepts and content found in risk analysis and the desire to improve classroom curriculum and instructional delivery at all levels (kindergarten to university). For more information go to <http://environment.unr.edu/environmental-sciences/events>.





## Committees

### Committee of Past Presidents

*Jonathan Wiener, SRA Past President*

#### SRA Committee Submits Ideas to OMB on Improving Regulatory Review

Soon after his inauguration, on 30 January 2009, President Barack Obama issued a memorandum to the Office of Management & Budget (OMB), published at 74 Fed. Reg. 5977 (3 February 2009), seeking OMB's recommendations within 100 days on a new Executive Order on Regulatory Review (to succeed President Bill Clinton's Executive Order 12866 of September 1993, still in force). Shortly thereafter, OMB issued a request for public comments, at 74 Fed. Reg. 8819 (26 February 2009), requesting public input by 16 March 2009. Both memos are available at <http://www.reginfo.gov/public/jsp/EO/fedRegReview/fedRegReview.jsp>.

In response, the Society for Risk Analysis (SRA) leadership issued an email alert to all SRA members about the opportunity for any individual to submit input to OMB. SRA President Alison Cullen then convened an ad hoc committee of past presidents of the SRA to collect ideas to submit to OMB and asked immediate Past President Jonathan Wiener to chair it. Wiener had helped draft EO 12866 in 1993 and has devoted much of his scholarship to improving risk regulation. All 28 past presidents of SRA were invited to join; 18 volunteered to participate.

The committee deliberated through a series of conference calls and produced suggestions to OMB and its Office of Information and Regulatory Affairs (OIRA) on eight topics: enhancing the quality of science and information for decisions, adopting a principle of proportionate analysis, better addressing uncertainty, enhancing empirical analy-

sis, improving methods of valuation, broadening the scope of regulatory review, prompting desirable new regulations, and strengthening OIRA's global role. The SRA committee's submission and further information are posted at [http://www.sra.org/OMB\\_regulatory\\_review.php](http://www.sra.org/OMB_regulatory_review.php). All public comments received by OMB, including those from the SRA committee, are available at <http://www.reginfo.gov/public/jsp/EO/fedRegReview/publicComments.jsp>.

The committee made clear in its document that although the committee members had discussed and support the communication of these ideas, each individual member may have distinct views on each idea; that this document does not represent the position of the SRA, because the SRA does not take positions on policy issues; that the committee intends this document to stimulate discussion; that SRA intends to hold additional opportunities for discussion, including a public conference in June 2009;

that any individual SRA member, like any member of the public, is free to submit his or her own input on these matters directly to OMB; and that this document reflects the ideas collected by the individual members of the committee and does not reflect the views of others, of the SRA Council, or of the SRA as a whole.

By the time this issue of the *RISK newsletter* is in print, OMB may have taken additional steps. SRA will seek to keep members informed and to continue contributing to the dialogue on revising and improving risk regulation.

### Committee of Past Presidents

**Chris G. Whipple (1982-1983)**

**Paul Slovic (1983-1984)**

**Elizabeth L. Anderson (1984-1985)**

**Richard C. Schwing (1988-1989)**

**D. Warner North (1991-1992)**

**Robert G. Tardiff (1993-1994)**

**M. Elisabeth Paté-Cornell (1994-1995)**

**Rae Zimmerman (1996-1997)**

**Yacov Y. Haimes (1997-1998)**

**Gail Charnley (1998-1999)**

**Roger Kasperson (1999-2000)**

**John Ahearne (2000-2001)**

**Robin Cantor (2001-2002)**

**Bernie Goldstein (2002-2003)**

**Baruch Fischhoff (2004-2005)**

**H. Christopher Frey (2005-2006)**

**Jonathan B. Wiener (2007-2008)**

**Alison C. Cullen (2008-2009)**

### Communications Committee

*Sharon M. Friedman, Chair*

The Communications Committee was established to help manage external communications activities for SRA and make the membership aware of important Society information. It has oversight for the *RISK newsletter* and the SRA Web site as well as congressional briefings on public policy issues.

Another important part of its work is to publicize noteworthy articles from *Risk Analysis* to the general public via the mass media. This activity is designed to help raise the profile of both SRA and the journal with key target audiences.

