



# 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

### Biological Stressors

Emma Hartnett

Biological stressors as a specialty group covers a broad range of risks associated with food, water, blood, plants, crops, and livestock, to name just a few. One common area of interest is food safety, in which risk assessment has been increasingly accepted and applied as a tool over the last 10+ years. 2008 (so far) has been no exception! Developments in applications of risk-based approaches to ensuring “safe” food include, for example, the Food Safety and Inspection Service (FSIS) reports “Risk-Based Sampling for Escherichia coli O157:H7 in Ground Beef and Beef Trim” and “FSIS Risk Assessment for Guiding Public Health-Based Poultry Slaughter Inspection”—both intended to reduce the risk of pathogens (such as *E. coli* and *Salmonella*) in the food supply. Risk assessment in produce has also seen an increase in momentum.



photo by Robert Kaufmann/FEMA

Given the highly publicized outbreaks of *E. coli* in spinach and *Salmonella* in tomatoes in the last two years (to name only two) it is not surprising that food safety is a priority, and on many consumers’ minds. However, 2008 has also highlighted the continuing need to consider food security (in terms of supply and demand of food) in addition to food safety. The uncertainties of the impacts of climate change upon crop and livestock production, and an increase in the diversion of crops from food and feed to biofuel, has led to examination of the complex issues surrounding food security in the future. In January 2008, the Food and Drug Administration issued a report based on a risk assessment that concluded that “meat and milk from cow, pig, and goat clones and the offspring of any animal

clones are as safe as food produced through traditional methods.” This will inevitably lead to more questions and analyses regarding the risks posed from cloning and other biotechnologies being explored to meet increasing food demands. In June, the United Nations Food and Agriculture Organization brought international experts together to assess the consequences of large-scale bioenergy production for worldwide food security and biodiversity, reminding us that these are international challenges.

Even regionally, recent weather patterns in the United States may challenge food security. Felicia Wu (previous chair of the Biological Stressors Specialty Group) gives us her personal perspective on this issue:

“As I write this, I am looking outside the window of my temporary office at Iowa State University, where I have been invited as a Visiting Scholar. Every day that I have been here (12 so

far), there has been rain, sometimes accompanied by thunderstorms and tornados. Flooding is rampant throughout Iowa and other Midwestern states. When a thunderstorm hits Pittsburgh, I pay no attention. When thunderstorms hit here, day after day, farmers worry about their livelihood. Many did not plant their corn before mid-May (the latest recommended planting time) because they were waiting for a ‘dry day.’ There have been no dry days here for over a month. Now farmers can no longer plant corn this season.

“But they may be the fortunate ones. Many farmers who did plant crops before mid-May are facing ruined fields covered with water. The drive between Ames and Des Moines is shocking: one submerged field after another, a few hardy green plants poking out of the pools. Fields on

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**2008 SRA Annual Meeting—7-10 December—see page 5**

**Second World Congress on Risk—see page 6**

## President's Message

### *SRA, the World Congress, and the World*

The Society for Risk Analysis (SRA) is taking major strides to become a global society. I am convinced of two core propositions: the world needs SRA, and SRA needs the world.



The world needs the SRA—and the community of risk analysts—in order to help understand and inform decisions on urgently pressing risk issues. From chemicals to climate, diseases to disasters, engineering to energy, food to finance, and tsunamis to terrorism, we have something to offer: a structured approach to thinking through risks and decisions, with the promise of reaching better decisions that improve social outcomes. We can speak analysis to power (and to individuals' decisions on risks in their daily lives). The alternative is to cede risk decisions to ideology and caprice and unintended adverse consequences. Some fear that analysis delays action. But the opposite of analysis is not action; it is sanctimony. We need analysis-based action, and SRA has a vital role to play in that endeavor.

Meanwhile, SRA needs the world. SRA began in the USA, but must grow globally to remain relevant and influential. Risk issues are increasingly global and cut across borders: globalization brings products, services, energy, food, and attendant risks from afar; pollution spreads without respecting borders, as do diseases and their vectors (including human travel and some host ranges that may shift due to climate change); terrorism purposefully penetrates national perimeters; and global risks such as climate change demand global solutions. At the same time, decisions about risks are also increasingly global, undertaken through global treaties, multilateral initiatives, and multinational businesses and nonprofit groups. Further, the current evolution of global geopolitics means that significant decisions about risks will increasingly be taken by a wider array of national governments: after the bipolar era of the Cold War, and the period of the USA as lone superpower, we are entering an era of multipolar international relations marked by the rise of new great powers such as China, India, and Brazil and more generally by a greater dispersion of decision-making power around the world. These governments are (or should be) calling on risk analysts to help inform important choices. This changing world order also exhibits the interweaving of transnational networks of actors—in public, private, and nonprofit sectors, including government officials, business leaders, nongovernmental organizations, and university experts—collaborating and sharing ideas.

These two challenges demand that the community of risk analysts, and SRA, grow globally to remain relevant to global decisions. And they offer opportunities for risk researchers and managers to learn from each other, borrow innovations, and test alternatives against diverse experience.

The SRA has and can increasingly play a key role in these developments. We have already taken important steps to expand through SRA's international regional organizations and through its World Congresses on Risk. Now we need to continue that process of enlargement, while

strengthening the voice and role of these regions. Among our many such efforts, the following are signs of recent progress:

#### **Second World Congress on Risk**

The Second World Congress on Risk, sponsored by the SRA in Guadalajara, Mexico, on 8-11 June 2008, was a successful conference and an important step in the SRA's evolution to a truly global society. Congratulations on behalf of SRA go to World Congress Co-Chairs Robin Cantor and Javier Urbina-Soria, their organizing committee, our local hosts in Guadalajara, the SRA Secretariat, the generous support from the U.S. National Science Foundation and the U.S. Environmental Protection Agency, and all who made the World Congress such a stimulating and festive event. (See further details in this newsletter, page 6.) I personally felt privileged and enriched to see many SRA members, to meet many new colleagues, to enjoy excellent plenaries and breakout sessions, and to host the leaders of the SRA regions in a Risk Leaders Summit (see below). The international diversity among attendees was impressive, including many new attendees from Latin America.

#### **SRA Enlargement: Establishing SRA-Latin America**

Fittingly, at the World Congress in Mexico, we celebrated the establishment of SRA's newest regional organization, SRA-Latin America. I was deeply pleased to assist in this effort, to chair the SRA Council's formal vote on 6 June to establish SRA-LA, and to announce this vote formally in Guadalajara. (See more on page 16.)

The growing network of SRA regional organizations around the world now includes SRA, SRA-Europe, SRA-Japan, SRA-Australia/New Zealand, SRA-Russia, SRA-Latin America, and others. At the World Congress in Guadalajara we heard expressions of interest in establishing new regional organizations in China, the Caucasus, and other areas.

#### **Risk Leaders Summit**

The World Congress on Risk closed with a signal event: the Risk Leaders Summit, a plenary luncheon bringing together a panel of the heads of the major SRA regional bodies for an open conversation with all attendees. It addressed the risk issues of importance in each region, the challenges facing our community of risk analysis professionals around the world, and how risk analysis and the SRA can best meet these challenges in the future. Participants included Roberto Bubbico, SRA-Europe president; Kazuhiko Chikamoto, SRA-Japan executive committee member (representing Shoji Tsuchida, SRA-Japan president); Daniela Leonte, SRA-Australia/New Zealand president; Esperanza Lopez Vazquez, SRA-Latin America president; and Chongfu Huang, Risk Analysis Council of China president. (Valery Lesnykh, of SRA-Russia, had to send his regrets.) Also attending were three SRA Councilors: Olivier Salvi, SRA Regions Committee co-chair and SRA-Europe past president; Elaine Faustman, SRA Regions Committee co-chair; and Luis Cifuentes, SRA-Latin America secretary. The Summit closed with our thanks to Javier Urbina-Soria and Robin Cantor, Second World Congress on Risk co-chairs.

### Strengthening SRA's International Structure

To meet these new challenges and opportunities, SRA needs an adaptive structure. Form should follow function. The objective is to inform decisions and support risk analysis worldwide, so the Society's structure should be designed to do so. Accordingly, SRA members voted to change its Bylaws in 2007 to facilitate the addition of new regional organizations (removing the older distinction between "sections" and "chapters"), and SRA has added several new such regions in the last few years. Even as the majority of SRA members and officers are currently in the USA, the SRA and its regions are also welcoming more members and officers from around the world. These regions deserve respect and a collegial relationship with SRA, for mutual benefit. Regular interaction among regions, members, and officers from diverse parts of the world is healthy for SRA and for the field. The World Congresses, held every five years, encourage such interaction, but more frequent interaction is also needed, including at the several annual meetings held by SRA and its regions, and in the SRA Council itself. SRA's organization and finances are strong and are the core engine of growth for the Society. That core strength must be maintained. SRA's structure to adapt to global growth should support, not sap, SRA's strength as an effective organization.

In this context, the Regions Committee (charged with charting the SRA's global growth) has recommended, and the SRA Council at its 2008 midyear meeting has concurred in, a new approach to strengthen SRA's international structure through incremental transition steps. This strategy requires no immediate change in the SRA Bylaws, nor a formal vote by the Council. It leverages the existing Regions Committee into a more formal and potent forum.

This new approach reflects the judgment that SRA should not now spin off a separate "SRA-USA" region underneath the current SRA (and hence shift the SRA annual meeting in the USA to this new SRA-USA), because that would weaken the successful operation and growth of SRA. (Nonetheless, local groups [formerly "chapters"] of SRA in the USA should be better connected to each other through the SRA Regions Committee in order to share ideas, improve services, and attract more members). And it reflects the simultaneous judgment that SRA should not now create a new "global umbrella" organization above SRA (such as a new "International Union of Risk Analysis So-

cieties") and hence shift all of SRA's regions to become members of that new umbrella body, because that would undermine the healthy international interactions within SRA,

dividing and distancing SRA members and officers from each other along national lines. The SRA Council would have to say farewell to its non-U.S. members, and international interaction would be relegated to the new umbrella body and the World Congresses every five years.

Instead, the new approach enables SRA to strengthen its international structure while maintaining the current SRA, SRA Council, Secretariat, journal, and strong organizational and financial institutions, and while continuing the SRA annual meeting held in the USA (where the majority of current SRA members are located and attendance is high). At the same time, the SRA regions would continue to operate their executive committees, secretariats, journals, and annual meetings to serve the distinct and important needs of their regions.

