



First World Congress on Risk “Risk and Governance” Conference Highlights

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Introduction

The “First World Congress on Risk” was held 22-25 June 2003 at the Sheraton Brussels in Belgium with more than 400 participants from over 40 countries in attendance. This was the first of a series of World Congresses on Risk planned as important, logical steps to further develop the field of risk analysis and its applications on an international scale. The broader objectives of the Congresses are to (1) stimulate dialogue on emerging risk issues of worldwide interest, (2) share insights about analytic methods and decision processes used in different regions of the world, (3) demonstrate and disseminate recent advances in risk assessment, management, and communication, and (4) build an organized, international community of individuals dedicated to advancing the state of the art and promoting appropriate use of risk-related tools, concepts, and procedures.

The unifying theme for the First World Congress was “Risk and Governance,” capturing the worldwide trend toward making better use of risk-oriented concepts, tools, and processes (derived from both research and practice) in public decision-making and risk management.

Highlights from the Program

The First World Congress consisted of meetings over a three-day period. Each of the three days began with a plenary session to launch a set of issues or methodological “views.” Each plenary session was followed by four concurrent breakout sessions that combined groups of participants to consider specific risk issues such as terrorism, precautionary principles, and genetically modified organisms (GMOs).

In the afternoon, about 10 concurrent mini-symposia sessions were held in each of two meeting periods. These mini-symposia were selected by the program committee through a widely advertised and competitive review process. Overall,

more than 50 mini-symposia sessions and dozens of poster presentations were selected by the program committee. The mini-symposia and posters covered a broad range of risk issues including the social amplification of risk, responses to the acts of terrorism, retrospectives on the “Red Book,” risk assessments and trade disputes, approaches to structuring stakeholder involvement, flood disaster management, GMOs and sustainable agriculture, children’s environmental health, fiber risks, harmonization of risk standards, and environmental sustainability. The Congress also served to

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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 by-laws 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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Society for Risk Analysis
Web Site
www.sra.org

President's Message



This past year has amply demonstrated the global scope of risk analysis and the value of the Society for Risk Analysis (SRA) in promoting a global approach to our field. Both the quality of the presentations and the level of attendance at the First World Congress on Risk in Brussels in June 2003 were all that could be asked for. Interest in forming SRA chapters in many new locations worldwide is evident, as is a growing recognition of the value of risk analysis among environmental and public health professionals in the developing world.

It is a particularly meaningful time to be approaching policy issues through risk analysis. The breadth and depth of our field has been tested and found applicable to problems as diverse as estimating the risks of bioterrorist attacks and their outcomes, to considering the health and economic implications of new policy approaches such as the use of the precautionary principle. The evolution of risk-related issues in environmental health, engineering, finance, and safety, to name just a few, provide an exciting counterpoint to these newer issues.

The US Institute of Medicine has recently released a series of committee reports on public health which emphasize the value of "transdisciplinary" approaches. We are already there. No organization provides a better opportunity for individuals in a wide range of disciplines to meet and exchange views. Most importantly, in the spirit of "transdisciplinary," no organization offers a better opportunity to transform our unidisciplinary approaches with insights provided by our colleagues.

I urge you to renew your membership and to increase your activity in the SRA. In addition to participation in our annual meeting and in regional and sectional activities, there are many opportunities to help guide our Society to be more responsive to the exciting development in the field of risk analysis.

Your membership offers many benefits, including:

- Significantly discounted registration fees for the US annual meeting
- Significantly discounted registration fees for the annual meetings held by the Society's international sections
- Subscription to the journal *Risk Analysis* including online access and to RISK newsletter
- Publisher discounts to several other risk journals
- Listing in and use of the online Membership Directory
- Opportunities to participate in Society committees and to run for office

Given current events, the collective resources of SRA are not simply useful for public or private decision-making, education, and scientific advancement, they are essential. I urge you to take this opportunity to continue your membership in the Society and to continue to make use of the substantial benefits offered by our Society. I also thank you for the encouragement and support that I have enjoyed this past year. I thank you for your support in the past year. We are very fortunate to have Dr. Caron Chess as our next president. Caron and I hope to see you at the SRA Annual Meeting in Baltimore 7-10 December 2003.

Dr. Bernard D. Goldstein

Society for Risk Analysis 2003 Annual Meeting Update

“Bridging Risk Divides”

Baltimore, 7-10 December

Job Link—New at the 2003 Annual Meeting

Use this year’s annual conference to network for job opportunities for risk professionals! This year, the Society for Risk Analysis (SRA) will sponsor Job Link to help risk professionals find career opportunities and prospective employers meet qualified applicants.

Employers Submit Job Descriptions

Are you looking to hire a qualified risk professional in the near future? Submit job descriptions to SRA for full-time, part-time, post-doc, or fellowship positions to be displayed at the 2003 Annual Meeting’s Job Link table. Applicants will be able to review these job descriptions and submit résumés on-site. You will also be able to review the résumés submitted by interested professionals. Please submit your job descriptions to Mike Johnson (mjohanson@burkinc.com) at SRA headquarters by **17 November**. You may bring job opportunity information to the meeting also, but the process will work best with information submitted early.

Submit Your Résumés and Network

Position descriptions will be available at the Job Link table during the 2003 Annual Meeting. Posted positions will include full-time, part-time, post-doc, and fellowship opportunities. Review job descriptions and submit your CV or résumé for review at the meeting. Employers will review submitted résumés and use the 2003 Annual Meeting as an opportunity to hold preliminary meetings with qualified applicants. You may also submit your résumé prior to the meeting to be included in a résumé binder for employers to review at the Job Link table. Email your résumé to Mike Johnson (mjohanson@burkinc.com) for inclusion in the binder. If you would rather submit your résumé anonymously, please contact Mike Johnson for arrangements.

The deadline for résumés is **17 November**. Be sure to bring extra copies of your résumé with you to the meeting! Email Henry Willis (hwillis@rand.org) or Mike Johnson (mjohanson@burkinc.com) for further information.

Sunday Workshops

SRA’s continuing education workshop program at the 2003 Annual Meeting in Baltimore will be held on Sunday, 7 December. There may still be space available in a workshop you’d like to attend. This year’s workshops are:

- 1 (morning) Methods and Guidance for Health Risk Assessment of Chemical Mixtures
- 2 (morning) Beyond Monte Carlo: Risk Assessment Using Interval and Possibilistic Arithmetic
- 3 (afternoon) What Monte Carlo Cannot Do: Introduction to Imprecise Probabilities
- 4 (all day) Application of Spatial Techniques in Ecological Risk Assessment
- 5 (all day) Risk Communication: Application and Case Studies in Military and Emergency Settings
- 6 (all day) Bayesian Analysis and Applications in Risk Analysis
- 7 (afternoon) Public Choice, Risk Analysis and the Development of Regulation
- 8 (morning) Elementary Economics for Non-Economist Risk Assessors

You can get more details about these workshops at <http://www.sra.org/events.htm#workshop>.

Monday Plenary

Dr. Paul Gilman, Assistant Administrator for Research and Development at the Environmental Protection Agency, will kick off the Monday plenary with a keynote presentation about the Agency’s approach to bridging risk divides.

Tuesday Plenary

Tuesday’s plenary, on the topic of building international bridges, will follow up on the World Congress that was held 22-25 June 2003 in Brussels and deal with the role of risk analysis in developing countries.

Wednesday Plenary

“Building Bridges to the Future: Lessons Learned from Anthrax, 2001” is the topic of Wednesday’s plenary.

The panel for this plenary includes Monica Schoch-Spana, Johns Hopkins University Center for Civilian Biodefense Strategies, who will speak on social science; Ivan Walks, former chief health officer for Washington, DC, who will speak on dealing with diverse populations; and

Thomas Day, United States Postal Service Vice President of Engineering, who will speak on postal service plans.

Lottery

Those who sign in and out of the Wednesday afternoon sessions (which are scheduled until 5 p.m.) will be entered into a lottery pool. The lucky winners will get either reimbursement of their registration fee or a credit towards next year.

2003 Annual Meeting Information
http://www.sra.org/03annual_meeting.htm

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broaden discussions about new international initiatives such as the International Risk Governance Council (IRGC).

Through the financial support of the National Science Foundation, the US Environmental Protection Agency (US EPA), the US Department of Energy (US DOE), and the National Institute of Environmental Health Sciences (NIEHS), there was substantial participation by young investigators and researchers and policy makers from developing countries. The conference organizers are grateful to these agencies for their generous support.

The Congress also benefited from support for student participation. Marcela Acuña-Rivera (University of Surrey) won the “best presentation award” for young scientists. The award was presented by the German Foundation for Damage Prevention and Precaution (a foundation supported by one of the leading German natural disaster insurance companies). Acuña-Rivera’s paper on sustainability and risk was evaluated as highly original, well proposed and structured, and very stimulating for thinking about new methods of precautionary approaches. The award included an honorarium of 500 Euros.