From July 2007 to June 2008, when *Risk Analysis* was still published quarterly, news releases were written about four studies in the journal. All four releases garnered coverage in both the mainstream and trade press. With the advent of *Risk Analysis*' monthly publication in January 2009, work on promoting articles from the journal has increased. One

news release was distributed about a study in the February issue and received more than 300 hits on Web sites worldwide. News releases about studies in both the March and April issues have been issued and one about a study in the May issue is being developed. Each study that is promoted is selected on the advice of a five-person subcommittee of the Communications Committee, which also approves the news release before it is sent to the media. The lead author of the study also must approve the news release. This subcommittee works closely with the editor and managing editor of *Risk Analysis*, and there also have been two meetings with representatives of the journal's publisher, Wiley-Blackwell, to seek its input into this process.

The *RISK newsletter* for the first quarter of 2009 was the 48<sup>th</sup> issue produced by the team of Genevieve Roessler, editor, Mary Walchuk, managing editor, and Sharon Hebl, editorial associate. They have introduced a number of innova-

tions over the years including the feature “What Do We Do,” which presents varied aspects of the risk analysis profession to members. Jim Butler continues as SRA’s Webmaster, working with the Communications Committee on various issues.

In the future, in addition to continuing to promote studies from *Risk Analysis*, the Communications Committee will explore using more feature stories in the newsletter, finding ways to use the Web site to help recruit new members, and developing additional promotional activities for SRA.

## Regions Committee

*Olivier Salvi and Donna Vorhees, Cochairs*

### Joint Activities of Regional Organizations Around the World

Representatives of regional organizations around the world strongly endorse a global calendar on the Society for Risk Analysis (SRA) Web site. The calendar would include events sponsored by all regional organizations around the world. These events include those organized by the regional organization either on its own or in collaboration with another group. Jon Levy of the New England region and Susan Flack of the Rocky Mountain region recommended allowing members to subscribe to a notification service to (1) be notified about upcoming events in the next month and (2) be notified when new items are posted to the calendar such as minutes, slides, and/or video from past events. David Drupa will send invitations to access the calendar once the calendar is activated.

### International Regional Organization Activities

Efforts to create new regional organizations and encourage participation in SRA continue. In particular, the Risk Analysis Council (RAC) of China Association for Disaster Prevention sponsored its 3<sup>rd</sup> Annual Meeting in November 2008. The meeting was a great success with high participation. RAC is the core group seeking to launch a new SRA-China regional organization, and RAC President Chongfu Huang (College of Resources Science and Technology, Beijing Normal University, nortzw@ires.cn) has prepared a draft bylaw, and the creation of SRA China could be official in time for the 2<sup>nd</sup> International Conference on Risk Analysis and Crisis Response (RACR-2009) 19-21 October 2009 in Beijing, China. SRA members in India and Egypt are making progress in creating regional organizations in their countries.

To reinforce networking among the regional organizations, SRA-Europe is organizing an international symposium for leaders of regional organizations at its annual meeting (28 June-1 July 2009 in Karlstad, Sweden). In addition, the “Asian Symposium on Risk” is being coorganized by

Japan, Korea, and China and will be held in Beijing 17-19 May 2009. Other opportunities to participate in SRA events around the world include (1) SRA-Russia Meeting, 22-25 April 2009 in Moscow, (2) SRA-Australia/New Zealand Annual Meeting, Wellington, New Zealand, 28-30 September 2009, and (3) SRA-Japan Annual Research Conference, 28-29 November 2009.

### U.S. Regional Organization Activities

Representatives of SRA’s regional organizations in the United States planned and began implementation of several initiatives that will further the goals of all regional organizations around the world by increasing the visibility of and, consequently, participation in SRA-sponsored events. Representatives discussed their ideas at the 2008 SRA Annual Meeting in Boston and during two conference calls in the first quarter of 2009.

Jon Levy and Susan Flack recommended some additional improvements to the SRA Web site that will encourage fruitful collaboration among regions: (1) provide a direct link to the regional organization page instead of directing users to first click on “About SRA” (this change should appear soon) and (2) allow regional organizations to post membership lists along with contact information and areas of expertise at the Regions page of SRA’s Web site (SRA is considering this request.)

The Upstate New York region is resubmitting its New Initiatives proposal to network with and recruit members from New York academic institutions. The region expects its effort to be a model for other regions and is collaborating with other regions in preparing its revised proposal. Elaine Faustman presented an opportunity to participate in a monthly technical conference call organized by the Society of Toxicology.

The next call will be 13 May 2009, regarding the 2008 National Research Council report *Science and Decisions: Advancing Risk Assessment*.