In this new approach, in order to strengthen the role of the international regions in the SRA structure and in SRA activities, the regions need to have a clear role in the strategy and enlargement of SRA and in planning future World Congresses. To effectuate this approach, the Regions Committee of SRA is now being strengthened to serve as the "Committee of the Regions" (an equivalent translation in many languages): as an arm of the SRA, extending laterally to its regions worldwide. This revised organization is depicted in the two charts (shown on page 4) of SRA's past structure and SRA's new strengthened international structure with an enhanced Regions Committee.

The enhanced Regions Committee will ordinarily be chaired by two Council members, one from the USA and one from outside the USA. Its members will be the presidents of the large SRA Regions (including Europe, Japan, Australia/New Zealand, Latin America, Russia, and potentially others), with the SRA president serving as an ex officio member. (A subcommittee will engage the heads of local SRA groups in the USA, formerly called "chapters," to facilitate their communication on matters of shared interest.) The enhanced Regions Committee will meet in person at least once per year at each SRA annual meeting in the USA, as well as additional times at key regional meetings such as at SRA-Europe. It will also meet at other times via conference calls and electronically. The enhanced Regions Committee will have these core functions: work-



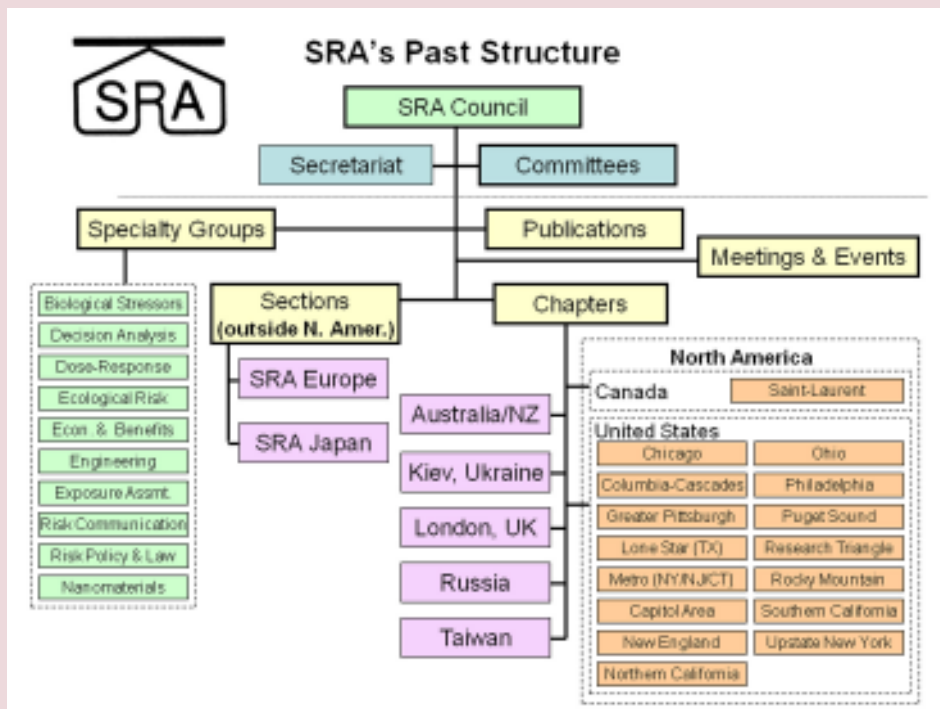
**SRA Regions Committee, meeting in Guadalajara, Mexico, 9 June 2008, during the Second World Congress on Risk. Back row (L-R): Daniela Leonte, SRA-Australia/New Zealand President; Richard J. Burk, Jr., SRA Executive Secretary; Chongfu Huang, Risk Analysis Council of China President; David Hassenzahl, SRA Councilor and SRA Membership Committee Chair; Kazuhiko Chikamoto, SRA-Japan Executive Committee member; Luis Cifuentes, SRA Councilor and SRA-Latin America Secretary; Shoji Tsuchida, SRA-Japan President; Olivier Salvi, SRA Councilor, SRA Regions Committee Co-Chair, and SRA-Europe Past President; Roberto Bubbico, SRA-Europe President. Seated (L-R): Elaine Faustman, SRA Councilor and SRA Regions Committee Co-Chair; Jonathan Wiener, SRA President; Esperanza Lopez Vazquez, SRA-Latin America President.**

(Photo by Lori Strong)

ing with the regions to support their activities and growth and to share ideas across regions; strategic planning of future World Congresses on Risk including evaluating and proposing to the Council when, where, and how to hold such Congresses (while still delegating the detailed planning of each Congress to an organizing committee); advising the SRA Council on the future enlargement of the SRA; and advising the SRA Council on how best to support the global community of risk analysts through related strategic initiatives by SRA.

We are enthusiastic about this new approach to strengthening the role of regions in SRA, and we look forward to the participation and advice the SRA will enjoy from its regional groups. We hope this forum will help make the Third World Congress on Risk, and the Fourth, even more successful events.

Further steps will also be needed. Additional regional organizations will need to be established (for example, in China, India, and Africa). The SRA specialty groups, which are vital and energetic foci of disciplinary activity, need to extend internationally to connect colleagues across borders. The SRA Council, on which only 2 of 15 members are currently from outside the USA, needs to become more diverse, with representatives from several major regions. Other measures may also be warranted, including the fu-



ture possibility of an SRA-North America region and an international umbrella union. The enhanced Regions Committee can help the SRA as a whole consider further incremental steps toward a more fully international Society.

**Looking Ahead**

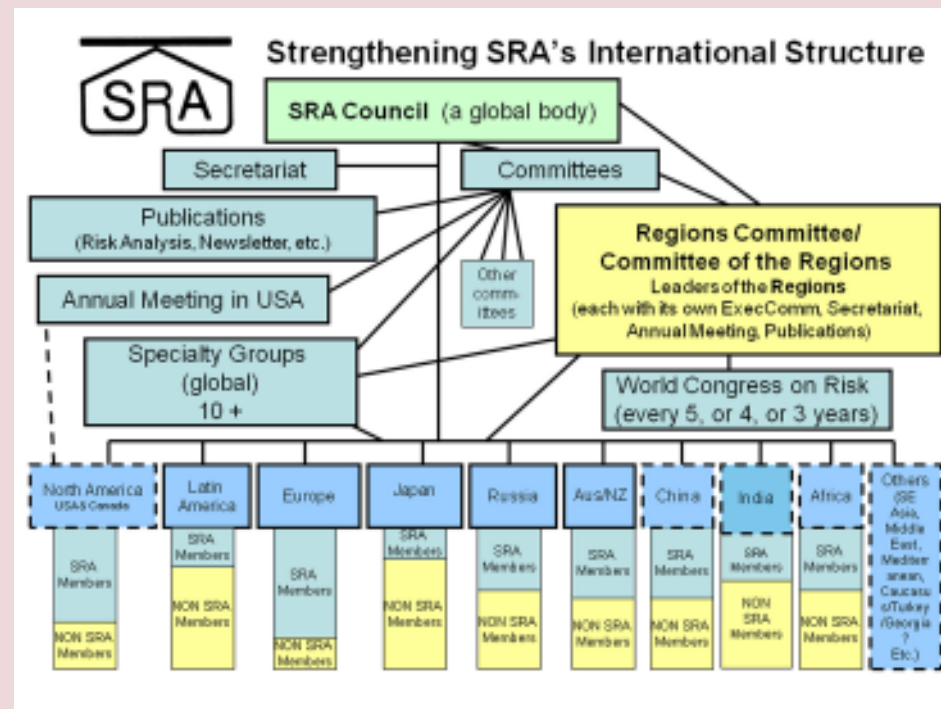
At midpoint in my year as your SRA president, I can say I am delighted at the progress we have made, not just in the last year, or even in the seven years since I joined the SRA Council in 2001, but in the 28 years since SRA was founded. I look forward with optimism and alacrity to our future.

Speaking of which, don't miss the chance to participate in these upcoming 2008 SRA meetings: SRA-Europe (22-25 September), SRA-Australia/New Zealand (30 September-1 October), SRA-Japan (29-30 November), and the SRA Annual Meeting in Boston (7-10 December). Check the SRA Events Web page (<http://www.sra.org/events.php>) for details on these and other conferences of interest.

And in September be sure to vote in the SRA elections (via the Web-based ballot) and register online for the 2008 SRA Annual Meeting in Boston!

See you in Boston if not sooner,

Jonathan B. Wiener  
President





## Risk Analysis: The Science and the Art

2008 Society for Risk Analysis Annual Meeting

7-10 December 2008

Boston, Massachusetts

Westin Boston Waterfront Hotel

For the most current information:

[www.sra.org/events\\_2008\\_meeting.php](http://www.sra.org/events_2008_meeting.php)

### Wide Range of Informative Workshops Available at 2008 Annual Meeting of SRA!

Each year, continuing education courses are offered in conjunction with the Society for Risk Analysis (SRA) annual meeting on the Sunday before the full meeting begins. These workshops give attendees the opportunity to enhance their understanding of current risk issues and analytical approaches across multiple disciplines and applications.

The Conferences and Workshops Committee of SRA is pleased to offer a range of workshops at the 2008 SRA Annual Meeting. We anticipate approximately 15 workshops in full- and half-day formats with offerings that include:

- fundamentals and controversies
- nanotechnology
- mode of action
- chemical mixtures
- security risk management
- probabilistic analysis
- sensitivity analysis
- cost-benefit analysis
- using Excel for risk analysis
- chemical-specific adjustment factors
- total cost assessment
- current topics in risk analysis
- benchmark dose analysis
- risk governance



Photo Courtesy  
of MOTT

Over 200 attendees participated in the Sunday workshops in 2007 and we anticipate an even greater response in 2008. Be sure to mark your calendars for 7 December in Boston for this unique opportunity to learn about emerging risk topics, techniques, and tools and to share insights with your colleagues! Check the meeting link above for complete course and instructor information, as well as registration details.