Additional highlights below focus on the plenary, breakout, and luncheon program of the Congress. More details on the afternoon sessions, papers, posters, and speakers can be found in the final program and other related materials that will eventually be available on the World Congress Web site which is under development by the Society for Risk Analysis (SRA) and the Congress organizers. Readers should check the SRA Web site for updates and future planning of the World Congress on Risk series.

Monday Plenary Session

Chemical, Biological, Radiological, and Cyber Risks

Monday’s Plenary Session, led by John Ahearne (Sigma Xi and Duke University), included the presentations “Trends at the Intersection of Risk Assessment and Policy” by Christopher Whipple (Environ International Corporation), “Some Lessons from Japan in Early Detection, Precaution, and Informed Choice in the Risk Divided Society” by Saburo Ikeda (University of Tsukuba), and “Assessing Risks: Yesterday, Today and Tomorrow” by William Farland (US EPA).

Each of these three speakers provided a different perspective on the history and development of risk assessment. Whipple, one of the first presidents of the SRA in the United States, opened the plenary by noting the progress that has been made toward accurate risk assessments. He gave a brief history of the emergence of risk assessment, noting that it began with radiological models which

institutionalized the quantification of risk assessment, followed by many other methodological developments and the influence of numerous groups. He underscored the role that uncertainty plays and the different views that people have of uncertainty.

Ikeda recounted the recent changes in risk assessment and risk management in Japan as a consequence of increasing scientific knowledge, public concern, and economic burden. The issues that were of concern also shifted, starting with water quality and toxic metals and gradually extending into endocrine disruptors and food products. A concern over ethical issues emerged as well, in particular avoiding exporting risks to other regions, future generations, and other parts of the global ecosystem.

Farland recounted the history of risk assessment in terms of the growing number of steps and procedures, as well as the continual backdrop of pervasive uncertainty. He noted that risk assessment changed from a one-size-fits-all

model to more tailored risk assessment, in part to respond to risk management needs. To meet the challenge of changing risk assessment methods, better data and innovative tools are needed, future regulatory mandates will further the development of the process, and a partnership is needed to produce a robust process.



**Robin Cantor and Rae Zimmerman
First World Congress Organizers**

Monday Breakout Sessions

A. Risks from Novel Sources of Biodiversity

This breakout session was organized by Anne Fairbrother (US EPA) and the Society of Environmental Toxicology and Chemistry (SETAC) and focused on the biological risks of invasive species, biotechnology, and other novel genetic material. Globalization has increased the capacity for spread of genetic material around the world, with potential risks to both humans and the environment. Invasive species of plants, invertebrates, and aquatic life threaten the stability of ecosystems, as well as economies based on agriculture or natural resource harvest. The need

for methods to assess and prioritize risks of invasive species is becoming more urgent and was one of the topics of discussion at this session. Aggressive, invasive species also might occur as a result of escape of transgenes from bioengineered crops, which might result in human health risks associated with ingestion of novel proteins produced by the plants. These and other potential risks associated with bioengineering require new approaches for risk analysis, discussed during the session. Similarly, movement of disease agents into susceptible human and wildlife populations, as exemplified by West Nile Virus and SARS (severe acute respiratory syndrome), is occurring with greater frequency and rapidity due to an increasingly global economy. Under-



Reading World Congress Program

standing causal factors that facilitate movement of pathogens

will allow better methods for predicting risks of emerging diseases. The session explored commonalities in methods for analyzing risks of novel genetic material to humans and the environment, whether the material is introduced as whole organisms (invasive species), novel genes (through genetic engineering), or new or reemerging pathogens.

B. Radiological Risks and Long-Term Waste Management

The objective of this breakout session, organized by Robert Budnitz (Lawrence Livermore National Laboratory), was to discuss the role of risk analysis, including both realistic risk analysis and various other forms of risk analysis, in assessing the risks over the very long term of managing high-level radioactive waste and spent nuclear power plant fuel. The session emphasized risk-analysis methods for deep-geological disposal, as well as risk-analysis methods for long-term surface management of these wastes. Using an international perspective, the principal questions addressed included (a) whether currently available risk-analysis methods are adequate to support realistic risk analyses and (b) what types of applications (regulatory, public-participation, facility design) can be supported by either realistic risk analyses or various other forms of risk analysis.



C. Early Warning Systems for Chemical Risks

Lesley Onyon (International Programme on Chemical Safety, World Health Organization, Geneva, Switzerland) organized this session that addressed the sound management of chemicals and the assessment of the hazards and risks posed by chemicals. Much has been done internationally to harmonize assessment methods and significant efforts are underway on work to cooperatively assess chemicals used and produced worldwide in high volumes. International authorities agree, however, that much remains to be done, particularly to fill outstanding information gaps and improve the accessibility and availability of information with which to prioritize further assessments. Much also remains to be learned from the types of chemical exposures taking place, chemical accidents, and near misses to improve preparedness and response and evidence-based risk management. Can systems in place in other areas, for example, disease surveillance and the post-marketing surveillance of pharmaceuticals, be used as models to improve feedback systems for chemicals? What are the systems in place for reporting of adverse events and how can they be improved? What can we learn from lessons of the past to improve the safety systems we have in place? This session reviewed current systems for the assessment of chemicals and potential improvements for chemicals management to try and answer these questions and others about the need for early warning systems for chemical exposure.

D. Terrorism and Extreme Events

This session, organized by Vicki Bier (University of Wisconsin) and led by John Ahearne, emphasized that protecting human health and critical infrastructure against threats from an intelligent and adaptable adversary (including chemical, biological, and radiological weapons, as well as other terrorist threats) is different from many other types of risk management. Risk management in this context may require tools such as game theory, in addition to the traditional use of decision theory. In addition, risk analysis methods likewise may need to be adapted to help in characterizing the changing nature of terrorism risk. However, the results of such analysis can yield useful insights. Participants in the session addressed such questions as: How does terrorism risk management differ from protection against accidents or acts of nature? What new risk analysis methods, models, and theories (if any) are needed to address terrorism risk? What is

known about the ability of systems to rebound after a terrorist attack? How has the public responded to the threat of terrorism? Are there tradeoffs between terrorism risk management and the preservation of basic values, such as protection of individual freedoms?

Monday Luncheon

Reflections on Risk and Governance

Speakers Commissioner David Byrne (European Commission) and Dr. John Graham (US Office of Management and Budget) addressed the role of precaution in environmental regulation and steps underway toward regulatory reform and reliance on good risk analysis in their respective governments. They repeatedly stressed the importance of good risk management for societal governance and relations among nations.

Commissioner Byrne put forward the European Union perspective on risk management and the growing centrality of risk issues in decision-making within the European Union. His talk focused on three issues of immediate importance: SARS, food safety, and GMOs. He characterized SARS as a "wake-up call" to the world regarding emerging risks that may arise without warning and require coordinated international responses. He then discussed the recent new steps in the European Union to implement a new food safety system and the evolution in regulatory approaches, including the changing role of the precautionary principle, as articulated in the EU 2000 policy statement outlining how, when, and why precaution should be used as a decision strategy. He noted the need to "get the basic regulatory framework right" and deplored "scaremongering" regarding GMOs in some public debate. He concluded by observing the need to learn lessons from SARS as indicating the level and kinds of international cooperation needed to address new and more familiar risks.

Dr. Graham greeted the group on behalf of President Bush, who, in Graham's words, has strong interest in merging risk analysis with sound procedures for governance. He outlined the philosophy and structure of recent changes in the regulatory system within the United States, calling for an emphasis on *smarter* regulation, which includes common sense and insights from risk sciences. He noted that the administration is neither for nor against regulation *per se*, but wants regulation that achieves social goals in effective ways. He spoke of a series of regulatory changes in the United States and the emphasis of his office on building better regulatory practice across US agencies in many ways. He spoke of the differences in the contexts in which precaution has been adopted in US regulation as compared to the European Union. He spoke of two upcoming challenges for US regulatory authorities. For homeland security issues it is now possible to ask the basic questions of good regulation and governance: are the selected approaches providing the best combination of benefits and costs achievable from the resources and effects on individuals required? The other challenge is quasi-regulatory actions by regulatory agencies, which have less direct guidance and oversight than conventional regulation.

(Summary provided by Timothy McDaniels)

Tuesday Plenary Session

Global And Transboundary Risks

Led by Joyce Tait (Scottish Universities Policy Research and Advice Network [SUPRA], The University of Edinburgh), Tuesday's Plenary Session included the presentations "Climate Change and Climate Policy: Key Challenges for the Risk Community" by M. Granger Morgan (Carnegie Mellon University), "Transboundary Risks: How Governmental and Non-Governmental Agencies Work Together" by Ursula Gundert-Remy (Federal Institute for Risk Assessment), and "Risk Governance: A New Approach" by Charles Kleiber (State Secretary for Science and Research; Swiss Department of Home Affairs).

Dr. Morgan provided an overview of the science of climate change and its economic and ecological impacts. He noted that these impacts will be very different in different parts of the world and that natural ecosystems and the economies of some



developing countries will be the hardest hit. He went on to discuss the strengths and limitations of integrated assessment—focusing in particular on some issues such as decision-making under uncertainty and equity, which are central concerns of the risk analysis community. He outlined the current status of efforts to control emissions of greenhouse gasses and noted that while there is no significant policy action in the United States at the federal level, there are a wide variety of initiatives being undertaken by states and regions.