Members who attended the 3<sup>rd</sup> Annual Meeting of the Risk Analysis Council of China Association for Disaster Prevention. During the meeting, the new leaders of RAC were elected: President Chongfu Huang (front row, left 7); Vice Presidents Jinren Ni (front row, left 8) and Zongfang Zhou (front row, left 6); Senior Fellows Guosheng Qu (front row, left 5), Luchuan Ren (front row, right 3), Jiali Feng (front row, left 2), Qiang Xu (fifth row, left 6), and Xilin Liu (front row, right 2); Secretary-General and Executive Vice Secretary-General Sijian Zhao (sixth row, left 3) and Xiaoling Mao (front row, left 1); and Vice Secretary-General in charge of international affairs Guofang Zhai (third row, right 6).

## Conferences and Workshops Committee

*Jim Lambert, Chair*

### SRA-Recognized Events

#### **Enterprise Risk Management 2009**

Boston, Massachusetts, 6-7 April 2009

#### **2009 Risk Symposium: Risk Analysis of Complex Systems for National Security**

Santa Fe, New Mexico, 7-9 April 2009

**Analyzing Risk: Science, Assessment, and Management**  
Harvard School of Public Health,  
Boston, Massachusetts, 14-17 April 2009

**Managing the Social Impacts of Change from a Risk Perspective**  
Beijing, China, 15-17 April 2009

#### **Health Effects Institute 2009 Annual Conference**

Portland, Oregon, 3-5 May 2009

#### **Air Toxics: Transcending Boundaries Better Science for Better Health**

Ann Arbor, Michigan, 6-7 May 2009

#### **Effective Risk Communication: Theory, Tools, and Practical Skills for Communicating about Risk**

Harvard School of Public Health,  
Boston, Massachusetts, 18-20 May 2009

#### **Environmental Policy: A Multinational Conference on Policy Analysis and Teaching Methods**

Seoul, Korea, 11-13 June 2009

#### **Third Annual Conference on Security Analysis and Risk Management**

Arlington, Virginia, 16-18 June 2009

#### **New Ideas for Risk Regulation Conference**

Sponsored by SRA and Resources for the Future  
Washington, DC, 22-23 June 2009

#### **First Risk Analysis in Education Conference**

Reno, Nevada, 13-15 July 2009

#### **2<sup>nd</sup> International Conference on Risk Analysis and Crisis Response**

Beijing, China, 19-21 October 2009

The SRA Conferences and Workshops (C&W) Committee identifies events of interest to SRA members throughout the year and organizes the Sunday workshop programs at the SRA annual meeting and at SRA world congresses.

We look forward to your new and reprised proposals for the December 2009 meeting in Baltimore. Check the "Events" link at the SRA Web site for instructions to submit a workshop proposal. Contact our SRA C&W subcommittee chairs for early feedback on your developing proposal: Margaret MacDonell ([macdonell@anl.gov](mailto:macdonell@anl.gov)) and Jacqueline Patterson ([patterson@tera.org](mailto:patterson@tera.org)).

Our recognized-events subcommittee identifies conferences and workshops of interest to SRA members. Upcoming SRA-recognized events around the world are listed at the "Events" section of the SRA Web site. If you have an event that would benefit from recognition on the Web site and in the SRA quarterly newsletter, please follow the instructions at the Events site or contact our SRA C&W subcommittee chairs for all events other than the annual meeting: Katy Walker ([kdwalker1206@hotmail.com](mailto:kdwalker1206@hotmail.com)) and Jim Wilson ([wilson.jimjudy@att.net](mailto:wilson.jimjudy@att.net)).

Our C&W Committee was awarded grant funding for a video initiative from the SRA Council for 2008-2009. We are producing video content of several C&W workshops of the 2008 annual meeting, principally for distribution to SRA members and others in the developing world. Rick Belzer ([Belzer@RegulatoryCheckbook.Org](mailto:Belzer@RegulatoryCheckbook.Org)) is leading a C&W task force for our video new initiative.

Check the "Events" link at [SRA.org](http://SRA.org) for breaking news of SRA continuing education and recognized events. Contact Conferences and Workshops Committee Chair Jim Lambert ([lambert@virginia.edu](mailto:lambert@virginia.edu)) or any subcommittee chair if you would be willing to join and serve our SRA C&W Committee in 2009. The SRA C&W Committee has reviewed numerous events for SRA recognition. Check the SRA Web site for live links and details for upcoming events on a wide range of topics!