Photo by John Collings

### SRA Launches the “Pantheon of Risk Analysis” to Honor Past Giants

In December 2007, the Society for Risk Analysis (SRA) Council approved a proposal by Jonathan Wiener, Jim Wilson, Chris Whipple, Robin Cantor, and Elaine Faustman to create a “Pantheon of Risk Analysis”—not actual tombs, but a series of biographical profiles of deceased pioneers of risk analysis, posted on the SRA Web site and on public Web sites.

In addition to honoring past giants in the field, this Pantheon is intended to enhance public understanding of the field and the SRA, to show what risk analysis has done and can do for the public good, and to attract new members to the SRA and new students to the field. The Pantheon will be overseen by the chair of the Publications Committee each year. Members are invited to nominate candidates for induction; in 2008, nominations should be emailed to both Publications Chair Kim Thompson ([kimt@hsph.harvard.edu](mailto:kimt@hsph.harvard.edu)) and President Jonathan Wiener ([wiener@law.duke.edu](mailto:wiener@law.duke.edu)).

## Second World Congress on Risk a Great Success in Guadalajara!

*Robin Cantor, Past President of SRA and Navigant Consulting, Inc.*

The Society for Risk Analysis (SRA) continued to expand its international community through the meetings of the Second World Congress (SWC) on Risk held in Guadalajara, Mexico, 8-11 June 2008. Nearly 200 participants from about 30 countries came together to discuss risk issues of global interest over the three-day congress. In addition, SRA's Latin American regional organization was officially launched at the meetings in Mexico.

The SWC was structured so that each morning began with a plenary session to bring all participants together. The plenary sessions were designed to stimulate discussions among participants around a limited number of issues related to "Risk and Governance," which was the overall theme for the SWC.

Christopher Bunting (Secretary General, International Risk Governance Council), Alex Wittenberg (Managing Director, Global Head of Corporate Risk, Oliver Wyman), and Howard Kunreuther (Cecilia Yen Koo Professor of Decision Sciences and Public Policy, Wharton School; Co-Director, Risk Management and Decision Processes Center), opened the SWC with plenary presentations on Global and Transboundary Risks. Their presentations emphasized important changes in how global risks are understood and managed by business, government, insurance, and other stakeholders worldwide. Wittenberg highlighted that traditional risk assessment frameworks must give way to a value-based focus for better corporate use in today's global marketplace. To make sense in the corporate context, risk assessment should emphasize the progression of risk through an organization's international value chain, not just an assessment of probability and immediate consequences. Kunreuther's presentation focused on the global impact of catastrophes on individuals and insurance markets and the need to manage large-scale risks in what he identified as a new era of catastrophes. He offered a number of guidelines for this management, including the principle that premiums should reflect risk, which is not the case in many insurance markets. A related principle he offered was to recognize the need to deal with equity and affordability, through general public funding, not through subsidized insurance. These concepts led to a lively Q&A session following the formal presentations.

The Tuesday plenary addressed emerging risks and was chaired by John Ahearne (SRA Past President and Executive Director Emeritus of Sigma Xi, the Scientific Research Society). His speakers, David Franz (Vice President and Chief Biological Scientist, Midwest Research Institute) and Vicki Colvin (Professor of Chemistry and Environmental Engineering, Rice University and Director, Center for Biological and Environmental Nanotechnology) emphasized the growing role of international collaborations both to manage risks and encourage promising technologies. Franz focused on collaborative organizational responses to the potential misuse of dual-use technologies, i.e.,

technologies that present great social opportunities as well as large potential risk for health, safety, and security. Colvin's presentation emphasized the general theme in the context of nanotechnology, where testing and safety by design are concepts that many hope will exploit the benefits of these technologies while limiting the potential for widespread and detrimental environmental or health impacts.

The Wednesday plenary session addressed health and sustainable development both in the developing and developed country contexts. It was chaired by Jonathan Wiener (current SRA President and Perkins Professor of Law and Environmental Policy, Duke University) and included presentations by Gerry Eijkemans (advisor on environmental health and sustainable development, currently based in the Mexico office of the World Health Organization) and Hermann Stamm (Head, Nanotechnology and Molecular Imaging Unit, Joint Research Centre, European Commission). Eijkemans' presentation focused on the often-overlooked and complex relationship between climate change and human health. She made a convincing case that we should expect a dramatic increase in the needs of the poorest populations in the developing world as they attempt to cope with the expected consequences of climate change on their already-stressed health resources and infrastructure. Stamm's presentation addressed various institutional responses to health and consumer issues in the European community. He discussed the efforts of various organizations within the European Union to adopt a safe, integrated, and



An excursion to Tlaquepaque, Mexico, was taken on Wednesday.



Tuesday plenary speaker David Franz



Wednesday plenary speaker Hermann Stamm

responsible strategy for nanotechnology by addressing the potential risks affecting the environment, public health, occupational health, and safety at the earliest possible stage.

Plenary sessions were followed by three concurrent breakout sessions that gave participants an opportunity to have focused discussions about issues that were related to the plenary themes raised in the earlier sessions.

On Monday and Tuesday, posters were on display in the morning and afternoon, and concurrent “mini-symposium” sessions were held in two afternoon time periods. Overall, there were more than 50 posters and about 25 mini-symposium sessions presented at the SWC. The final program, abstracts, and a detailed summary of the morning program (in progress) will be available on the SWC Web site link found on the SRA Web site under Events. There are also plans for coordinating article submissions to *Risk Analysis* as one of the ways of continuing the momentum from the SWC.

The SWC concluded with lunch on Wednesday, which also featured a Risk Leaders

Summit chaired by current SRA President Jonathan Wiener. The summit gave participants an opportunity to have an

open dialogue with leaders from China, SRA-Australia/New Zealand, SRA-Europe, SRA-Japan, and the newly launched SRA-Latin America.

A large portion of the success of the SWC was due to the outstanding morning program. This program benefited from the much-appreciated efforts of the Program Committee, which included Robin Cantor, Javier Urbina-Soria, Bert Hakkinen, Garrick Louis, and Gail Charnley. Other committees and their chairs provided invaluable support for the overall program, including workshops (Katherine Walker), marketing and outreach (Olivier Salvi, Jo Anne Shatkin, Igor Linkov, and Kuen-Yuh Wu), fund-raising (Sabine Bonneck, Michael Dourson, Patricia Nance, and Henry Willis), publication (Elizabeth Anderson), and local organization (Mabel Padlog and Javier Urbina-Soria). Conference coordination was expertly and graciously provided by Burk & Associates Inc.



**Risk Leaders Summit. Back row (L-R): Luis Cifuentes, SRA-Latin America Secretary; Roberto Bubbico, SRA-Europe President; Javier Urbina-Soria and Robin Cantor, Second World Congress on Risk Co-Chairs; Jonathan Wiener, SRA President. Front row (L-R): Esperanza Lopez Vazquez, SRA-Latin America President; Daniela Leonte, SRA-Australia/New Zealand President; Kazuhiko Chikamoto, SRA Japan Executive Committee member (representing Shoji Tsuchida, SRA-Japan President); and Chongfu Huang, Risk Analysis Council of China President.**



**The evening meeting of newly formed SRA-Latin America**

Of course, an event such as this cannot happen without the generous support of other organizations and financial sponsors. SRA and the SWC organizers wish to recognize and express thanks to our participating organizations and financial sponsors:

**Participating Organizations:**

The American Physical Society  
Decision Analysis Society of the Institute for Operations  
Research and Management Science  
International Risk Governance Council  
International Society of Regulatory Toxicology and  
Pharmacology  
School of Psychology, National University of Mexico  
Society of Environmental Toxicology and Chemistry  
Society of Toxicology  
The Women’s Council on Energy and the Environment

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

higher ground have surviving stands, but plants are much shorter than they should be now, as excessive water leads to root damage. Just today, the USDA reduced the 2008 predicted corn yield by 6 bushels per acre. This reduction, if accurate, will have heavy impacts on farmers' livelihood in certain parts of the U.S., as well as commodity prices.

"This scenario begs the question: Should we be diverting so much of our corn to biofuels production, in light of the already-high food and feed prices and predicted low yields this year? Food and feed needs should not be neglected. Should we devote more attention to the prospect of producing fuels from other materials (such as switchgrass and corn stover), rather than from corn grain alone? The technologies are available, but putting them into widescale practice in a cost-effective way remains a challenge. Perhaps it is one we should undertake, however, if we want to avoid future risks of competing food and fuel sources."

### **Ecological Risk Assessment**

*Katherine von Stackelberg*

Ten years ago, the U.S. Environmental Protection Agency (EPA) Risk Assessment Forum published *Guidelines for Ecological Risk Assessment*, on the heels of *Ecological Risk Assessment Guidance for Superfund: Process for Conducting and Designing Ecological Risk Assessments* the year before. A lot has changed in those 10 years, and yet much has remained the same. Although both those documents call for "population-level" analyses, many ecological risk assessments still rely on the noncancer human health risk paradigm of comparison of a predicted dose to a single threshold value (e.g., toxicity reference value or TRV), which provides little information on either "risk" per se or the potential for population-level effects.

That said, there have been plenty of discussions regarding both the development and use of TRVs in ecological risk assessment as well as approaches for evaluation of population-level risks with the goal of moving beyond deterministic comparisons. Probabilistic methods hold out some promise for providing quantitative approaches that provide more perspective on the potential for risk. There are also combinations of field-based analyses combined with probabilistic models that provide more site-specific information on actual conditions, such as incorporating dose-response relationships developed from site-specific programs such as egg injection or feeding studies.

An important emerging topic for ecological risk is the notion of ecosystem services and how those relate to site conditions. This is a logical extension of the risk assessment process and provides a logical connection to other regulatory programs such as natural resource damage assessment. Instead of simply evaluating the effect of exposure to chemicals in the environment, quantifying ecosystem services expands that by considering multiple stressors in a more holistic evaluation. The idea is to evaluate ecosystem service losses and benefits with respect to particular management actions. Exposure to chemicals in the environment represents only one aspect of ecological health. Other factors, including availability of suitable habitat and habitat quality, population dynamics, and exposure to other stressors (e.g., nutrient enrichment) all influence the ability of ecological receptors to adapt to chang-

ing environmental conditions. Ecotoxicity alone may not provide enough information with which to gauge the impact and efficacy of management alternatives.