Morgan ended his talk with an overview of technologies and policies that might be used to control greenhouse gas concentrations.

Gundert-Remy presented detailed histories of two transboundary risk issues. The first was Hazardous Substances, emphasizing incidents in Bhopal (1984), Mexico City (1984), and Seveso (1976) and how each underscored the need for international attention and coordination in providing assistance to local areas as they confront emergencies. The second was SARS, emphasizing the role that a global network of scientists and managers played, reflecting an unprecedented collaboration of scientists in different countries, organizations, and disciplines.

She summarized by pointing out that what is needed to tackle transboundary risks are "international collaborations, the participation of both government and nongovernmental organizations, special forms of collaboration, for example, deliberated, and commitment without taking organizational and personal advantages."

Kleiber opened his presentation with the very dramatic statement: "We live in a strange world. Never has poverty been so widespread, life expectancy so high, but there is a feeling of fragility. Security is so good, but the feeling of insecurity is so great." Security is the major challenge and will require cooperation and risk governance. He put forth a number of strategies for governance, indicating that it needs to occur within the framework of managing the affairs of government, with institutions and processes to enable groups to articulate preferences and exercise their rights. Good governance includes elements such as participation and transparency and takes various stakeholders into account.

He summarized three steps: "identify the risk, which requires a pooling of disciplines; prevent catastrophes, which are only significant because of the lack of preparation for them; and, should a catastrophe occur, deal with it." Risks need to be openly debated.



Tuesday Plenary Speaker M. Granger Morgan

Tuesday Breakout Sessions

A. Genetically Modified Organisms and International Trade

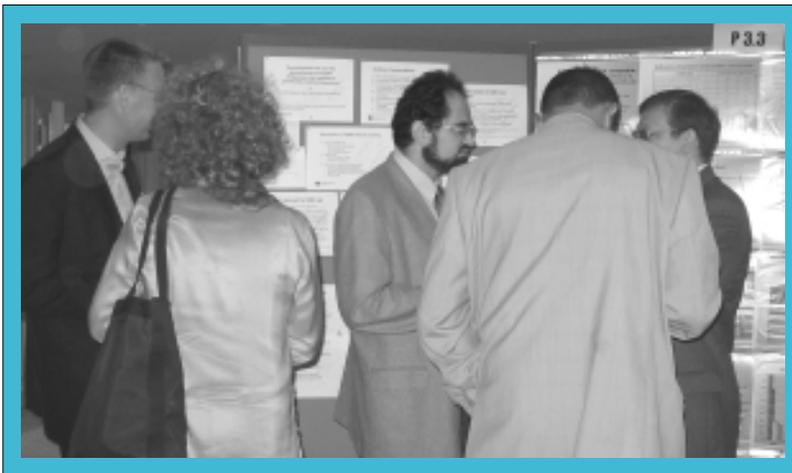
This session, organized by Joyce Tait, addressed issues relevant to the needs of developing countries, consumers, the food industry, and the agro-biotechnology industry in the context of trade in genetically modified (GM) seeds and crops. Trade in these products has become one of the most contentious international risk issues. Numerous nongovernmental organizations (NGOs) and some national governments (in response to public pressure) are calling for very rigorous controls, moratoria on GM crop developments, or an outright ban. On the other hand, the companies involved in their development, supported by the United States and some other governments, maintain that there is no evidence of risk which would justify such actions. Conflicts among EU countries, between the European Union and the United States, and increasingly involving the developing world have demonstrated the inherent difficulties in harmonizing regulatory and administrative procedures in the face of manifestly different institutional commitments and political/administrative cultures. In risk regulation, as in any other area, it is also important to recognize the multiple perspectives and interests of different industry sectors and of different companies within sectors. This variation in response is what gives some firms a competitive advantage over others and increasingly the international operating environment of industry is being altered in favor of those companies that see risk regulation as an opportunity rather than a constraint.

B. Global Climate Change: Extreme Events

Extreme weather events, such as riverine or coastal flooding, windstorms, and droughts, present challenging problems in reducing the human and economic damages and in spreading the residual losses from the direct victims to a wider base. The focus of this breakout session, organized by Joanne Linnerooth-Bayer (IIASA), was the assessment and management of risks of weather-related catastrophes. Participants discussed the importance of climate change for the frequency and intensity of weather-related disasters, as well as improved tools and “catastrophe models” for assessing the risks from extreme events, their applications for risk mitigation and financial management, and procedures for developing and using these tools in participatory procedures. While the focus was on extreme weather events, the conceptual development can be transferred to technological disasters and to proactive management of deliberate catastrophes, such as terrorist activities. The session also focused on advanced modeling such as catastrophe models, innovations in risk-transfer instruments, and governance of disaster risk management at the local, national, and global levels.

C. Risk Analysis and the Precautionary Principle

Peter Wiedemann (Forschungszentrum Jülich, Germany) and Martin Clauberg (University of Tennessee) organized this session to explore the underlying concept, conflict and problem issues, and suggestions to move forward in finding ways to open up a constructive dialogue on “Risk Analysis and the Precautionary Principle.” Within the last decade—specifically the last five years—the concept of the “Precautionary Principle” has come into (regulatory) focus and momentum for it has been



growing. Indeed, the regulatory acceptability has been growing more rapidly in the European Union than in the United States, highlighted by the European Union’s official incorporation of the precautionary principle into the regulatory framework in 2000. Whether deservedly or not, the precautionary principle has been blamed for economic and regulatory tensions between

the European Union and the United States. Although several attempts have been made to understand and alleviate the tensions attributed to the precautionary principle, a final consensus has not been achieved to date.

D. Systemic Risk and Interdependencies

Yacov Y. Haimes (University of Virginia) organized this session to address the dominance of information technology in our business and commerce which has also created a critical-path dependency across our interconnected information systems and critical infrastructures that can be exploited by would-be terrorists. For example, banking and finance institutions depend on the information infrastructure to operate their systems, reliable telecommunications depend on electricity, and the electric utilities depend on a reliable source of energy.

The session explored the advances in modeling, assessment, and management of risks of terrorism to interdependent infrastructures. It also addressed the need to better understand the interconnectedness and interdependencies between the complex system of critical infrastructure systems, such as transportation, telecommunications, and electric-power systems.

Tuesday Luncheon

Risk Analysis in a Global Community

Chaired by SRA President Dr. Bernard Goldstein, with Jonathan Wiener as Coorganizer and Rapporteur, and including panelists Dr. Chris Schonwalder (USA), Dr. Igor Linkov (Russia), Dr. Jamal Hisham Hashim (Malaysia), Dr. Rosana Moraes (Brazil), Dr. Rajeev Gowda (India), and Dr. Naum Borodyanskiy (Ukraine), this session provided participants in the Congress with an open forum to discuss the needs of risk analysis around the world. Initial issue areas suggested to panelists and the audience centered around needs of training and the practice of risk analysis.

Acknowledging the benefits of risk assessment in addressing health issues in developing countries was identified as a clear need. Catastrophes, especially those that involve human life and a loss of money, act as a triggering event to bring people together under a risk framework, and such catastrophes often have more severe consequences in developing countries. Risk assessment can be used to improve the health of populations in the developing world, which in turn improves the economy. SRA should take an active role in these activities.

Training

Training in developing countries tends to occur in traditional fields, that is, along traditional lines, and taking this into account when training risk assessors from developing countries is an important need. Opportunities for obtaining training grants and collaborative research grants exist in the United States that can involve participants from international countries. The National Institutes of Health, for example, offers such opportunities. Exchange programs can promote integration of the knowledge of developing and developed countries.

Ways of Improving Risk Assessment for Developing Countries

First, a more comprehensive approach to risk assessment is important. While the public is aware of the risk of many projects and laws exist to address these risks in the form of environmental quality assessments, a holistic approach to risk is needed—one that includes benefits assessment. Currently, the approach is piecemeal and is hard to communicate. Second, developing countries often lack the background data to implement risk assessment. New tools are not sufficient, and more than just science is needed for decision-making. Third, the kinds of risks to which developing countries are exposed are often very different than those experienced by developed countries. Fourth, ways of incorporating cultural differences into risk analysis is a critical need. Human perceptions and culture are key components to addressing risk. Awareness of risk has to occur at different levels: by the public and the decision-makers. How risk affects people in the present and the future needs to be known. Fifth, tools for incorporating cost-benefit analysis into the assessment process are available at relatively low cost. The distribution of benefits may be very different than the distribution of costs, and these distributions can differ in developing versus developed countries.



Implementation of Risk Assessment

Implementation strategies are needed to support and apply the process assessment in developing countries. Participants recognized that there is a lot of interest in multilateral agencies in addressing risk-related issues. First, the funding opportunities need to be known, and then it is necessary to know how to get mentors to make use of these opportunities. Second, in some countries risk concerns are divided among different ministries and departments. Gaps exist between scientists and decision-makers. Risk analysts are not being used in decision-making. Third, both NGOs and the private sector should become involved in risk assessment, since they are very big players.