## Regional Organizations

### **SRA-Europe**

[www.sraeurope.org](http://www.sraeurope.org)

*Julie Barnett, SRA-E Communication Officer*

In 2009 the Society for Risk Analysis-Europe (SRA-E) meeting will be held 28 June-1 July in Karlstad, Sweden. The main sponsor of the conference is the newly created Swedish Civil Contingencies Agency, and the conference will be cohosted by Karlstad University, the Swedish National Defence College, and the County Administrative Board of Värmland. The conference theme is "From the Everyday to the Extraordinary: Challenges for Risk Analysis and Management."

Within this theme there are four main strands: everyday risks and prevention of injuries, management of natural risk and climate change, disaster risk management in an international context, and future risks and technologies for security and safety.

The response to the call for papers has been very positive, with over 150 individual papers and a number of proposals for minisymposia and roundtable discussions. Each conference day will open with a plenary session, followed by parallel sessions.

On Monday a roundtable with presentations and discussions will highlight the overall theme from the everyday to the extraordinary, with contributions from well-known scholars from different fields, including Professors Ortwin Renn, Glynis Breakwell, and Asa Boholm.

In the plenary session on Tuesday, Professor Paul Slovic will give a keynote talk: "The More Who Die, the Less We Care: Confronting Psychic Numbing." In the same session Dr. Johan Schaar, head of the secretariat of the Commission on Climate Change and Development (<http://www.ccdcommission.org/secretariat.html>), will provide insights from the then newly released final report of the Commission (upcoming in May 2009).

The final plenary session will focus on the challenges of shared international issues with contributions from prominent SRA leaders including Alison Cullen, Olivier Salvi, and Daniela Leonte. The minisymposia will cover a number of significant topics, including climate change and energy, environmental threats, communication and precautionary measures regarding mobile telephony, public involvement and communication, and educational issues within the risk community. A new feature for the 2009 meeting will be two student scholarship awards, designed to encourage student researchers and PhD candidates to join the meeting and the SRA network. Posters will be displayed during a special session, with refreshments hosted by the city of Karlstad.

Social highlights during the conference also include a reception at the regional governor's residence, a chartered steam locomotive trip through the countryside, and dinner at Rottneros Park, famous from the works of Nobel Laureate Selma Lagerlöf. Full details of the conference can be found on the SRA-E Web site ([www.sraeurope.org](http://www.sraeurope.org)). Please note the deadline for early-bird registration is 15 May.

### SRA-Latin America

*Elizabeth Nunes Alves*

SRA-Latin America (SRA-LA) has started with great enthusiasm. After the 2009 SRA Annual Meeting in Boston, SRA-LA President Esperanza Lopes Vasquez immediately established a plan for this year with the Executive Committee. The main goals are to (1) review the SRA-LA membership list and achieve new members, (2) organize the regional meeting for the end of this year or early 2010, (3) organize the regional specialty groups, (4) organize a committee meeting in July, and (5) improve the SRA-LA Web page. Secondary goals, but no less important, are to start organizing a special issue in the *Risk Analysis* journal, prepare the SRA-LA journal, organize multidisciplinary groups for work on ongoing global topics, and organize symposiums and conferences in Latin American countries.

In 2008 the SRA-LA family included nearly 100 members, but we want to increase this number; we believe that there is a representative scientific and professional risk analysis community to be caught. We started to issue invitations to prospective SRA-LA new members, showing the benefits of International SRA membership.

One great achievement was the Web blackboard SRA-LA community. Blackboard Connections is a central hub, a town square of sorts. SRA-LA expects to use it to share best practices, spread knowledge and expertise, strengthen the relationships between members, and reach the SRA-LA goals.

Latin America has 20 countries and three different languages (Spanish, Portuguese, and French), nevertheless SRA-LA plans to overcome its barriers to achieve its goals and cooperate for the growth and spread of this issue, which is so important, named "Risk Analysis."

### National Capital Area [www.sra.org/ncac/index.html](http://www.sra.org/ncac/index.html)

*Marina Moses, President*

The National Capital Area Regional Organization of the Society for Risk Analysis in conjunction with the American Chemistry Council presented a workshop on 8 April 2009

titled "Beyond Safety Assessment: A New Approach to Characterizing Risk."

Representatives of the Food and Drug Administration presented the findings of their Draft Risk and Benefit Assessment Report issued on 15 January 2009 discussing health effects associated with consumption of commercial fish. The event took place at Resources for the Future.

On Monday, 4 May 2009, the National Capital Area Regional Organization will host a mentoring event at Johns Hopkins University for interested students and members of the public on careers in the field of risk.

For additional information on upcoming National Capital Area Regional Organization activities please refer to our Web site, <http://www.sra.org/ncac/index.html>.