For example, one approach, often termed net environmental benefits analysis, evaluates management alternatives with respect to a range of ecosystem service criteria, including ecological risk, habitat quality, benthic community health, and a host of others depending on site-specific conditions. The approach allows analysts to develop profiles over time for changes across criteria (e.g., under no-action or monitored natural attenuation, ecological risks may decline slightly over time, but the decline is likely to be far less than under active remediation. By contrast, active remediation may destroy habitat, and the potential trade-offs can be quantitatively evaluated under this approach).

There are other ecosystem services that relate to potential human health impacts as well, and evaluating these again draws on the same tools, data, and approaches used to support the ecological risk assessment itself. For example, decreases in biodiversity are associated with increases in the probability of transmission of infectious diseases (e.g., Hanta virus, Lyme disease, West Nile virus, etc.).

The ecological risk assessment guidance we've been working with the past 10 years provides an excellent foundation for evaluating the potential impacts of exposures to chemicals in the environment. However, comparison of a predicted dose to a TRV isn't predicting risk at all—it's simply a ratio that is difficult to interpret. Moreover, as with any scientific discipline, regulatory frameworks are not necessarily designed to keep pace with advances in the field. Hopefully, both scientific knowledge and regulatory implementation can proceed in tandem.

### **Emerging Nanoscale Materials**

*Jo Anne Shatkin*

All aspects regarding the health and environmental risks of emerging nanoscale materials, and nanotechnology, continue to grow in interest, funding, and the publishing of research. These developments simply can't be captured comprehensively here. Issues of governance, risk perception, life-cycle material management, and sustainability were discussed in many fora, especially SRA co-sponsored events.

At the June 2008 Second World Congress in Guadalajara, invited speaker Andrew Maynard (Chief Science Advisor, the Project on Emerging Nanotechnologies) noted, ". . . you've got all of the key players here." SRA members are certainly on the forefront of research on issues of societal, technical, and management issues in nanotechnology.

During the 2007 SRA Annual Meeting in San Antonio, Sharon Friedman discussed her work on media reporting of nanotechnology and risk and Michael Siegrist described a survey of public attitudes regarding nanotechnology in food. Susanna Priest and John Besley of the University of South Carolina reported on expert vs. citizen perceptions and local perceptions of scientists regarding nanotechnology in agriculture in the symposium "Nanotechnology Risk: Perceptions, Media Coverage and Public Acceptance."

At the Second World Congress, Nick Pidgeon, Barbara Herr Harthorn, Atsuo Kishimoto, Terre Satterfield, Joseph Conte, and Ortwin Renn presented work on risks, perceptions, and governance of emerging nanotechnologies, including studies of consumers in the United Kingdom, United



States, Japan, and Canada; international workplace surveys; and consumer responses to a range of applications, including food, cosmetics, and other consumer-use products. These presentations evaluated the role of consumer knowledge and perceived benefits of nanotechnology and their influence on risk perceptions.

Two keynotes at the Second World Congress also focused on issues of nanotechnology and risk. Vicki Colvin of Rice University discussed the implications of chemistry at the nanoscale on nanotechnology development during a lively plenary session, and Hermann Stamm, head of nanotechnology research at the EU Joint Research Centre in Ispra, Italy, discussed the regulatory and research landscape in Europe for nanomaterials.

The emerging sources of risk breakout sessions included talks by Maynard, Kishimoto, and colleagues from the European Virtual Research Institute in Stuttgart about the coordinated activities of the European Technology Platform on Industrial Safety, a network of researchers developed for collaboration on research, planning, and dissemination. Their research includes focus on public health, toxicological methods validation, and life-cycle scenarios.

At least two members of the Emerging Nanoscale Materials Specialty Group have published books: Ortwin Renn and colleagues recently published three books detailing the International Risk Governance Framework, including its applications for nanotechnology. Jo Anne Shatkin published *Nanotechnology: Health and Environmental Risks* (CRC Press 2008). Journal articles published on topics of toxicity of nanomaterials continue to grow and are too numerous to discuss here. Other developments on nanotechnology, nanomaterials, and risk include research funding discussions such as the National Nanotechnology Initiative Research Strategy, the Organisation for Economic Co-Operation and Development Nanotechnology Panel, and others.

Europe is reported currently to provide the greatest level of funding internationally for environmental, health, and safety research on nanomaterials and nanotechnology. In 2008, the European Food Safety Authority conducted a consultation on updating the Novel Food Regulation, in part to specifically address foods made with nanotechnology.

In Canada, the Council of Canadian Academies convened an expert panel on health and environmental aspects of nanotechnology to address Health Canada's questions about the need to update its risk assessment approaches for nanotechnology. Its report, *Small Is Different: A Science Perspective on the Regulatory Challenges of the Nanoscale*, finds that while the challenges of assessing risks of nanoscale materials are unique in part because the impacts of both physical and chemical properties are poorly understood, (1) existing risk assessment frameworks appear robust but must be updated and (2) a precautionary approach to risk management is warranted.

In the absence of nano-specific regulations, a number of efforts are focused on voluntary approaches toward managing nanotechnology risks. These include the European Code of Conduct for responsible nanosciences and nanotechnologies research, the multistakeholder Responsible Nano Code, the Swiss Retailers Nanotechnology Code of Conduct for Consumer Goods, and various Best Practice Surveys stemming from the International Council on Nanotechnology, Institut de recherche Robert Sauvé en santé

et en sécurité du travail, NanoSAFE (European Strategy for Nanosafety), and the U.S. National Institute for Occupational Safety and Health, among others.

The U.S. Environmental Protection Agency (EPA) launched a voluntary program under the Office of Pollution Prevention and Toxics to provide guidance on Risk Management and Reporting under the Toxic Substances Control Act. Recent efforts include two public meetings to discuss the proposed stewardship program for new and existing chemicals. EPA is also developing a research strategy for nanotechnology.

In April 2008, SRA co-sponsored the workshop "Risk, Uncertainty and Decision Analysis for Nanomaterials" and will co-sponsor "NanoRisk Analysis: Advancing the Science for Nanomaterial Risk Management" 10-11 September 2008 in Washington, DC. Both of these workshops will be reported on at the 2008 SRA Annual Meeting in Boston, Massachusetts, 7-10 December.

## **Engineering and Infrastructure**

*Seth D. Guikema*

The fields of engineering and infrastructure have seen rapid growth in activity in government, industry, consulting, and academia in recent years, and the past year was no exception. The Department of Homeland Security has been formulating its sector-specific infrastructure protection plans, leading to ongoing discussions of the meaning of risk in a homeland security setting as well as discussions of the best frameworks and approaches for allocating limited resources to protect critical infrastructure systems. There is also a growing awareness that climate change may pose significant threats to a number of infrastructure systems, from the possibility of increased flood hazard in some areas to the potential for increased risk due to changes in hurricane hazards in coastal areas. Recent years have also seen a number of advances in methods that can be used to estimate the impacts of infrastructure on the environment, particularly regarding the impact of infrastructure networks such as transportation, power, and communications systems on the global climate. Research will likely continue in a substantial way in this area as green design and construction methods become more widely used in the United States. In other areas, 2008 saw the successful landing of a complicated mission to Mars as well as a continuation of the renewed discussion of the future of nuclear power in the United States and the Department of Energy submission of the license application for Yucca Mountain. The coming year promises to be an exciting one in engineering and infrastructure as these trends continue to grow and strengthen.

## **Exposure Assessment**

*Michael Dellarco*

How exposure is defined, and the approach used to assess it, continues to undergo dramatic change. Exposure in human health studies is being defined much more broadly. In the case of the National Children's Study (<http://nationalchildrensstudy.gov/>), exposure is defined in terms of chemical, biological, physical, and psychosocial agents and genetics. The interest here is not only the contribution environmental exposure plays to the development and onset of adverse human health outcomes, but also how it is interrelated with these other "kinds" of exposure and genetics to pose a risk to human health. In the case of expo-

tures associated to natural disasters and terrorist events (see [http://www.iseaweb.org/Disaster\\_Preparedness/index.php](http://www.iseaweb.org/Disaster_Preparedness/index.php)) scientists are assessing exposure in terms of the amount of material released and deposited in the area, the exposure to first responders and recovery workers, and exposure associated with reentry and rehabilitation of contaminated areas. Making these assessments requires new methods for monitoring and modeling, especially in real time. To meet these needs there is renewed interest in technology, including microscale and nanoscale technology, to make smaller, more dynamic personal exposure monitors to measure environmental contaminants (see <http://www.niehs.nih.gov/research/supported/programs/sbir/ebp.cfm>). One major aspect of this is biological monitoring, where there is considerable activity to evaluate biomarkers to estimate exposure and dose. Continued investigation of biomarkers is anticipated to provide information about dose and the early onset of disease. However, in so-called reverse dosimetry, biomarkers are being assessed to estimate the amount of exposure that occurred at a particular time interval. These measurements, when combined with time location diary information, may provide the ability to reconstruct exposure events and estimates of chemical contaminant contact that led to formation of the measured biomarker. The appeal of this approach is its linkage to toxicology and adverse effects and its economy compared to direct exposure monitoring measurement methodology. The interest in biomarkers can be seen in conferences such as the European Conference on Human Biomonitoring: From Biomarkers to Human Biomonitoring as a Policy Support Tool in Environmental Health, which will be held 4-5 November 2008 in Paris, France (see [http://www.invs.sante.fr/agenda/biosurveillance\\_2008/informations\\_eng.htm](http://www.invs.sante.fr/agenda/biosurveillance_2008/informations_eng.htm)). Accomplishments in these areas will likely contribute to our ability to identify important sources and routes of exposure and to assess the significance of these exposure events more than is possible now.

## Risk Communication

*Tee Guidotti*

Aristotle laid out the essential features of effective communication before 322 BC in *The Rhetoric*: “Logos, ethos, and pathos.” Effective communication requires the application of persuasive logic, a shared understanding of the world through culture or education, and empathy with the audience conveying a sense that the communicator cares and understands the emotions raised by the topic. Aristotle’s rhetorician, however, sought above all to persuade and was therefore questionably trustworthy. The modern risk communicator seeks to inform and depends on trust. The risk communicator uses these same elements judiciously to convey accurate knowledge about a significant risk to people who are affected or at least concerned, in a form that they can understand and use to make decisions.