The Role of SRA

Participants underscored the fact that SRA could play a key role in supporting the efforts of developing countries in the area of risk assessment. SRA can articulate the goal of risk assessment. The SRA Web site can be strengthened to display the gray literature in the area of public perceptions of risk. Structures could be created within SRA to bring risk assessment to developing countries. SRA could help create and maintain a newsletter for papers from the developing countries. SRA could serve as an incubator for ideas to adapt procedures to the needs of developing countries. A special chapter could be created consisting of a local group of practicing risk assessors. Such an organization would need an issue to move it forward and incentives to keep up collaborations. SRA needs to support efforts to educate different fields about risk assessment and help developing countries network, using the experiences in those developing countries where strong networks exist. SRA could support a World Congress on Risk in a developing country.

Wednesday Plenary Session

Sustainable Development with Acceptable Risks

Wednesday's Plenary Session, led by Gail Charnley (HealthRisk Strategies), included the presentations "Risk as a Model for Sustainability" by Peter Wiedemann (Forschungszentrum Jülich) and "The Sociopolitics of Risk: Challenges to Sustainable Development" by Paul Slovic (Decision Research).

Dr. Wiedemann explained how risk can provide a model for sustainability by exploring the intersection of the two and what each can provide for the other. He began by discussing sustainable development in terms of (1) vision—the kind of future we want, (2) ground rules—where, when, and how we get there, and (3) indicators—are we there yet or not. Risk concepts were integrated into the discussion of each of these. In fact, a new road map for sustainable development is emerging, using risk as a model, in particular to answer questions about catastrophic risk, large accidents, and the risks of new technologies.

Dr. Slovic addressed the challenge posed by the fact that achieving sustainable development will require stakeholder participation, shared goals, shared understanding of risks, and trust. Risk is highly complex and he pointed out that there are many definitions of it, ultimately resulting in communication and decision-making problems. Yet people rely on the risk concept, he observed, to help them understand and cope with dangers and the uncertainty of life. He followed his discussion of the complexity of risk and the importance of trust with suggestions for improving the risk-management process.



Wednesday Breakout Sessions

A. Public Health Priorities

Health and development are intimately interconnected. Both insufficient and inappropriate development can create threats to public health through poverty, overconsumption, and misplaced risk-reduction priorities. The effective linkage of health, socio-economic improvement, and decision-making is one key to sustainability that we hope risk analysis can help support. Experience has shown, however, that introducing risk analysis as a decision-making tool in the context of public health and development generates risk-communication challenges. Scott Ratzan (Johnson & Johnson) chaired this session which addressed how the tools of risk analysis can help characterize threats to public health that accompany globalization and development and help set public health priorities so that our efforts to achieve sustainability will be most effective.

B. Globalization and Cultural Integrity

Globalization creates environmental, cultural, and social costs and benefits. It has been imbued by some with the power to improve livelihoods, while others express concern that it poses serious threats to cultural identities and institutions. Steve Rayner (University of Oxford & ESRC Science in Society Programme) organized this session which examined the nature of globalization and its, sometimes counter-intuitive, effects on the integrity of local, place-based cultures. Speakers framed issues for discussion in the contexts of international commercialization of GM crops, regional climate change impacts, the self-determination of indigenous peoples, and transboundary trade in hazardous waste.

C. Sustainable Resources

One of the most significant impacts of human development is on natural resource production, distribution, and use. Economic growth and social development depend on resource use. As an important example, to meet the needs of a growing world population, global energy consumption continues to increase substantially. Access to safe drinking water is another ubiquitous concern, with sustainable freshwater a growing need. This session, chaired by Charles Berger (Cleary, Gottlieb, Steen and Hamilton), addressed core sustainability challenges such as meeting the growing demand for natural resource supplies and uses while mitigating concomitant risks to health and the environment. Participants

in the session explored the role that risk analysis can play in assessing and managing risks from expanding natural resource demands in both the developing and developed worlds.

D. Protecting Biodiversity

Hamdallah Zedan (Convention on Biological Diversity) organized this session to address the role that risk analysis can play in characterizing and mitigating threats to biodiversity. The variety and variability of genes, species, populations, and ecosystems provide the foundation for the earth's essential goods and services. The current decline in biodiversity is largely the result of human activity and represents a serious threat to human development. Potential risks to the sustainability of ecological integrity include (but are not limited to) dense urbanization and infrastructure, intensive agriculture and fisheries, invasive alien species, chemical use and manufacture, and climate change.

Wednesday Luncheon

Risk and Sustainable Development

Chaired by Michael D. Rogers (European Commission, International Vice-Chair of the SRA Risk Science & Law Specialty Group) and Jonathan Wiener (Duke University, SRA Councilor), Wednesday's Luncheon included a Keynote Address by Rolf Annerberg (Head of Cabinet for Commissioner Wallström). Annerberg explained the Commission's focus on environmental health risks in terms of the need to understand why some people live longer and others do not and the need to balance economics, equity, and ecology so all can benefit.

He suggested that 20% of disease in the Western world is due to environmental factors and that children are the most affected. Eighty-nine percent of Europeans surveyed expressed concern about the effects of the environment on their health. Although we understand the effects of exposure to some individual chemicals, we do not understand the effects of simultaneous exposure to multiple chemicals. We have a responsibility to address the apparent increase in environmentally related disease and to close our knowledge gaps. To do so, the Commission has proposed REACH (Registration, Evaluation, and Authorisation of Chemicals) and a wider environmental health strategy, SCALE (Science, Children, Awareness, Legislation, and Evaluation).

In Europe, most industrial chemicals can be used without being registered or without safety or testing requirements because when such requirements were established in 1981, those



chemicals were exempted as “existing chemicals.” There were about 100,000 chemicals on the market in 1981 about which we still have no safety information. Global chemical production is now about 400 million tons annually.

The frequency of all types of disease related to chemical exposures is increasing. Our present regulatory framework does not provide incentives for the development and substitution of safer chemicals due to extensive toxicity testing requirements. Of 140 priority substances identified in 1993, only 11 have been evaluated and regulated.

REACH will require the manufacturers or importers of significant amounts of chemicals to evaluate those chemicals’ toxicity. Chemicals that prove to be reproductive or developmental toxicants or carcinogens will require registration. Other chemicals will have more streamlined requirements.

Environmental factors other than chemicals that contribute to disease are radiation, noise, and interactions among chemicals. We don’t understand the long-term effects of exposure to low levels of the cocktail of pollutants to which we are exposed. We must integrate all available information on human and ecological health in order to ascertain the state of the environment and propose an effective strategy.

Particular threats to children include asthma, neurodevelopmental disorders, cancer, and endocrine disruption. Threats include both indoor and outdoor air, electromagnetic fields, dioxins, endocrine disruptors, heavy metals, and urban environments.

The goal of SCALE will be to protect our most vulnerable groups, especially children. Biomonitoring and health tracking systems are needed. We must increase our efforts to communicate with all stakeholders. We must continuously evaluate all actions taken to determine their effectiveness and to identify new problems.

Directorate General Environment’s REACH and SCALE proposals constitute the most recent actions that the Commission is taking to reduce environmental health risks and improve the balance among ecology, economics, and equity.

(Summary provided by Gail Charnley)



Conference Organization and Sponsors

SRA cosponsored the Congress with other scientific and professional organizations interested in risk including SRA-Europe (SRA-E), SRA-Japan (SRA-J), American Chemistry Council (ACC), American Physical Society (APS), German

Commission on Harmonizing Risk Standards (GCHRS), German Foundation for Environment and Risk Management, International Association for Probabilistic Safety Assessment and Management (IAPSAM), International Council on Systems Engineering (INCOSE), International Union of Toxicology (IUTOX), National Science Foundation (NSF), Society of Environmental Toxicology and Chemistry (SETAC), Society of Toxicology (SOT), UK Safety and Reliability Society (SARS), US Department of Energy (US DOE), US Environmental Protection Agency (US EPA), US National Institute of Environmental Health Sciences (US NIEHS), and World Business Council on Sustainable Development (WBCSD).

We especially want to thank the Planning Committee who worked tirelessly to make this event a success. Members of the Planning Committee are:

SRA John Hearne, Richard Belzer, Gail Charnley, Bernard Goldstein, Yacov Haimas, Igor Linkov, Timothy McDaniels, Mitchell Small

SRA-E Roger Kasperson, Joanne Linnerooth-Bayer, Ragnar Löfstedt, Ortwin Renn, Joyce Tait

SRA-J Saburo Ikeda, Michinori Kabuto

SETAC Anne Fairbrother

SOT Michael Dourson

NIEHS Chris Schonwalder

In addition, the reports of a number of rapporteurs will be invaluable to the production of the final Congress report, and inputs provided by Roger Kasperson, Joyce Tait, Tim McDaniels, Chris Schonwalder, Jonathan Wiener, Anne Fairbrother, and Gail Charnley are reflected in this summary.