### New England [www.sra-ne.org](http://www.sra-ne.org)

*Jonathan Levy, President*

The New England Regional Organization held multiple events over the winter and early spring. On 5 March 2009, we held a poster contest to highlight the current research of graduate students and post-doctoral researchers in the area, at which multiple consulting firms, nonprofits, and government agencies also presented posters. Awards were given to the top student/post-doc posters, as voted on by members in attendance, and we are pleased to announce the winners. The top prize went to Susan Wason for her poster titled "Evaluating Heterogeneity in Risk to Pesticides for Children Living in an Urban Low-Income Environment." Honorable mention went to Zhao Dong ("Gellyfish—An In-Situ Equilibrium-Based Sampler for Determining Multiple Free Metal Ion Concentrations in Aquatic Systems") and Jonathan Buonocore ("Characterization of the Economic and Public Health Impacts of Traffic Congestion"). Congratulations to all who participated in an interesting and dynamic event, which we hope to replicate in future years.



**Award recipients, left to right, Zhao Dong, Jonathan Buonocore, and Susan Wason**

We also held our annual joint meeting with the Licensed Site Professionals Association on 9 April, at which Todd Bridges (director of the Center for Contaminated Sediments, United States Army Corps of Engineers, Engineering Research and Development Center, Vicksburg, Mississippi) presented "The Dirty Business of Assessing and Managing Risks from Contaminated Sediments."

Finally, we held our last formal event of the academic year on 28 April, with Jim Neumann from Industrial Economics and Mort Webster from Massachusetts Institute of Technology presenting on issues of risk management and uncertainty related to climate change.

Materials from all recent events, including a link to a video of the 29 January session on the National Research Council

report *Science and Decisions: Advancing Risk Assessment* and details about upcoming events, can be found at [www.sra-ne.org](http://www.sra-ne.org).

## Upstate New York

<http://esc.syrres.com/sraupstateny>

Peg Coleman, Councilor

Speakers from across New York State (Buffalo to West Point) converged on Syracuse on 24 March 2009 to provide stimulating views of current practices and potential improvements in the ways we prepare for disasters, natural and intentional. State University of New York College of Environmental Science and Forestry (SUNY-ESF) President Neil Murphy hosted the symposium, "Disaster Preparedness," in the Presidents' Room of Syracuse's first "green" building, Baker Laboratory (LEED silver certified). Dr. Greg Parnell (U.S. Military Academy, West Point) delivered the keynote address, "Intelligent Adversary Risk Analysis: Bioterrorism Example"; Keli Perrin (Syracuse University) spoke on "Homeland Security Risk Assessment: Methodology or Politics?"; and Upstate New York SRA President-elect JiYoung Park (University at Buffalo, SUNY) spoke on "Eco-

nommic Impact of Hurricane Disruptions on Oil Industry". Participants included members of Upstate New York SRA from Cornell University, Hills, Farnham & Hills, O'Brien & Gere, SRC, and SUNY-ESF, as well as students and nonmembers from university security and academic departments of Cazenovia College, Syracuse University, and SUNY-ESF. The Student Association on Terrorism and Security Analysis (SATSA) of Syracuse University contributed to sponsorship of the event, and organizers from Upstate New York SRA included President Donald Geiss, Jr., Councilors Brenda Nordenstam and Peg Coleman, member Stacey Massulik, and Webmaster Michele Stephenson.

Upstate New York SRA is planning a fall workshop to be hosted by University at Buffalo. Please contact any of the officers or visit our Web site (<http://esc.syrres.com/sraupstateny>) for more information on risk analysis events and activities in Upstate New York. Upstate New York SRA Officers for 2009 are President Donald Geiss, Jr. (Hills, Farnham & Hills), President-elect JiYoung Park (University at Buffalo), Secretary Jason Vogel (ARCADIS), Treasurer Bill Thayer (NYS DEC), and Councilors Peg Coleman (SRC), Swiatoslav Kaczmar (O'Brien & Gere), and Brenda Nordenstam (SUNY-ESF).



## Specialty Groups

### Dose Response Specialty Group

[www.sra.org/drsg](http://www.sra.org/drsg)

Paul Feder, Chair

The Dose Response Specialty Group (DRSG) Web site can be accessed at [sra.org/drsg](http://sra.org/drsg). The Web site includes executive committee and member contact information, bylaws, meeting minutes, information about and abstracts from past teleseminars, and detailed information about application for the student research award program and past winners.