In practice, risk communication means operating simultaneously on at least three different levels, while understanding enough about the risk problem itself to ensure that the message is accurate and complete. How do we communicate risk concepts in the face of large gaps in understanding and highly variable levels of education in science and in the presence of naïve concepts of science that may have to be displaced before a risk problem can be adequately understood?

The most fundamental level is advancing the knowledge base on which risk communication depends. As an applied discipline drawing on many other disciplines for its content and study methods, the advancement of risk communication depends on integrating insights from psychology, semiotics, communication theory, sociology, and information technology, at the very least. (Add your preferred social and behavioral science if you wish.) At its essence, it requires knowledge of how people evaluate and receive messages, how messages are transmitted, and what content needs to be conveyed. At its most democratic and humanitarian, risk communication also depends on a fine understanding of how people think about risk and why, what frameworks for thinking people need and can accept to help them sort through issues of risk, what they believe they need to know to understand and to make decisions, the meaning of a risk in their own world, and how a risk message can best be conveyed with minimal distortion and maximum utility. In short, risk communication “science” is a structured approach to understanding the role of risk in people’s lives and then conveying information and ways of thinking that fit their lives and that they see as useful.

The second level is the application of risk communication to populations (as we say in public health) or the community or to publics (as we say in risk-comm jargon). Here we are approaching a risk problem through a culture, which is both an impediment and a benefit. It can be an impediment because of the interference of nonscientific teachings and inconsistent ideas. It can be a benefit because culture provides a group cognitive framework which, if the risk message is presented in its own terms, facilitates understanding and attaches values to the terms of the message which the group uses to make judgments about acceptability of the risk, justice, and what it all means for them. Risk communication at this level is an essential skill that risk science practitioners bring to their professional practice and careers. Building on the insights of risk communication “science,” it is a level of practice with its own standards of quality achievement.

We do not practice it the same way we did in the 1970s (one hopes), both because we know more and because the old ways do not work the way they did. If we practice risk communication the way we did in the 1970s, we often do not get the same results, because our “publics” have themselves moved on to another place. People are educated differently, cultures change, generations come into their own, and the media shapes thought. That is why both risk communication and the sister “science” of risk perception are always reinventing themselves in practice.

The third level is the application of risk communication to the individual, the atom within the group, who may share the culture but is also influenced by a personal history, an individual education, family stories learned as a child, and what was read in the newspaper that morning. Highly individualized risk communication becomes pivotal in helping decision makers do their job. Risk communication at this level is an essential skill for risk analysis practitioners: if the features of the risk under analysis cannot be effectively communicated, all the assessment will be for naught.

The field of risk communication is broad and inclusive. It is grounded in cognitive science while honing the most essential tool of risk management: effective communication.





## News and Announcements

### **NanoRisk Analysis: Advancing the Science for Nanomaterial Risk Management**

**10-11 September 2008, Washington, DC, USA**

**Organized by the Society for Risk Analysis  
Emerging Nanoscale Materials Specialty Group**

**Purpose:** This workshop brings together experts from diverse disciplines to evaluate how the field of risk analysis can address the considerable uncertainties currently associated with impacts from nanoscale materials and nanotechnologies. The rapidly expanding development and use of nanoscale materials has generated new challenges for the approaches historically applied to guide health, safety, and environmental protection. Unique properties of these materials could have significant implications for basic components of the traditional paradigm for informing risk management decisions: hazard identification, exposure and dose-response assessments, and risk characterization.

These properties may confound the accurate assessment of potential risks and could require changes in how these risks are communicated to stakeholders and managed by policy makers. NanoRisk Analysis will bring together experts and others from the growing community interested in advancing the theory and practice for understanding and managing risks of these emerging materials. Workshop objectives are two-fold: (1) identify integrated risk analysis approaches to address the unique challenges posed by nanotechnology and nanomaterials and (2) enhance and establish collaborative networks to advance the science and understanding of nanomaterials.

**Participants:** This workshop will convene experts in risk analysis, nanotechnology, environmental science, communication, and policy, as well as key stakeholders and members of the public interested in risk analysis, public health, communication, and nanotechnology.

**Format:** A mix of invited presentations, panels, and deliberative breakout sessions will focus on unique aspects of the risks of nanoscale materials and risk analysis for these materials. Ideas for advancing the science regarding key aspects of risk analysis for these emerging materials will be developed in facilitated topical discussions.

**Themes:** Topical white papers developed for the workshop will provide the foundation for deliberations on material characterization, exposure assessment, toxicology and dose-response assessment, uncertainty analysis, risk characterization (including risk reduction benefits of nanotechnology), and risk communication.

**Schedule:** *Day one*—plenary overview and panels. An introductory plenary presentation will anchor targeted presentations and panel discussions on specific white papers prepared by experts in risk analysis and nanotechnology. The afternoon session will feature a roundtable debate on the scientific requirements to ensure the safety of nanomaterials in products.

*Day two*—breakout sessions and integrated summary. Interactive discussions will address core themes, including exposure assessment, toxicology, uncertainty analysis, risk communication, and risk/benefit trade-offs. Session chairs will present plenary report-outs.

**Products:** The topical white papers and deliberative discussions will be integrated into a publication series, intended as a resource for researchers and others interested in risk analysis and nanotechnology.

**Location:** NanoRisk Analysis will be held at the Cafritz Conference Center of George Washington University, 800 21<sup>st</sup> Street NW, Washington, DC 20006. The Cafritz Conference Center is located on the third floor of the Marvin Center, and the main entrance is on 21<sup>st</sup> Street between H and I Streets.

**Sponsor:** Emerging Nanoscale Materials Specialty Group, Society for Risk Analysis (SRA)

**Co-sponsors:** National Science Foundation, U.S. Environmental Protection Agency, Johns Hopkins Institute for NanoBioTechnology

Additional professional societies, governmental agencies, and industry groups are invited to co-sponsor this multi-organizational workshop.

**Selected speakers include** Ann Bostrom, PhD (Professor, University of Washington), Rick Canady, PhD (Senior Science Policy Analyst, FDA Nanotechnology Task Force), Kristen Kulinowski, PhD (Director, International Council on Nanotechnology, Rice University), Garrick Louis, PhD (Professor, University of Virginia), Andrew Maynard, PhD (Science Advisor, Project on Emerging Nanotechnologies, Woodrow Wilson Center), Terry McIntyre, PhD (Chief, Environmental Biotechnology Applications, Environment Canada), Peter Preuss, PhD (Director, EPA National Center for Environmental Assessment), Nancy Rachman, PhD (Senior Director, Grocery Manufacturers Association), Lorraine Sheremeta, JD (Research Officer, National Institute for Nanotechnology, Canada), Nigel Walker, PhD (Lead, Nanotechnology Safety Initiative, National Toxicology Program), Jonathan Wiener, PhD, JD (Duke University Law School; President, Society for Risk Analysis)

**Contact:** Jo Anne Shatkin, PhD (617-850-1715, [Jashatkin@clf.org](mailto:Jashatkin@clf.org)), Chair, SRA Emerging Nanoscale Materials Specialty Group

### **Methods and Tools for Environmental Risk Assessment, Decision-Making, and Policy for Nanomaterials**

#### **Summary of the 27-30 April 2008 NATO Workshop**

*Igor Linkov, Jeffery Steevens, Gitanjali Adlakha-Hutcheon, Erin Bennett, Mark Chappell, Vicki Colvin, Michael Davis, Thomas Davis, Alison Elder, Steffen Foss Hansen, Pertti Hakkinen, Saber Hussain, Delara Karkan, Rafi Korenstein, Iseult Lynch, Chris Metcalfe, Abou Ramadan, and F. Kyle Satterstrom*

Many potential questions are associated with the current state of development and use of nanomaterials. For example, with over 600 consumer products available globally, what information exists that identifies their risk to human health and the environment? What engineering controls can be deployed to minimize the potential environmental health and safety impacts of nanomaterials throughout the manufacturing and product life cycles? How can the potential environmental and health benefits of nanotechnology be realized?

To discuss and develop expert answers to questions such as these, the NATO Advanced Research Workshop “Nanomaterials: Environmental Risks and Benefits and Emerging Consumer Products” brought together 70 scientists and engineers from 19 different nations and multiple fields, reflecting the global and interdisciplinary nature of nanotechnology and nanomaterials research. Held 27-30 April 2008 in Algarve, Portugal, the workshop was chaired by Drs. Igor Linkov and Jeff Steevens and hosted jointly by the Society for Risk Analysis (Decision Analysis and Risk Specialty Group) and U.S. Army Engineer Research and Development Center. The meeting was an event supported by the NATO Science Programme, the U.S. Environmental Protection Agency, the U.S. Department of Defense, the Copper Industry Association, and several other sponsors. The workshop had five primary purposes: (1) describe the potential benefits of nanotechnology-enabled commercial products, (2) identify and describe what is known about environmental and human health risks of nanomaterials and approaches to assess their safety, (3) assess the suitability of multicriteria decision analysis for reconciling the benefits and risks of nanotechnology, (4) provide direction for future research in nanotechnology and environmental science to address issues associated with emerging nanomaterial-containing consumer products, (5) identify strategies for users in developing countries to best manage this rapidly developing technology and its associated risks, as well as to realize its benefits.

Workshop attendees shared basic agreements on policy and risk assessment needs across countries. Attendees identified the need for a common, standardized taxonomy and terminology for nanomaterials in which key aspects should include nanomaterial physical and chemical characteristics, with the view that such a system would facilitate the development of informational resources (e.g., publications, other documents, and databases) to provide easy access and sharing across international borders as regulators attempt to understand and assess the properties of these new materials. Attendees also agreed that assessments covering the entire life cycle would best inform and guide risk assessment for engineered nanomaterials and related nanotechnologies and that consumer and occupational health protection policies needed additional development as well. Given the proprietary nature of these rapidly evolving technologies, and current voluntary reporting requirements, a mechanism is needed for regularly providing and updating information to scientists and policy makers regarding the safety profiles and characteristics of these current and emerging nanomaterials. Attendees were very aware that a serious nanotechnology-related health issue in one nation or region of the world would greatly promote a negative public perception of nanotechnology risk in every other nation or area.