Burk & Associates, Inc., provided invaluable administrative, technical, and logistical support for the Congress and the program committee gratefully acknowledges the staff’s efforts. 

Remember to register for the 2003 SRA Annual Meeting in Baltimore.

Meeting information and registration forms are on the SRA Web site:

http://www.sra.org/03annual_meeting.htm



Regulatory Risk Review

Peering Through a Glass Scientifically

David P. Clarke, American Chemistry Council

The 29 August 2003 press statement from the White House Office of Management and Budget (OMB) read blandly enough, "OMB Proposes Draft Peer Review Standards for Regulatory Science." But, not in the least surprising, responses to the announcement weren't so bland, ranging from strong approval that federal peer review would receive additional teeth, to deep dismay that the OMB proposal would make issuing regulations nearly impossible, to jaded skepticism that even the best, peer-reviewed science will do anything to lower the temperature on hot environmental, health, and safety controversies.

"The goal is fewer lawsuits and a more consistent regulatory environment, which is good for consumers and businesses," according to a senior OMB official quoted in the *New York Times*. OMB's expectation is that regulations based on rigorously peer-reviewed science will be well founded and more credible, and as a result will better withstand lawsuits and political pressures. OMB also expects that the new proposal will advance President Bush's "smart-regulation" agenda, which calls for regulations based on sound science. OMB was taking public comment on the draft until 28 October 2003, and the new requirements will take effect in February 2004.

OMB's peer-review "bulletin" proposes that "all significant regulatory information" a federal agency intends to disseminate—that is, all information that "will or does have a clear and substantial impact on important public policies or important private sector decisions"—must undergo an "appropriate and scientifically rigorous peer review." Each year, federal agencies would submit a report to the OMB Office of Information and Regulatory Affairs (OIRA) on the significant regulatory science documents the agencies plan to issue in the com-

ing year, accompanied by a peer-review plan for each study. OIRA and the White House Office of Science and Technology Policy would work with agencies to ensure the peer-review plans were adequate. The full "bulletin" and request for comments is available at <http://www.whitehouse.gov/omb/pubpress/2003-34.pdf>.

Another review besides peer review is also on the horizon. EPA's Science Advisor, Dr. Paul Gilman, recently initiated what is informally called "the risk review" to examine the status of the Agency's risk assessment policies and procedures. Faced with criticisms that EPA risk assessments routinely—and systematically in some areas—present unrealistic risk calculations, Gilman has tasked a work group involving EPA risk experts from programs and regions to review the issues: What has EPA done in the past? What does it do now? And what should it do in the future? This review will help EPA decide if it thinks the criticisms are fair and, if so, what to do in response.

While the risk-review schedule remains fluid, EPA hoped to have an evaluation completed by late September for Gilman to consider. Once internal discussions are completed, Gilman will release the report for public comment, possibly in late October or November. Professional risk experts will also be asked their views on the report and recommendations it will likely contain.

Though regulators, like the public, see through a glass darkly, perhaps the enhanced measures for peer review will enable us all to see more clearly—at least as far as what the facts are, even if interpreting what they mean will likely be visible for the foreseeable future only through a dark and murky glass refracting beliefs and biases.

OMB's expectation is that regulations based on rigorously peer-reviewed science will be well founded and more credible, and as a result will better withstand lawsuits and political pressures.



Member News

David Kent

Compliance Services International (CSI) is pleased to announce that David Kent has accepted a position as Manager at the CSI-USA Washington, DC, office. Kent brings 20 years of consulting experience in the areas of product registration, ecotoxicology, and ecological risk assessment for domestic and international clients. He is particularly experienced in providing support for the registration of pesticides and the assessment of chemical hazard. He has been a leader in the evaluation of chemicals under the ongoing United States, International Council of Chemical Associations, and Organisation for Economic Cooperation and Development High Production Volume (HPV) chemical programs.

Kent has a BA in biology from the University of Bridgeport and an MS in environmental science from Rutgers University.



He will soon complete his PhD in environmental science from George Mason University.

Prior to joining CSI, Kent was a Senior Consultant with The Weinberg Group. Before that position, he was Associate Director of the ecotoxicology program at Technology Sciences Group (TSG) where he conducted ecological risk assessments and provided registration and notification services for pesticide and chemical products. Kent's professional career also includes positions as Manager of the aquatic toxicology laboratory for International Technology Corporation (IT) and Fisheries Biologist with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service.

CSI's Washington, DC, office is in close proximity to the US Environmental Protection Agency. Kent will be assisting CSI clients with product registrations, regulatory and data development strategies, agency liaison, policy and regulation implications, and industry task force issues.





Specialty Groups

Dose Response Specialty Group

John Lipscomb, President

The Dose Response Specialty Group's (DRSG) fall tele-seminar was given on 2 September 2003 by Dr. James J. Chen of the US Food and Drug Administration. Dr. Chen works in the Division of Biometry and Risk Assessment at the National Center for Toxicological Research in Jefferson, Arkansas, and presented his work on dose-response assessment of mixtures. The one-hour presentation, titled "Cumulative Risk Assessment for Chemical Mixtures," generated a good scientific discussion in the membership both about his own work and on the vexing issue of dose response in mixtures in general.

Once again the DRSG has attracted submissions of exceptional quality as part of its student merit award program for graduate research in dose-response assessment. Our long-standing goal has been to identify, publicly recognize, and promote outstanding research conducted by tomorrow's leaders in our field, which is critical to the broad goal of protecting human health. This year's winner is James Yiin, now of the Centers for Disease Control and Prevention's National Institute for Occupational Safety and Health, located in the Hamilton Laboratory in Cincinnati, Ohio. Dr. Yiin conducted a novel and sophisticated quantitative exposure-response analysis of diesel exhaust and lung cancer among workers in the trucking industry. His presentation at the annual meeting will be in session M24—Integrating Epidemiological Data in Risk Assessment, Part 2 Salon A, Monday, 3:30-5:00 p.m. In addition to the prestige that comes with peer recognition of his early scientific accomplishments, the award includes a registration fee waiver, \$100 in cash, and reasonable travel expenses to the meeting in Baltimore, Maryland (7-10 December 2003). Our congratulations to James and best wishes to all the submitting authors.

During this year's annual meeting, the Dose Response and Ecological Risk Assessment Specialty Groups will hold a joint meeting on Tuesday, 9 December, from 5:00 until 6:30 p.m. While advertised as a "business meeting," actual business will be kept to a minimum and the evening will be largely social. Special emphasis will be placed on mixing, networking, and identifying common interests. The DRSG will hold a separate breakfast business meeting on Tuesday morning from 7:00 until 8:00 at a location to be determined.

Risk Communication Specialty Group

Robert E. O'Connor, Chair

The Risk Communication Specialty Group (RCSG) members should find intellectual nourishment as well as attain feelings of joyful pride at the 2003 Annual Meeting. The research presented at panels, poster sessions, and symposia will demonstrate our success at learning much about risk communication, as well as stimulate new thinking.

Two special RCSG events are worth attending:

Monday evening from 5:30 to 7:00, the annual business meeting will continue the recent tradition of beginning a "happy hour" during the discussion of improving the section and other organizational matters. The meeting will include elections, the announcement of the winner of the student paper competition, and at least one pleasant surprise.

Wednesday morning at 7:00, a roundtable discussion of a future forum, "What We Know and Need to Learn About Risk Communication," will provide an opportunity for members to brainstorm regarding the structure and organization of a proposed workshop that would produce an integrated understanding of where we are and how we can best advance.

The election will produce a chair-elect and three panel members. Please send your nominations (including self-nominations) either to me (roconnor@nsf.gov) or to the chair-elect, Joe Arvai (arvai.7@osu.edu).

RCSG membership costs \$10 and is free to graduate students. For information on how to join, as well as other section tidbits, visit the RCSG Web site (<http://www.sra.org/rcsg>).

My experience is that SRA annual meetings are best approached in a participatory way rather than passively. Treating the meeting as similar to watching a movie is legal, but cannot provide the rewards from more active engagement. Poster sessions are a particularly good opportunity to meet colleagues by asking them to elaborate on their work. Compared to many other professional meetings, the SRA has a smaller-scale and more informal tone that should facilitate great communication. In this spirit, please do not hesitate to contact me, Joe Arvai, or other council members (check the Web site) before the meeting or in Baltimore.

Ecological Risk Assessment Specialty Group

Igor Linkov, Chair

The Ecological Risk Assessment Specialty Group (ERASG) and the Ecological Risk Assessment Advisory Group of SETAC (Society of Environmental Toxicology and Chemistry) cosponsored a successful session on "Spatially Explicit Risk Assessment: Blending Landscape Ecology with the Ecological Risk Process" at the World Congress on Risk in Brussels in June 2003. The session brought together scientists working in ecological sciences, environmental protection, and conservation who are working to develop, apply, and test methods that quantify and predict risks to a variety of wildlife species subject to differing, co-occurring stressors.