DRSG got its year started by planning its 2009 agenda. The principal activities are the student awards program, a quarterly teleseminar series, and organization of symposia at the annual meeting. The first two activities are well underway and planning discussions have been held concerning the third.

#### Student Awards

The Dose-Response Specialty Group (DRSG) is pleased to offer a merit award to a student conducting graduate research in dose-response assessment. The research may be on any topic broadly related to dose-response assessment, including but not limited to laboratory investigation, methods development, comparative analyses, novel applications, studies on strengthening the role of dose-response assessment in risk assessment, uncertainty analysis, harmonization, dosimetry, genetics, and molecular biology. In addition to the peer recognition of the student's scientific accomplishment, the award includes a registration fee waiver to the 2009 SRA Annual Meeting, an engraved plaque, and a \$500 honorarium. The DRSG award winner will present his/her results and receive his/her award at the annual meeting, absent an extraordinary circumstance preventing this. The award is merit based and competitive.

All abstracts must be submitted for presentation at the 2009 SRA Annual Meeting, 6-9 December 2009, in Baltimore, Maryland, following normal SRA guidelines for ab-

stract submission ([www.sra.org/events\\_2009\\_meeting.php](http://www.sra.org/events_2009_meeting.php) for meeting dates, guidelines, and deadlines). See the DRSG Web site (<http://www.sra.org/drsg>) for information, examples of winners' abstracts from previous years, and what must be completed by the abstract submission deadline.

Questions concerning the DRSG award procedures should be addressed to Patty Toccalino, PhD, Vice-Chair, DRSG, U.S. Geological Survey; phone: 916-278-3090; email: [ptocca@usgs.gov](mailto:ptocca@usgs.gov).

#### Teleseminar Series

DRSG is continuing its quarterly teleseminar series under the leadership of Chair-elect Jeff Gift, with teleseminars in March, June, and September. It was decided this year to focus the series on issues associated with the current draft National Academy of Sciences report on risk assessment methodology titled *Science and Decisions: Advancing Risk Assessment*. The Society of Toxicology Risk Assessment Specialty Section (SOT/RASS) is also participating in these discussions, which focus on aspects of the report related to dose-response methods.

The first teleseminar in the series was held the first week in March with former (and founding) Chair Michael Dourson the presenter. Dr. Dourson reviewed the evolution of risk assessment and National Academy of Sciences recommendations for the practice of risk assessment at the Environmental Protection Agency, such as the low-dose linearity issue for noncancer endpoints. Members were asked to submit questions and issues for discussion prior to and after the teleconference. These questions were reviewed and clarified, with the aim of devoting future teleseminars in the series to discussion of these issues and joint recommendations from SRA/DRSG and SOT/RASS.

DRSG is considering organizing a symposium at the annual meetings to the results of the teleseminar series, including future concerns and suggestions.

## Decision Analysis and Risk Specialty Group

Terry Sullivan, President

The Decision Analysis and Risk Specialty Group (DARSG) is actively pursuing activities to support the annual SRA meeting in December. First, we have targeted two courses at this point: (1) Fundamentals of Decision Analysis and (2) Application of Life Cycle Analysis within the Decision Framework. If you have an interest in receiving training on other decision analysis topics, please let me know (TSullivan@bnl.gov). Second, we encourage our members to develop symposia (four or eight papers on a specific topic). Please let me know if you wish to submit a symposium and we will facilitate getting it into the program. Third, we also encourage the submission of student papers for the annual meeting. There will be an award for the best student paper. Our Web site is under development and should be operational by May. Members of DARSG will be informed when it is operational. Finally, we solicit your volunteering or recommending people for the position of president-elect of DARSG. An election will be held later this year.

The Environmental Protection Agency-sponsored "Decision Analysis: Supporting Environmental Decision Makers Workshop" held 31 March-1 April 2009 highlighted the growing emphasis on the application of decision tools to structure the problem and support decision makers. This workshop complemented the ideas expressed by Tom Seager in this issue.

## Engineering and Infrastructure Specialty Group

<http://tinyurl.com/eisghome>

Kenneth Crowther, Chair

For the Engineering and Infrastructure Specialty Group (EISG), this quarter has again been characterized by active work in risk analysis of engineering and infrastructure systems, covering topics ranging from homeland security of critical infrastructure, emergency response, and cyber security to emerging renewable energy systems, safety critical systems, and much more. Please consider preparing part

of your work to share with colleagues at the upcoming annual meeting in Baltimore or by submitting manuscripts to *Risk Analysis*.