Simultaneous advances in different disciplines are necessary to advance nanotechnology risk assessment and risk management. Risk assessment is an interdisciplinary field, but progress in risk assessment has historically occurred due to advances in individual disciplines. For example, toxicology has been central to human health risk assessment, and advances in exposure assessment have been important for environmental risk assessment and risk management. Nanotechnology, however, ideally involves the planned and coordinated development of knowledge across fields such as biology, chemistry, materials science, and medicine.

Likewise, a risk assessment of nanomaterials and related technologies requires a life-cycle approach, meaning a comprehensive assessment of the impact of nanomaterials at different stages of production, use, and disposal/recycling. The current state of knowledge makes the identification of major risk drivers challenging. This includes understanding environmental pathways, fate and transport processes, and reasonably foreseeable exposures. An integrated, holistic approach is needed to consider an individual’s total exposure from relevant environments expressed in different units across receptor groups. This would lead to risk characterizations that are systematic and more inclusive, accommodating nontraditional information sources, measures, and endpoints.

The attendees agreed that while existing chemical risk assessment and risk management frameworks may provide a starting point, the unique properties of nanomaterials adds a significant level of complexity to this process. The goals of this workshop included the identification of strategies and tools that could currently be implemented to reduce technical uncertainty and prioritize research to address the immediate needs of the regulatory and risk assessment communities. Such tools include advanced risk assessment, comprehensive environmental assessment, risk characterization methods, decision analysis techniques, and other approaches to help focus research and inform policy makers benefiting the world at large.

Workshop discussions were summarized in a paper submitted to the *Journal of Nanoparticle Research* (available from Igor Linkov, igor.linkov@usace.army.mil). Workshop results will be presented as a symposium at the 2008 SRA Annual Meeting in Boston. Proceedings of the workshop will be published by Springer in fall 2008.

### **Risk Management: Strengthening the Use of Risk Management Principles in Homeland Security**

**GAO-08-904T**

From the terrorist attacks of 11 September 2001 to Hurricane Katrina, homeland security risks vary widely. The nation can neither achieve total security nor afford to protect everything against all risks. Managing these risks is especially difficult in today’s environment of globalization, increasing security interdependence, and growing fiscal challenges for the federal government. Broadly defined, risk management is a process that helps policy makers assess risk, strategically allocate finite resources, and take actions under conditions of uncertainty.

The U.S. Government Accountability Office (GAO) convened a forum of 25 national and international experts on 25 October 2007 to advance a national dialogue on applying risk management to homeland security. Participants included federal, state, and local officials and risk management experts from the private sector and academia. Forum participants identified (1) what they considered to be effective risk management practices used by organizations from the private and public sectors and (2) key challenges to applying risk management to homeland security and actions that could be taken to address them.

Comments from the proceedings do not necessarily represent the views of all participants, the organizations of the

participants, or GAO. Participants reviewed a draft of this report and their comments were incorporated, as appropriate.

Forum participants identified what they considered to be effective public and private sector risk management practices. For example, participants discussed the private sector use of a chief risk officer, though they did not reach consensus on how to apply the concept of the chief risk officer to the public sector. One key practice for creating an effective chief risk officer, participants said, was defining reporting relationships within the organization in a way that provides sufficient authority and autonomy for a chief risk officer to report to the highest levels of the organization. Participants stated that the U.S. government needs a single risk manager. One participant suggested that this lack of central leadership has resulted in distributed responsibility for risk management within the administration and Congress and has contributed to a lack of coordination on spending decisions. Participants also discussed examples of public sector organizations that have effectively integrated risk management practices into their operations, such as the U.S. Coast Guard, and compared and contrasted public and private sector risk management practices. According to the participants at our forum, three key challenges exist to ap-

plying risk management to homeland security: the need to improve risk communication, political obstacles to risk-based resource allocation, and a lack of strategic thinking about managing homeland security risks. Many participants agreed that improving risk communication posed the single greatest challenge to using risk management principles. To address this challenge, participants recommended educating the public and policy makers about the risks we face and the value of using risk management to establish priorities and allocate resources; engaging in a national discussion to reach a public consensus on an acceptable level of risk; and developing new communication practices and systems to alert the public during an emergency. In addition, to address strategic thinking challenges, participants recommended the government develop a national strategic planning process for homeland security and government-wide risk management guidance. To improve public-private sector coordination, forum participants recommended that the private sector should be more involved in the public sector's efforts to assess risks and that more state and local practitioners and experts be involved through intergovernmental partnerships.

A copy of the report can be found at <http://www.gao.gov/new.items/d08904t.pdf>.




## Specialty Groups

### Dose Response Specialty Group

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

*Sara Henry, Chair*

The Dose Response Specialty Group (DRSG) sponsors several teleseminars yearly for its members and anyone interested who wishes to dial in. See [www.sra.org/drsg](http://www.sra.org/drsg). Our June teleseminar was presented by Weisheu Chiu (Environmental Protection Agency/National Center for Environmental Assessment), who spoke on "Carrying Uncertainty and Variability in Pharmacokinetics to Dose-Response Analysis: Issues and Approaches." Our teleseminar for Tuesday noon, 2 September 2008, will be given by Dr. Wout Slob (RIVM National Institute for Public Health and the Environment), Bilthoven, The Netherlands, and is titled "The European View on the BMC Approach." Teleseminars are arranged by Dr. Paul Feder.

### Risk Communication Specialty Group

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

*Tee Guidotti, Past Chair*

The Risk Communication Specialty Group (RCSG) is pleased to announce that over 101 abstracts and six symposium proposals were submitted in the field of risk communication for the 2008 Society for Risk Analysis (SRA) Annual Meeting in Boston, compared to 69 abstracts and four symposium proposals last year.

The RCSG is open to all SRA members who are interested in the communication of risk. The purpose of the group is to facilitate the exchange of ideas and knowledge among practitioners, researchers, scholars, teachers, students, and others to encourage collaborative research, provide leadership, build scholarship, and play an active role in

advancing the field of risk communication. During the first half of the year, the RCSG Executive Committee and Board mostly addressed governance and management issues and devoted its efforts to pulling together an outstanding program for Boston. For the rest of the year we will be thinking about new ways to involve members, providing innovative programming within SRA, and advancing the art and science of risk communication generally.

We would like to take this opportunity to thank the Board of Councilors for their courage in taking up the challenge of developing a Code of Ethics.

### Engineering and Infrastructure Specialty Group

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

*Seth Guikema, Chair*

Members of the Engineering and Infrastructure Specialty Group (EISG) have had a busy conference season, and the specialty group is preparing for an exciting set of symposiums at the 2008 SRA Annual Meeting in Boston. A number of the group members participated in Probabilistic Safety Assessment and Management 9 in Hong Kong in May, with a strong focus on Probabilistic Risk Assessment and related methods. We have an exciting array of talks lined up for Boston, spanning the range from fundamental modeling methods to applications in a variety of fields. The specialty group is also hoping to have a workshop of general interest across SRA in Boston.

We encourage anyone interested in risk analysis for engineering or infrastructure systems to attend EISG sessions in Boston and join the specialty group. Joining is free, and all you need to do is contact one of the officers. For more information about the specialty group please visit our Web page at [www.sra.org/eisg](http://www.sra.org/eisg).





## Committees

### Education Ad-Hoc Committee

*Garrick E. Louis, Chair*

The Education Ad-Hoc Committee met on 12 December at the 2007 Society for Risk Analysis (SRA) Annual Meeting in San Antonio to brief its members of the current activities, to announce the change in leadership (David Hassenzahl as past chair, Garrick Louis as chair), and to plan its activities for 2008. The objectives proposed for 2008 were:

1. Develop a Web-based tool for conducting committee business.
2. Survey the SRA membership about risk education programs.
3. Plan a recurring risk education conference for educators (including K-12 and collegiate), with the first conference to be held in 2009. This is the first step in a “train-the-trainer” initiative that the Education Committee has identified as one of its primary objectives.
4. Host an introduction to risk analysis Sunday training workshop at the Second World Congress in Guadalajara.
5. Host a symposium on risk education at the 2008 SRA Annual Meeting in Boston.
6. Petition the SRA Council for full committee status for the Education Ad-Hoc Committee.

To date the Education Ad-Hoc Committee has accomplished the following objectives:

1. Updated its membership list and identified 18 SRA members who wish to remain on the Education Committee, with about nine “active” members who regularly contribute.
2. Created a Web-based toolbox for conducting committee business. It includes a message board for exchanging emails, schedules of upcoming events, milestones of previous and new tasks, folders to store files, reminder notices, writeboards for working jointly on documents, and many other features. The URL for the site is <http://SRAeducation.grouphub.com>. Access is restricted to authorized committee members by username and password. Successful interactions have prompted the Membership Committee to share use of the Web-based toolbox.
3. Conducted the online risk education survey of the SRA membership in April-May 2008 by email and online notices at the SRA members only Web page after permission was officially requested and granted by the SRA Membership Committee. Nearly 200 responses were received. The final results will be forthcoming from John Watts and Leah Corr, who are performing the analysis of survey results.
4. Tentatively planned the first Risk Analysis for Educators Conference for 13-15 July 2009 at the University of Nevada-Reno (UNR). UNR-Environmental Sciences Program has graciously offered its facilities free of charge, thanks to negotiation by Education Committee member Brandolyn Thran. The committee will seek to institute this conference as a recurring event and

proposes to ask for funding for the 2009 conference as a new initiative.

5. Committee members David Hassenzahl and Branden Johnson submitted a proposal to host the “Introduction to Risk Analysis” Sunday training workshop at the Second World Congress. However, due to low subscription, the workshop was cancelled.
6. Committee members Martin Clauberg and John Watt submitted a proposal for a two-part symposium on risk education at the 2008 SRA Annual Meeting in Boston. We have since received several notes of interest from members about the symposium.
7. Committee members David Hassenzahl and Martin Clauberg submitted a proposal to host the “Introduction to Risk Analysis” and the “Current Topics in Risk Analysis” Sunday training workshops at the 2008 SRA Annual Meeting in Boston.
8. Committee members David Hassenzahl and Garrick Louis and affiliated SRA member Luis Cifuentes hosted a symposium session on risk education at the Second World Congress in Guadalajara, Mexico, on 9 June 2008. In addition to brief presentations, a lively discussion of the needs and goals helped to identify several recommendations. One suggestion is to actively pursue risk-training courses at other conferences, supplementary to or in lieu of SRA membership exhibit booths/tables at those conferences.
9. The committee is working on a draft petition to the Council stating its rationale for changing its status from an ad-hoc committee to a full committee. It is the desire of the Education Ad-Hoc Committee to present this petition to the Council for approval at its December meeting.