In collaboration with the New England SRA Chapter, ERASG cosponsored a seminar on "Fecal Leakage: Modeling Campylobacter in Chicken Processing Using Probabilistic Inversion." Dr. Roger Cooke of Delft University (Netherlands) presented new techniques for probabilistic inversion used to get distributions on the model parameters, based on expert elicitations of uncertainties.

Looking ahead, the ERASG is sponsoring several activities at the annual meeting. On Sunday, we are sponsoring three continuing education workshops: "Application of Spatial Techniques in Ecological Risk Assessment," "Bayesian Analysis and Applications in Risk Analysis," and "Risk Communication: Application and Case Studies in Military and Emergency Settings." During the rest of the week we are sponsoring Symposia on "Structured and Dependable Decision-Making Processes for Reuse of Contaminated and Disturbed Sites" (Chairs: I. Linkov and T. Bridges; prepared in collaboration with SETAC), "The Role of Risk Analysis in Environmental Security & Emergency Response in the Mediterranean Region" (Chairs: B. Morel and A. Ramadan) as well as sessions on

“Bioavailability/Uptake for Human or Ecological Receptors,” “Risk Assessment for Sediments - Model Uncertainties,” “New Methods in Ecological Risk Assessment,” and “Modeling Approaches in Ecological Risk Assessment.” Poster session four will feature some ecological risk assessment contributions. The session on “Bioavailability/Uptake for Human or Ecological Receptors” is jointly sponsored with the Exposure Assessment Specialty Group.

On Tuesday from 5:00 p.m. to 6:30 p.m. we will have a joint mixer and business meeting with the Dose Response Specialty Group. We encourage all meeting attendees to join us for this event, regardless of whether you are a currently paid member of these specialty groups or not. There will be a short business meeting for each specialty group at the start of the mixer, and the business part of the mixer will end no later than 5:30 p.m. Topics for the ERASG business meeting include an announcement of the group’s new leadership, a synopsis of last year’s activities, and plans for the upcoming year.

In January 2004, Dr. Randy Rytty will begin his two-year tenure as the ERASG chair. Dr. Igor Linkov will continue to serve as the past chair. He will also serve as the President-elect for the SRA New England Chapter. In 2004, we will elect a new chair-elect. If you are interested or would like to nominate someone, please contact Dr. Rytty.

Food/Water Safety Risk Specialty Group

Cristina McLaughlin, Chair

Greg Paoli, Vice-Chair

Peg Coleman, Secretary

Greetings fellow SRA members.

The Food/Water Safety Risk Specialty Group (FWSRSG) is organized to focus on the particular risk analysis issues and challenges posed by hazards in the food and water consumed by humans and animals. Of primary concern are biological, chemical, and physical hazards that are naturally occurring or result from substances intentionally or unintentionally added during production or processing (for example, pesticides and food additives) and drinking water disinfectants.

The FWSRSG had a busy year planning events for the upcoming SRA meetings in Baltimore. One of the objectives of the FWSRSG is to foster and promote multidisciplinary interaction and collaboration among our colleagues for food and water safety drinking issues. The FWSRSG group is currently sponsoring five symposia:

“Integrating Epidemiological Data into Risk Assessment,” cosponsored with the Dose Response Specialty Group, is a two-part symposium that will address questions on how to incorporate epidemiological data into microbial, chemical, and other types of risk assessments as they relate to different types of exposure such as dietary, environmental, and occupational pathways.

“Genetically Modified Organisms: Assessment of Benefits and Risks to Health and the Environment,” cosponsored with the Economics and Benefits Specialty Group, unites a number of different risk and benefit areas to consider, as well as risk assessment methodologies; it will also address significant new developments in understanding impacts of GMOs in the United States and around the world.

“Mycotoxins: Risks, Regulations and Economic Impacts” addresses a number of issues that pertain to the cost of mycotoxins to society such as risk assessment of key mycotoxins

in staple foods such as wheat and corn, human and animal diseases that are caused by mycotoxin ingestion, the economic impacts of mycotoxins in the United States, human health risks in the United States compared with in the developing world, and the state of regulations on mycotoxins worldwide.

“Risk Assessment and Food Security” addresses a number of issues in assessing the risk of intentional contamination in the food supply. One avenue of contamination is through importation of products that harbor infectious agents. Some of the topics include (1) A detailed assessment of the risks posed by illegal imports of meat into the UK and the potential impacts on foot-and-mouth disease, (2) The assessment of toxicological data related to agents which are likely to be of concern in terrorist activities, including food-borne contamination, and (3) A description of a multistakeholder assessment of the key research needs related to bioterrorism in food and water supplies.

“Pathogen Performance Standards: Insight from Risk Assessment and Economics,” cosponsored with the Economics and Benefits Specialty Group, addresses a number of technical and policy challenges in the use of risk assessment to construct and justify risk-based performance standards. A description of policy options, including priority setting and pathogen performance standards, that are being developed and used to control food-borne pathogens in national and international commerce will be followed by an examination of the economics of pathogen performance standards.

In addition to the symposia, the FWSRSG is sponsoring three poster platforms: (1) Microbial and Chemical Risks in Food, (2) Microbial Modeling and Case Studies, and (3) Food-Related Government and Policy Applications.

The FWSRSG will hold a mixer/business meeting on Monday, 8 December 2003, from 5:30 to 7:00 p.m. The mixer will provide SRA members who are interested in food and risk-related matters to network and exchange ideas. In addition to welcoming the incoming officers and discussing general business matters, an important objective of the business meeting is to engage members in coordinating future topics for symposia and workshops for the next annual meeting. The mixer/meeting also provides a great opportunity to discuss new ideas for workshops or symposia. If you have any ideas for a symposium or workshop that you would like sponsored by the FWSRSG, please bring them up during the meeting.

If you would like more information about the activities of the specialty group, you may contact Cristina McLaughlin at cmclaugh@cfsan.fda.gov, Greg Paoli at gpaoli@decisionanalysis.com, or Peg Coleman at peg.coleman@fsis.usda.gov or visit the Web site at <http://members.tripod.com/Cristina704/Foodrisk>. You may also access the Web site by going to <http://www.sra.org> and following the links.

Economics and Benefits Specialty Group

Scott Farrow, Chair

The annual meeting will have many items of interest to the Economics and Benefits Specialty Group, including workshops, sessions and symposia, and a mixer (more detail in the full agenda). The first workshop meant to encourage broader interest in the specialty area is “Elementary Economics for Non-Economist Risk Assessors” from 8:00 a.m. to 12:00 noon Sunday, 7 December. The course introduces non-economist risk assessors to some elementary economics concepts and helps

explain how risk assessments are incorporated in benefit-cost analysis. The second workshop is "Public Choice, Risk Analysis and the Development of Regulation" from 1:00 p.m. to 5:00 p.m. Sunday, 7 December. This workshop will further attendees' understanding of the development of health and safety regulations by integrating the insights of public choice economics and risk analysis. A number of sessions and papers have topics of interest to economists (try "economics" in the search tool on

the Web site). Particular symposia and sessions include ones devoted to (a) integrating risk and economics, (b) the economics of natural systems, (c) genetically modified crops, and (d) evaluating risk trade-offs, among numerous others. The Economics and Benefits Specialty Group mixer and meeting will be 5:30 to 7:00 on Tuesday evening. Members of the group also participated in planning for the greater Washington, DC, chapter revival. The chapter will host a reception at 6:30 p.m. on Tuesday. 



Committees

Chapters and Sections Committee

Jonathan Wiener, Chair

The Chapters and Sections area of the SRA Web site has been redesigned. It can be accessed from the (now combined) "Chapters and Sections" bullet on the About SRA page at <http://www.sra.org/about.htm> or directly at http://www.sra.org/about_chapters_sections.php. Key new features include:

(1) The SRA Speakers Bureau is now online. It includes a list of SRA speakers (13 so far), their contact information, and their topics of interest; backup pages with more detail about each speaker; a form for Chapters to request travel funding for a speaker to appear at a Chapter event; and an invitation letter and form for current and former officers and councilors to join the Speakers Bureau.

(2) Materials describing chapters, their mission, their requirements, information about existing chapters' activities, and a petition form for establishing a new chapter. These materials (which were originated, to my knowledge, by Charlie Menzie and Joanne Shatkin) were previously maintained in hard copy by each succeeding Chapters and Sections chair; now they will be more accessible to SRA members.

Many thanks to Jim Butler (the SRA Webmaster) and to Dick Burk, Brett Burk, and Kris Berkebile of the SRA Secretariat for their indispensable help in updating these pages. If you have any comments on the new Web pages, or suggestions for further improvements, please direct them to me (wiener@law.duke.edu) and to Jim Butler (webmaster@SRA.org). 



News and Announcements

Update Your Email Information

The Society for Risk Analysis will be sending members many important announcements by email. Please make sure the Secretariat has your most current contact information.

The Membership Directory is now online so you can check your information at www.sra.org (click on Membership Directory). Make changes there or contact the Secretariat at SRA@BurkInc.com.

Paper copies of the Membership Directory will no longer be printed and mailed to members. 