We encourage each member to organize a symposium, invite colleagues, or submit an abstract for the upcoming annual meeting of the Society of Risk Analysis. Abstract submissions are due at the end of May.

We would like to especially encourage our student members to submit abstracts for our student merit award competition. Last year we gave two merit awards, recognizing students for their work in risk analysis, waiving conference registration, and offsetting their travel expenses. Members who advise students, please encourage your students to compete. Please note that the winning student(s) must commit to attend the conference and present their winning paper during an engineering and infrastructure regular session.

If you would like to propose ideas for the EISG, or would like to request the organization of a symposium on a particular topic, please contact EISG President Kenneth Crowther (kgcrowther@virginia.edu). We look forward to your submissions so that we can prepare an enriching conference.

## Exposure Assessment Specialty Group

<http://groups.yahoo.com/group/sraeasg>

Tony Fristachi, Chair

The Exposure Assessment Specialty Group (EASG) is comprised of members who are interested in the role of exposure assessment in risk analysis. Open to all members, the group promotes and fosters independent and collaborative research in all facets of exposure science and serves as a resource to the Society in matters concerning the role of exposure in risk analysis. After a late start, EASG activities for 2009 are under way. The group will be sponsoring two teleseminars this year. Also on the agenda are undergraduate- and graduate-level student awards as well as a mixer at the conference in Baltimore. Our business meetings are held on the first Wednesday of each month. Details can be found at our EASG Yahoo® group page: <http://groups.yahoo.com/group/sraeasg>.



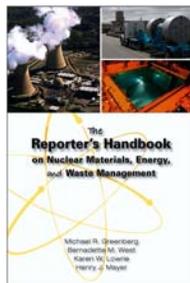


## Member News

### Michael R. Greenberg, Karen W. Lowrie, Henry J. Mayer

Society for Risk Analysis (SRA) members Michael R. Greenberg, Karen W. Lowrie, and Henry J. Mayer, along with Bernadette M. West, have written *The Reporter's Handbook on Nuclear Materials, Energy, and Waste Management*. An essential reference for journalists, activists, and students, this book presents scientifically accurate and accessible overviews of over 20 of the most important issues in the nuclear realm, including health effects, nuclear safety and engineering, Three Mile Island and Chernobyl, nuclear medicine, food irradiation, transport of nuclear materials, spent fuel, nuclear weapons, and global warming. More information on the book can be found at [www.vanderbiltuniversitypress.com](http://www.vanderbiltuniversitypress.com).

Greenberg, Lowrie, and Mayer are associated with the Edward J. Bloustein School of Planning and Public Policy



at Rutgers. Greenberg is editor in chief of *Risk Analysis*, where Lowrie serves as managing editor. Bernadette West is cochair of the Health Systems and Policy Department at University of Medicine & Dentistry of New Jersey School of Public Health. Drs. Greenberg, Lowrie, and Mayer are all affiliated with the Consortium for Risk Evaluation with Stakeholder Participation, a consortium of universities working to advance cost-effective, risk-informed cleanup of the nation's nuclear weapons production facility sites and management of potential future nuclear sites and wastes.

Contributors to the book as sources or reviewers were SRA members Joanna Burger, Robert Budnitz, Caron Chess, B. John Garrick, Bernard Goldstein, Paul Slovic, Arthur Upton, and Chris Whipple.





## What Do We Do?

— a quarterly look at the incredibly diverse field of risk analysis —

### Virna Gutierrez

#### What is your job title?

**Gutierrez:** I am an assistant professor at the School of Engineering of the University Diego Portales in Santiago-Chile. I am also an industrial engineer and master in engineering sciences.

#### How is risk analysis a part of your job?

**Gutierrez:** As a professor at the School of Engineering, I teach and conduct research in the field of risk analysis, more specifically in risks ranking, trust on public and private institutions responsible for regulating risks, and acceptability on environmental hazards and biotechnology.

I am currently researching the relationships between trust, acceptability, perceived risk, and the level of compensation people claim for the potential impacts of those hazards. Two major hazards for Chile, air pollution and climate change, are the focus of my more recent research.

Air pollution in Santiago became a concern in the mid-1980s, when the concentration far exceeded the guidelines for environmental quality at the international level. After more than 20 years of environmental regulatory control and monitoring of pollutants, they remain, during some periods of the year, above the maximum allowable concentration and have had serious repercussions on public health and the economy.

I also supervise undergraduate students who work on my research projects.