The Education Ad-Hoc Committee expects a busy period from July to December 2008 as it prepares for a petition for full committee status and for its roundtable workshop on risk education at the annual meeting in Boston.

### Communications Committee

*Rick Reiss, Chair*

Our efforts to publicize articles in *Risk Analysis* have continued with more success. In February, we sent out a press release on an article by Dr. Paul Kellstedt and colleagues of Texas A&M titled “Personal Efficacy, the Information Environment, and Attitudes Toward Global Warming and Climate Change in the United States.” The researchers interviewed 1,000 Americans and found the paradoxical result that respondents who indicate that they are well informed about global warming “both feel less personally responsible for global warming, and also show less concern for global warming.”

The results of the article were featured on *The New York Times* Web site under the blog of writer Jonathan Tierney (called TierneyLab: Putting Ideas in Science to the Test) on 29 February (see <http://tierneylab.blogs.nytimes.com/2008/02/29/global-warming-paradox/>). Tierney titled the post “Global Warming Paradox” and included quotes from the article and from his conversation with Dr. Kellstedt.

The post generated 158 comments (so far) and includes some thoughtful critiques and encouragements to the research (and a few not so thoughtful ones!). Many of the respondents downloaded the article from our publisher's Web site, which was provided for free for a week after the press release went out. The Tierney post was subsequently linked to by the Instapundit Web site, one of the most frequented sites on the Internet, and on numerous other Web sites.

### Conferences and Workshops Committee

*Jim Lambert, Chair*

The Society for Risk Analysis (SRA) Conferences and Workshops (C&W) Committee recognizes and supports continuing education events of interest to SRA members throughout the year, at SRA World Congresses, and on the Sunday prior to the annual meeting.

A synopsis of workshops available at the 2008 SRA Annual Meeting will be posted on the SRA Web site in the summer, along with details on the instructors and how to register (see newsletter page 5 for more information). Members are encouraged to sign up before the early registration deadline for the annual meeting to assure their first preferences can be met.

At the Second World Congress on Risk held in Guadalajara, Mexico, in June 2008, instructors Lynne Haber (Toxicology Excellence for Risk Assessment), Bette Meek (Associate Director, Chemical Risk Assessment, University of Ottawa), and Jay Zhao (U.S. Environmental Protection Agency) held a successful Sunday continuing education workshop on "Recent Developments in Risk Assessment—International Frameworks for Evaluating Toxicity Data for Human Health Assessment."

The SRA subcommittee on recognized events congratulates the SRA Emerging Nanoscale Materials Specialty Group, and chair Jo Anne Shatkin (CLF Ventures), in its development of the forthcoming workshop "NanoRisk Analysis: Advancing the Science for Nanomaterial Risk Management." The workshop has received substantial funding from the National Science Foundation and additional funding from the U.S. Environmental Protection Agency National Center for Environmental Assessment and the Johns Hopkins Institute for NanoBioTechnology. It will be held 10-11 September 2008 at George Washington University in Washington, DC. Watch the SRA Web site for details. (Meeting information and registration forms are available at [www.srananoworkshop.org](http://www.srananoworkshop.org).)

Our recognized-events subcommittee identifies conferences and workshops that may be of interest to SRA members. Eight upcoming SRA-recognized events around the world are currently listed in the Events section of the SRA Web site.

If you have an event that you would like to be recognized on the Web site and/or in the SRA quarterly newsletter, please follow the instructions at the site and/or contact Katy Walker at [kdwalker1206@hotmail.com](mailto:kdwalker1206@hotmail.com).

Our SRA C&W subcommittee chairs are Margaret MacDonell and Jacqueline Patterson (for annual meeting events) and Katy Walker and Jim Wilson (for SRA-recognized events and World Congress events). Jim Lambert ([lambert@virginia.edu](mailto:lambert@virginia.edu)) is the C&W chair.

Check the Events link at [SRA.org](http://SRA.org) for breaking news of SRA continuing education and recognized events. Contact Jim or any subcommittee chair if you are interested in serving on the SRA C&W Committee.

Upcoming SRA-recognized events:


- Measurement, Design and Analysis Methods for Health Outcomes Research, Boston, Massachusetts, 18-20 August 2008  
<http://www.hsph.harvard.edu/ccpe/programs/MDA.html>
- Ergonomics and Human Factors: Strategic Solutions for Workplace Safety and Health, Boston, Massachusetts, 9-11 September 2008  
<http://www.hsph.harvard.edu/ccpe/programs/EHF.html>
- Computational Systems Biology and Dose Response Modeling Workshop, Research Triangle Park, North Carolina, 22-26 September 2008  
<http://www.thehamner.org/docs/CSB-DRM-08.pdf>
- International Regulatory Reform Conference 2008, Berlin, Germany, 17-18 November 2008  
[http://www.bertelsmann-stiftung.de/cps/rde/xchg/bst\\_engl/hs.xsl/prj\\_53890\\_53899.htm](http://www.bertelsmann-stiftung.de/cps/rde/xchg/bst_engl/hs.xsl/prj_53890_53899.htm)
- Managing the Social Impacts of Change from a Risk Perspective, Beijing, China, 15-17 April 2009  
<http://www.kent.ac.uk/scarr/events/events.htm>
- 2<sup>nd</sup> International Conference on Risk Analysis and Crisis Response, Beijing, China, 19-21 October 2009  
Web site not yet available. Please contact [RACR2009@gmail.com](mailto:RACR2009@gmail.com) with questions.

### Membership Committee

*David Hassenzahl, Chair*

Interested in Society for Risk Analysis (SRA) logo items? The Membership Committee has been working on several initiatives this year, and making logo items available for purchase by our members—online and at events—is high on our agenda. Please let us know if there's something you'd like to have . . . or wear, or drink from, or set a golf ball on . . . to show off your interest in risk analysis.

We are also planning to host membership recruitment booths at conferences in Houston, San Francisco, and Las Vegas over the next few months. If you live in one of these areas and would be willing to invest a few hours on behalf of the SRA, contact Membership Committee Chair David M. Hassenzahl.

Finally, we're always interested in what else the Society can do for you. Don't hesitate to let us know. 

**Visit the SRA Web site**  
**[www.sra.org](http://www.sra.org)**



## Regional Organizations

### SRA-Latin America

[www.sra.org/about\\_latin\\_america.php](http://www.sra.org/about_latin_america.php)

*Olivier Salvi*



**Luis Abdon Cifuentes, Esperanza Lopez-Vazquez, and Robin Cantor with the certificate establishing SRA-Latin America as a regional organization of the Society for Risk Analysis.**

Thanks to much effort from Esperanza Lopez-Vazquez, Luis Abdon Cifuentes, and Marcelo Wolansky and interactions with several members of the SRA Council, the petition of the SRA-Latin America (SRA-LA) regional organization was approved during a telephone call on 6 June 2008 and announced during the World Congress in Guadalajara.

SRA-LA brings to the SRA family nearly 100 members, 27 already full members of SRA and 72 more who are new members of the regional group and may soon join the international SRA. The new Latin American group is led by President Esperanza Lopez-Vazquez (Mexico), Vice President Marcelo Wolansky (Argentina), and Secretary Luis Cifuentes (Chile) (who is also a member of the SRA Council). SRA-LA held its first meeting in Guadalajara on 10 June, with more than 40 people from Mexico, Chile, Argentina, Costa Rica, Havana, Colombia, Ecuador, and Brazil attending. At this first meeting of SRA-LA, the enthusiasm of the participants who are ready to develop the risk analysis community in this part of the world was already apparent.



**Most of the 40 attendees at the first official members meeting of SRA-Latin America, held on 10 June 2008 during the Second World Congress in Guadalajara, Mexico.**

In the preceding months, a team of SRA officers featuring SRA Regions Committee Co-Chairs Olivier Salvi and Elaine Faustman, SRA President Jonathan Wiener, and SRA Past President Chris Frey, with significant input from SRA Past President Kim Thompson and support from the SRA Secretariat, worked diligently with Esperanza, Marcelo, and Luis to help prepare the requisite Petition and Bylaws to launch SRA-LA.

### SRA-Europe

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

*Roberto Bubbico, President*

The organization of the 2008 SRA-Europe (SRA-E) Annual Meeting is going ahead and most of the review process of the received papers has been carried out. In the next weeks a preliminary program will be available on the conference Web site (<http://www.esrel2008.com/>). It is worth reminding that for this year, only those who are already Society for Risk Analysis (SRA) and SRA-E members will receive a discounted rate (it will not be possible to join the Society at the conference). The subscription to SRA-E can be made either via the SRA-E Web site (<http://www.sraeurope.org/>) or the SRA Web site (<http://www.sra.org>). We are also pleased to announce that, as already happened at the World Congress in Mexico, most of the leaders of different risk organizations from all over the world (SRA, SRA-Japan, SRA-Russia, Risk Analysis Council of China Association for Disaster Prevention, etc.) will be present at the conference. This allows the continuation of the collaboration started in Guadalajara, strengthening the links among the risk communities of the different parts of the world and permitting a more consistent and effective action in the area of safety and risk prevention.

At the time of the Valencia Conference next September, three vacancies will be available within the Executive Committee of SRA-E. New elections will be held in the next months, so the Executive Committee welcomes suggestions regarding suitable candidates. Possible interested candidates are also encouraged to contact the Executive Committee themselves, taking into account that it is also possible to collaborate with the Executive Committee as co-opted members even before the elections.

In spring 2008, SRA-E introduced a small additional membership fee. This is now an additional membership option for all SRA members, including non-Europeans. The purpose of this additional fee is to create funds for Europe-specific initiatives related to risk research as well as to offer particular benefits for those who are "full" SRA-E members, in relation to increased discount rates for attending SRA conferences. It is planned to offer student travel stipends for the 2009 SRA-E conference in Karlstad, Sweden, and to implement a Europe-related information exchange platform. SRA-E members will benefit from this updated message board with information about what's going on in risk research with



regard to conferences, new European Union-related activities, and policy development in the field of risk and so on. Further plans aim to promote interdisciplinary risk research activities such as topic-specific workshops in Europe. Of course one of the great benefits of this level of membership of SRA-E is that now SRA-E will be open for SRA members all over the world who wish to join the European risk community. Early indications from renewed memberships confirm clearly the acceptance and willingness of SRA members to support this new initiative. This is encouraging us to proceed with our plans.