Grant to Fund Educational Opportunities for African, Latino, and Native American College Students in Risk Analysis and Risk Management Disciplines

The Society for Risk Analysis (SRA) has received a \$15,000 grant from the ExxonMobil Foundation for the upcoming year to provide educational opportunities for African, Latino, and Native American college students who are interested in pursuing one of the risk analysis and risk management disciplines. Potential students should be enrolled in a college or university program in biology, chemistry, economics, psychology, geography, physics, environmental management, or other risk analysis-related disciplines. The competition for three student positions is open to all members of SRA.

If you are interested in hosting an intern, please contact Michael Greenberg, the SRA council member who worked with ExxonMobil to obtain the funding and who is administering the program for SRA (phone: 732-932-0387, x673; email: mrg@rci.rutgers.edu). Dr. Greenberg will provide you with the details and some examples. For example, last year an African American female student worked with Greenberg on a comparison of the legal restraints of redeveloping a Superfund site versus a brownfield site. Laboratory projects in toxicology, field studies in epidemiology, water resources, environmental justice, ecological risk analysis, and many other projects are welcome.

We have sufficient funds to support three students, but we hope to increase the size of the funding so that the Society can help increase the representation of African, Latino, and Native American populations in risk analysis and management.



Chapter News

Chapitre Saint-Laurent SRA-SETAC

Anne-Marie Lafortune, Past-President
Christian Gagnon, President

On 15 and 16 May 2003, the Chapitre Saint-Laurent SRA-SETAC held its seventh annual symposium at the Le Nouvel Hôtel in Montreal city.

This year's theme was "Uncertainties in Environmental Management: Production of Knowledge to the Decision-Making." The symposium was a great success, with over 150 participants from academia, government, industry, and private consultants.

The first day of the symposium started with a plenary session with four guest speakers, starting with Mrs. Linda Webster (Senior Policy Advisor, Toxics Pollution Prevention Directorate, Environment Canada, and member of the 2003 SETAC North America Board of Directors) who discussed the importance of the precautionary principle for SETAC and Environment Canada.

She was followed by Mr. Clifford Lincoln (Federal Deputy and Chairman of the Standing Committee on Canadian Heritage) who discussed the importance of a deepened preparation, consultation, and sensitizing of the society to develop the synergy necessary to decision-making and the efficient management of environmental issues.

Mrs. Caroline Girard (Senior environmental management advisor, Jacques Whitford Environment) presented the legal point of view of the application of the concepts of uncertainties and the principle of precaution in environmental management.

Finally, Mr. Michael Gilbertson (Secretary, Ecosystems Health, International Joint Commission) presented his view on science and regulatory policy, the impact of the one on the other, and how each one of them can contribute to the environmental crises.



Mr. Clifford Lincoln speaking at the opening plenary session of the annual symposium.

This plenary session was followed by a dynamic poster session with 30 presentations. In the afternoon of this first day of the symposium and in the morning of the second day, 39 platform communications were presented in three parallel sessions.

This first day ended with a cocktail during which attendees had the opportunity to discuss all around the posters. This very

popular activity was also an occasion for students to network with professional members of the Chapitre Saint-Laurent. Many presence prizes were attributed, including nine books from SETAC Press.



Symposium poster session and cocktails

The corporate meeting of the Chapitre Saint-Laurent was held at the very beginning of the second day. During this meeting, the 2003-2004 Board of Directors was elected: President Christian Gagnon (St. Lawrence Centre, Environment Canada), Vice President Caroline Olsen (COREM), Treasurer Cédric Chenevier (DDH Environment), Secretary Alexandra Lacroix (TOXEN Centre, Quebec University at Montreal), Past President Anne-Marie Lafortune (Quebec Centre of Expertise in Environmental Analysis), and Directors David Berryman (Quebec Ministry of the Environment), Sophie Chaperon (COREM), and Stéphane Masson (INRS-ETE).

We wish to thank the members of the past Board of Directors for their work and welcome the new ones.



Precautionary principle debate panel (from left to right): Robert Prairie, Edith Smeesters, Henri Marc Vuillard, Joseph Zayed, Pierre-Yves Caux, and Andrée-Claude Bérubé.

In the afternoon of the second day, a debate was held on the theme "The Precautionary Principle: Necessary Pain or Elegant Solution?"

Five speakers were invited to address this topic: Mrs. Andrée-Claude Bérubé (McCarthy Thétrault), Mr. Pierre-Yves Caux (Environment Canada), Mr. Robert Prairie (Noranda), Mrs. Edith Smeesters (Pesticides Alternative Coalition), and Mr. Joseph Zayed (University of Montreal). Many questions were raised from the audience and an interesting



2003 MSc grant of the Chapitre Saint-Laurent (from left to right): Ms. Annick Michaud receiving her \$2,000 grant; Mr. Christian Gagnon of St. Lawrence Centre, Environment Canada, Coordinator of the Scientific program of the 7th Annual Symposium and the newly elected President of Chapitre Saint-Laurent, and Mr. Raynald Chassé of Quebec Centre of Expertise in Environmental Analysis (CEAEQ), Coordinator of the Chapitre Saint-Laurent grants board.



2003 PhD grant of the Chapitre Saint-Laurent (from left to right): Mr. Louis Croisetière receiving his \$2,000 grant; Mrs. Anne-Marie Lafortune, of Quebec Centre of Expertise in Environmental Analysis (CEAEQ), Past-President of Chapitre Saint-Laurent; and Mr. Raynald Chassé of Quebec Centre of Expertise in Environmental Analysis (CEAEQ), Coordinator of the grants board.

debate followed, with Mr. Henri Marc Vuillard from Bell Canada acting as moderator.

The symposium ended with the Student Awards presentation and the two \$2,000 grants offered by the Chapitre Saint-Laurent to MSc and PhD students.

The laureates of the grants were Ms. Annick Michaud, of the Institut national de la recherche scientifique, INRS-ETE, for her MSc research project “Metal exchanges between the biomonitor *Hexagenia* and its environment: a field experiment” and Mr. Louis Croisetière, of the Institut national de la recherche scientifique, INRS-ETE, for his PhD research project “Development of a model for the use of the benthic invertebrate *Sialis* as a biomonitor for the evaluation of trace metals bioavailability in aquatic environment.”

The laureates of the best student platform presentation awards were Ms. Virginie Bérubé, TOXEN Centre, UQAM (first prize: \$200 from CIRTOX), for her oral presentation “Retinoïdes: Biomarkers of frog teratogenesis” and Mr. Louis Croisetière, Institut national de la recherche scientifique, INRS-ETE (second prize: \$50 from SETAC and \$50 from SRA), for his oral presentation “A tool for the monitoring of sedimentary metals traces in lake medium.”

The laureates of the best student poster presentation awards were Ms. Renée Quirion, Institut national de la recherche scientifique, INRS-ETE (first prize: \$200 from CIRTOX), for her poster presentation “History of the atmospheric deposition of Ag in the sediments of lakes from the Canadian Shield” and Ms. Julie Dontigny, Polytechnic

School of Montreal, University of Montreal (second prize: \$50 from SETAC and \$50 from SRA), for her poster presentation “Environmental Analysis of re-use scenarios for polluted soils of Montreal City.”

We would like to thank all the members of the organizing committee and the volunteers who helped us to make this Symposium a success.

The Organizing Committee included Chairperson of the 7th Annual Symposium—Mrs. Louise Millette (Polytechnic School of Montreal, University of Montreal), Scientific Program—Mr. Christian Gagnon (St. Lawrence Centre, Environment Canada), Communication—Mrs. Alexandra Lacroix (TOXEN Centre, UQAM), Funding—Mrs. Agnes Renoux (SANEXEN Services Environnementaux Inc), Logistics—Mr. Cédric Chenevier (DDH Environment), and Treasury and Registration—Mr. Yvon Courchesne (Nove Environment).

The team and volunteers included David Berryman (Quebec Ministry of the Environment), Virginie Bérubé (TOXEN Centre, UQAM), Marjolaine Bisson (SANEXEN Services Environnementaux Inc.), Chantal Côté (Bell Canada), Louise Deschènes (Polytechnic School of Montreal, University of Montreal), Michel Fournier (INRS-IAF), Annick Michaud (INRS-ETE), Caroline Olsen (COREM), Lise Parent (Tele-University), Philip Spear (TOXEN Centre, UQAM), Marie-Claude Tardif (TOXEN Centre, UQAM), and Bernard Vigneault (CANMET, NRCAN).

The supporting team included Paul Benoît, Raynald Chassé, Anne-Marie Lafortune, and Louis Martel from the Quebec Centre of Expertise in Environmental Analysis (CEAEQ).

We also thank the speakers and participants for their essential contribution.

The Chapitre Saint-Laurent is also grateful to the sponsors for their generous financial support: Réseau de recherche en écotoxicologie du Saint-Laurent; Quebec Ministry of Regional and Economic Development; Hydro-Quebec; Cambior; Chaire industrielle CRSNG en assainissement et gestion des sites; INRS-ETE, UQAM; SETAC; Bell Canada; QSAR Risk Assessment Service Inc.; TOXEN Centre, UQAM; SANEXEN Services Environnementaux Inc.; Centre de transfert technologique en écologie industrielle-Centre J.-Édouard-Simard; St-Lawrence Centre, Environment Canada; Shell Canada; Quebec Centre of Expertise in Environmental Analysis (CEAEQ); National Research Council of Canada, Biotechnology Research Institute; and CIRTOX, Centre de recherche interuniversitaire en toxicologie.