#### How did you decide to pursue this career?

**Gutierrez:** When I was undertaking my master's studies at the Pontificia Universidad Católica de Chile, I took some courses related to risk analysis, and then I developed my thesis on risk ranking. After that, I decided that risk analysis was what I wanted to focus on in the future.

#### What got you to where you are in the field of risk analysis today?

**Gutierrez:** Being part of a good team. I continue working with my master's degree advisor and a good friend and colleague with whom I have been carrying out applied research



in the field of biotechnology and environmental hazards.

The area of risk analysis is a very collaborative field and has allowed me to meet people from all over the world, exchanging knowledge and opinions, especially concerning Latin America.

#### What is the most interesting/exciting part of your job?

**Gutierrez:** Risk management in Chile is something new, not yet incorporated at the level of public policy decisions. It is very exciting to be a pioneer in this field, explaining my results, which have not been

measured or discussed before, to an interested, inquiring public.

#### What would you recommend to those entering the field of risk analysis interested in a job like yours?

**Gutierrez:** You must be willing to work in multidisciplinary teams. Be open to different points of view, be empathetic and flexible, and be able to explore new basic ways of treating complex problems.

#### How has membership/involvement in the Society for Risk Analysis (SRA) helped you in your work?

**Gutierrez:** The SRA has been fundamental in developing my career as a young researcher because the Society supported me financially, allowing me to attend various annual meetings. At the meetings, I had the opportunity to share my research with others working in similar fields, received feedback from experts, and established new contacts with other researchers.

Being a member of SRA has allowed me to meet people from Latin America with whom I was able to make friends and professional contacts. This, in turn, led to the establishment in June of last year of SRA-Latin America, of which I am currently the treasurer.

#### Is there anything else you would like to add?

**Gutierrez:** If you would like to know more about SRA-LA, please visit our site at [www.sralatinamerica.org](http://www.sralatinamerica.org). 

#### RISK newsletter Advertising Policy

Books, software, courses, and events may be advertised in the Society for Risk Analysis (SRA) RISK newsletter at a cost of \$250 for up to 150 words. There is a charge of \$100 for each additional 50 words.

Employment opportunity ads (up to 200 words) are placed free of charge in the RISK newsletter. Members of SRA may place, at no charge, an advertisement seeking employment for themselves as a benefit of SRA membership.

Camera-ready ads (greyscale) for the RISK newsletter are accepted at a cost of \$250 for a 3.25-inch-wide by 3-inch-high box. The height of a camera-ready ad may be increased beyond 3 inches at a cost of \$100 per inch.

The RISK newsletter is published four times a year. Submit advertisements, with billing instructions, by 30 December for the First Quarter issue (published early February), 30 March for the Second Quarter issue (early May), 30 June for the Third Quarter issue (early August), and 30 September for the Fourth Quarter issue (early November). Send to Mary Walchuk, Managing Editor, RISK newsletter, 115 Westwood Dr., Mankato, MN 56001; phone: 507-625-6142; fax: 507-625-1792; email: [editormw@hickorytech.net](mailto:editormw@hickorytech.net).

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*Address Changes:* Send to SRA@BurkInc.com

*SRA Web Site:* www.sra.org

**Deadline for RISK *newsletter* Submissions**

Send information for the **Third Quarter 2009** SRA RISK *newsletter*, which will be mailed to members early August, to Mary Walchuk, RISK *newsletter* Managing Editor (115 Westwood Dr., Mankato, MN 56001; phone: 507-625-6142; fax: 507-625-1792; email: editormw@hickorytech.net) no later than **20 June 2009**.



The Society for Risk Analysis (SRA) is an interdisciplinary professional society devoted to risk assessment, risk management, and risk communication.

SRA was founded in 1981 by a group of individuals representing many different disciplines who recognized the need for an interdisciplinary society, with international scope, to address emerging issues in risk analysis, management, and policy. Through its meetings and publications, it fosters a dialogue on health, ecological, and engineering risks and natural hazards, and their socioeconomic dimensions. SRA is committed to research and education in risk-related fields and to the recruitment of students into those fields. It is governed by bylaws and is directed by a 15-member elected Council.

The Society has helped develop the field of risk analysis and has improved its credibility and viability as well.

Members of SRA include professionals from a wide range of institutions, including federal, state, and local governments, small and large industries, private and public academic institutions, not-for-profit organizations, law firms, and consulting groups. Those professionals include statisticians, engineers, safety officers, policy analysts, economists, lawyers, environmental and occupational health scientists, natural and physical scientists, environmental scientists, public administrators, and social, behavioral, and decision scientists.

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