Plans for the 2009 SRA-E Conference are well under way. The conference will be held in Karlstad, Sweden, 28 June-1 July 2009, and the event will be co-hosted by Karlstad University, the National Defence College, and the Swedish Civil Contingencies Agency. The latter is a completely new authority that will be officially instated on 1 January 2009 and will replace the former Swedish Rescue Services Agency and Swedish Emergency Management Agency. The tasks of this new agency encompass the whole spectrum of contingencies from, for example, road traffic accidents, fires, chemical emergencies, power cuts, and other technical failures all the way up to bomb threats and other antagonistic attacks, epidemics, natural disasters, and war. This broad range of risk and threat problems will be reflected in the themes for the Karlstad Conference.

### SRA-Japan

[www.sra-japan.jp/english/](http://www.sra-japan.jp/english/)

*Shoji Tsuchida, Former President*

SRA-Japan will celebrate its 20<sup>th</sup> anniversary at its 2008 annual conference, which will be held at Kansai University, Osaka, 29-30 November. SRA President Jonathan Wiener and SRA-Europe Past President Olivier Salvi will be speakers at the conference. The main official language at the conference is Japanese, but we are planning to have some sessions in English and SRA members are welcome to attend. For more information, please visit the conference Web site (<http://www.sra-japan.jp/SRAJ2008HP/>).

Akihiro Tokai of Osaka University was elected as the new president of SRA-Japan. He is a specialist of environmental risk assessments of chemicals. Toshihiko Nagasaka is the new SRA-Japan vice-president.



**SRA-Japan President  
Akihiro Tokai**

### Chapitre Saint Laurent

<http://chapitre-saint-laurent.qc.ca/englishaccueil.html>

*Olivier Salvi*

Thanks to the Speaker's Bureau fund, Olivier Salvi (Co-chair of the Regions Committee) attended the 12<sup>th</sup> Annual Meeting of the Chapitre St. Laurent and represented SRA during an introductory speech. This chapter is affiliated with both SETAC and the Society for Risk Analysis, through their lead-

ers. The annual meeting was a great success with around 130 participants, with three parallel sessions covering topics mainly related to chemical and environmental issues.

The relationship established with SRA Chapitre St. Laurent President Stéphane Masson, and other members of the Council, in particular Raynald Chassé, was very cordial and, as an anecdote, they enjoyed very much a speech in French, the language used for the rest of the presentations.

It was the first time in recent memory that a representative of SRA attended this annual meeting, although SETAC, represented by Karen Kidd (University of New Brunswick), gives an introductory speech every year.

One of the founding members of SRA Chapitre St. Laurent, Sylvain Loranger, said he will attend the 2008 SRA Annual Meeting in Boston and that the Chapitre St. Laurent might be interested in hosting the next World Congress.

For more information, visit the Chapitre St. Laurent Web site at <http://www.chapitre-saint-laurent.qc.ca/>.

### New England

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

*Donna Vorhees and Sandy Baird, Past Co-Presidents*

#### Recent Presentations

In April 2008, the SRA New England Regional Organization conducted a joint session with the Licensed Site Professionals Association (LSPA) of Massachusetts, "Vapor Intrusion: Maybe the Data Are Telling Us Something," presented by Dr. Henry Schuver of the U.S. Environmental Protection Agency Office of Solid Waste. This event fostered a continued dialogue on how to improve methods for assessing and managing vapor intrusion risks. For more information, check the Web site <http://iavi.rti.org/workshopsandconferences.cfm>.

In May 2008, Dr. John Evans of the Harvard School of Public Health and Kuwait Public Health Project and Dr. Rosalind Wright of the Channing Laboratory and Harvard Medical School presented "Kuwaiti Oil Fires: Risk Evaluation in Support of the State of Kuwait's Public Health Claim." They provided a summary of their work employing methods of risk assessment and epidemiology to assess the public health impacts of the oil fires and the trauma related to Iraq's 1990 invasion and occupation of Kuwait. Slides from their presentations are available at [www.sra-ne.org](http://www.sra-ne.org).


We are deeply grateful to these speakers who generously volunteered their time to keep our membership informed on these important topics.

#### Elections

We are pleased to announce the newly elected officers of our chapter, who will serve a one-year term beginning June 2008 and ending May 2009: President Jonathan I. Levy, Treasurer Arlene Levin, and Secretary Karen M. Vetrano.

We congratulate our new officers and appreciate their willingness to serve. Thank you to everyone who took time to vote. Your vote helps to shape the future of our chapter, and we look forward to a productive and interesting year.

#### Getting Involved

We continue to solicit interest in a planning committee for our chapter to plan new initiatives for 2008-2009. For the latest information about our event schedule and opportunities to get involved, please visit [www.sra-ne.org](http://www.sra-ne.org). 



## What Do We Do?

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

### Ken Foster

#### What is your job title?

**Foster:** Professor of Bioengineering in the Department of Bioengineering, University of Pennsylvania

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

**Foster:** As a professor, I basically write my own job description. I have had a long-standing interest in issues related to risk, most directly related to possible health effects of electromagnetic fields, but also to technological risks in general. My writing over the years has spanned the full range from basic biophysical studies on the interaction of electromagnetic fields and biological systems to, in May 2008, a book chapter on risk communication.



a variety of complementary interests. Public concerns about health effects of electromagnetic fields have been voiced for many years about a variety of topics, and there is a wide range of different things that can be done in this area. Risk analysis is now a highly professionalized field and there are many opportunities for excellent scholarship as well.

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

**Foster:** I enjoy teaching—for the last few years I have been teaching the course in ethics for engineers and spend a lot of time talking about risk issues with the students. I travel

a lot to give lectures and attend conferences, which is stressful at times but very interesting.

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

**Foster:** My job—as a professor in a research university with a scholarly interest in risk—is essentially unique, and professorial jobs will continue to be very scarce. However, risk analysis is a core subject in many disciplines. My advice for someone starting out would be to identify a large field that is congenial intellectually with a large job market—such as engineering, business management, toxicology—and then develop a specialty in risk analysis. But don't specialize too quickly.

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

**Foster:** The sophistication of the whole field has improved greatly, no small measure due to SRA, and its journal is outstanding. Some of the papers that have been most influential in my own understanding of the issues have appeared in *Risk Analysis*.

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

**Foster:** My Web page can be found at <http://www.seas.upenn.edu/~kfoster/kfoster.htm>.



#### 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).



## Member News

### Jo Anne Shatkin

Jo Anne Shatkin has published the book *Nanotechnology: Health and Environmental Risks*, which provides the nonspecialist an introduction to the issues regarding nanotechnology and shows how risk assessment can be used to manage the potential risks. J. Michael Davis, of the U.S. Environmental Protection Agency, and Brenda Barry are co-authors. The book is part of a series on society aspects of nanotechnology, edited by Gabor Hornyak, and is available from CRC Press.



### N. Krishnamurthy



N. Krishnamurthy has recently published his book *Introduction to Risk Management*, planned as an overview of the vast subject aimed at the serious student, the fresh practitioner, and the rusty veteran of hazard analysis and risk management at the workplace. The book covers the basic principles of



hazard identification, likelihood and severity assessment, risk categorisation, hierarchy of controls, and safety culture in general, interspersed with applications and anecdotes. Although written for Singapore, most of the contents are generic and applicable globally. The book (88 pages, A5 size) is available from the author. Details of the book and contact information are available from the author's Web site: [www.profkrishna.com](http://www.profkrishna.com).

### Ortwin Renn

*Risk Governance: Coping with Uncertainty in a Complex World* brings together and updates groundbreaking work of renowned risk theorist and researcher Ortwin Renn, integrating the major disciplinary concepts of risk in the social, engineering, and natural sciences. The book opens with the context of risk handling before flowing through the core topics of assessment, evaluation, perception, management, and communication, culminating in a look at the transition from risk management to risk governance and a glimpse at a new understanding of risk in (post)modern societies.

The focus is on systemic risks, such as genetically modified organisms, with a high degree of complexity, uncertainty, and ambiguity, and which have major repercussions on financial, economic, and social impact areas. This is essential, profound reading for all researchers, academics, and professionals across the social science, science, medical, engineering, and financial sectors.



## Advertisements

### Director, National Center for Risk and Economic Analysis of Terrorism Events University of Southern California

The University of Southern California (USC) seeks a prominent scholar to lead the National Center for Risk and Economic Analysis of Terrorism Events (CREATE), the first university-based Center of Excellence funded by the Department of Homeland Security (DHS) with a mission to improve the nation's decisions to reduce terrorism risks through the advancement of risk and economic science. Now in its fourth year, CREATE has DHS base funding of \$4 million per year plus significant funding from other sources.

The director of CREATE should have a solid research record in risk and economic analysis or related fields. Experience with managing an interdisciplinary research center is also important. CREATE is a joint center of the Viterbi School of Engineering and the School of Policy, Planning, and Development, and it is expected that the director will receive a joint appointment in these two USC Schools.

Applications must include a letter indicating the candidate's area of specialization, a curriculum vitae, a one-page statement on current and future research, and names of at least four professional references. Please mail applications to CREATE Director Search Committee; University of Southern California; Center for Risk and Economic Analysis of Terrorism Events; 3710 McClintock Avenue, Rm. 316A; Los Angeles, CA 90089-2902.

Candidates may contact the chair of the search committee, Detlof von Winterfeldt, for further information at 213-740-0898 or at his email, [Detlof@sppd.usc.edu](mailto:Detlof@sppd.usc.edu). Please do not provide letters of reference or copies of publications until requested to do so. The review process will begin immediately and continue until this position is filled.

The University of Southern California is an Affirmative Action/Equal Opportunity Employer and encourages applications from women and members of underrepresented groups.

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*SRA Web site:* www.sra.org

### Deadline for RISK *newsletter* Submissions

Send information for the **Fourth Quarter 2008** SRA RISK *newsletter*, to be mailed early November, 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 September 2008**.



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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