Our next annual symposium will be held in Quebec in June 2004. Anyone interested in taking part in the organization of this event is invited to contact a member of the Board of Directors.

All through the year, the Board of Directors, which met five times, has worked hard to promote the Chapitre through its activities and committees.

We welcome those interested in taking part in the activities of the Chapitre Saint-Laurent to contact us. Apart from the annual symposium, the Chapitre Saint-Laurent also organizes seminars in Montreal (jointly with the TOXEN Centre) and Quebec (jointly with the Quebec Centre of Expertise in Environmental Analysis [CEAEQ]).

More details on the Chapitre Saint-Laurent, including its grant program for MSc and PhD students, can be found at <http://chapitre-saint-laurent.qc.ca>.

National Capital Area Chapter

David J. Kent, Executive Committee

The National Capital Area Chapter (NCAC) held a successful business meeting on Tuesday, 9 September 2003. We have about 80 paying members in the chapter and adequate money in the bank, so we are in solid shape. We are encouraging more involvement from all members and are continuing to develop seminars and other programs that will stimulate active participation. A specific goal we have is to increase student involvement.

Here are some of the highlights for the upcoming months:

(1) NCAC will host a reception at the SRA Annual Meeting in Baltimore. The reception will be open to all members in the NCAC region and will run from 5:30-7:00 on Tuesday evening. At the reception, we will introduce our new officers for 2004 and have a poster or other display showing what the chapter did in 2003. We will also hold a free raffle of a PDA at the reception. The goal of the reception is to increase awareness of the chapter and recruit more members.

(2) Chapter elections will be held in November via email. The positions to be elected are President, Vice-President/Program Chair, Secretary, Treasurer, and three council members with one designated as a student member. These seven positions will constitute the board of NCAC. The chapter will have two business meetings per year for the whole chapter, with the board meeting monthly by conference call.

(3) On 1 October, the NCAC 3rd Quarter Seminar featured Dr. Rebecca Parkin, Center for Risk Science & Public Health at George Washington University. Dr. Parkin spoke on "Issues in Exposure & Risk Assessment: Susceptible Subpopulations and Drinking Water Contaminants."

(4) Plans are underway for scheduling our 2004 quarterly seminars. Please contact NCAC if you have ideas for topics or speakers.

Please forward any information or questions to David J. Kent at DKent@ComplianceServices.com. For more information on any of the items listed above, check out the NCAC Web site at <http://groups.msn.com/NationalCapitolAreaChapterSRA/>.

Greater Pittsburgh Chapter

Lee Ann Sinagoga

The Greater Pittsburgh Chapter of the Society for Risk Analysis held a joint meeting with the Allegheny-Erie Society of Toxicology (AESOT) on Friday, 25 April 2003. The technical program was titled "Ecological Risk Assessment." The speakers were Mr. Tom Biksey, Environmental Strategies Corporation (Pittsburgh, Pennsylvania), and Dr. Vince Nabholz, US Environmental Protection Agency. Mr. Biksey presented "A Map and Toolbox for Ecological Risk Assessment." Dr. Nabholz discussed "Environmental Risk Assessment of Industrial Chemicals from Their Chemical Structure." The program included a poster session and a roundtable discussion at the conclusion of the technical presentations. The chapter is currently planning its fall workshops/seminars which will include workshops on the assessment of childhood risk (Dr. Gail Charnley, featured speaker) and our second annual "Risk Assessment Technical & Presentation Skills Workshop." Information regarding upcoming events may be found at <http://sra.elet.com>.

Northern California Chapter

Greg Brorby, President

The Northern California Chapter of the Society for Risk Analysis (NCCSRA) hosted its second event of the year in September. As part of the SRA's Speaker's Bureau Program, Dr. Michael Dourson, Director of Toxicology Excellence for Risk Assessment (TERA) and current Secretary of SRA, was the featured speaker at an evening seminar held at H's Lordships in Berkeley, California. As part of his presentation, "Small Non-Profits in a Big Risk World: Greasing the Wheels of Change," Dourson discussed the founding of TERA in 1995 and his original goals for the organization, the impact of a few of the many important issues TERA has addressed (for example, children's risk, use of human data in risk assessment, an RfD for perchlorate), and his views on the role TERA and other individuals or organizations can play in improving the science and practice of risk assessment in the future.

To become a member of the NCCSRA, please contact Secretary *Kassandra Tzou* at 925-296-8023 or TzouKH@cdm.com.

We would like to invite all interested individuals to visit our Web site at <http://www.sra.org/ncc> for announcements of new events, including an upcoming one-half day seminar addressing technical, business, and legal issues surrounding perchlorate and the election of 2004 officers.

New England Chapter

Jennifer Charles, Co-President

2003-2004 Seminar Series

This is now the 19th year of the New England Chapter (NE SRA). We welcome suggestions for our 20th anniversary season next year. We continue to follow our traditional pattern of meeting on the second Wednesday of the month running from 4:15 to 6:30 p.m. including (minimal) refreshments, socializing, and two speakers. The meetings are usually held in the conference room generously made available by CDM at 50 Hampshire Ave., Cambridge, Massachusetts. This is an excellent facility, close to MIT and to the Kendall Square T stop.

Our opening seminar was on 10 September 2003. Thomas Webler of the Antioch Graduate School and the Social and Environmental Research Institute (SERI) gave the first talk, "Public Participation in Environmental Assessment and Risk Decision-Making: Linking Process Design, Context and Participants." Webler's talk reported on a project done in collaboration with Seth Tuler, also of SERI and of Clark University, which has developed a large amount of empirical data on the workings of participatory processes at 10 different sites. Rob Goble of Clark University gave the second talk, "The Role of Risk Assessors in Participatory Processes," which took a look at participatory processes from the perspective of the technical experts who might be involved. The talks generated considerable discussion and the swapping of (sometimes contradictory) stories.

Our 8 October meeting featured Charles Menzie of Menzie-Cura Associates and John Lortie of Woodlot Alternatives. They spoke about developing new tools which are designed to extend the realism and management value of risk analysis. Menzie discussed "Spatially Explicit Exposure Modules (SEEM) Approaches for Conducting Ecological Risk Assessments"; Lortie talked about developing a similar approach that will expand the use of risk-management tools.

Forthcoming fall meetings are on 12 November, featuring a discussion of risks to children to be led by Kim Thompson of the Harvard School of Public Health and Dale Hattis of Clark University, and on 3 December (not a second Wednesday to avoid conflict with the National Meeting) with a further presentation on Ecological Risk Assessment by Igor Linkov of ICF Consulting. Spring programs will be on second Wednesdays and begin with 14 January 2004.

Officers 2003-2004

We are grateful to Marion Harnois, our 2002-2003 president, for all of her hard work on behalf of the chapter. She now joins our other past presidents as advisors to the chapter. The Co-Presidents this year are Jennifer Charles of Charles Consulting and Rob Goble of Clark University. Secretary Karen Vetrano, Treasurer Arlene Levin, Newsletter Editor Susan Matkoski, and Webmaster Paul Locke have generously agreed to continue their efforts.

Membership and Communication

We draw attendees to our meetings (and speakers) from New England generally, not just the Boston area. People interested in becoming members or in reading our electronically distributed monthly newsletter should communicate with Secretary Karen Vetrano (kvetrano@tresolutions.com) or with either co-president, Jennifer Charles (jenEnviro@aol.com) or Rob Goble (rgoble@clarku.edu). We also have a Web page which is linked to the national SRA site and stands alone at www.sra-ne.org. People planning to attend a particular meeting are urged to communicate with Korin Scheible at CDM (ScheibleKA@cdm.com) by noon on Wednesday to facilitate security sign in.

Philadelphia Chapter

The email contact information for Philadelphia Chapter Co-chair Eileen Mahoney has changed. It is now e.mahoney7@verizon.net. 

Deadline for RISK newsletter Submissions

Information to be included in the **First Quarter 2004** SRA RISK newsletter, to be mailed early February, should be sent no later than **20 December** to:

Mary Walchuk
RISK newsletter Managing Editor
115 Westwood Dr.
Mankato, MN 56001
phone: 507-625-6142
fax: 507-625-1792
email: mwalchuk@hickorytech.net

RISK newsletter and SRA Web Site Advertising Policy

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

Ads may be placed both in the RISK newsletter and on the Web site for \$375 for 150 words and \$100 for each additional 50 words.

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

Camera-ready ads 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 to the Managing Editor, 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: mwalchuk@hickorytech.net.

To place an employment ad on the Web site, fill out the online submittal form at www.sra.org/opptys.php. To place other ads on the Web site contact the SRA Webmaster at webmaster@sra.org. Ads placed on the Web site will usually appear several days after receipt. For additional information see the Web site at www.sra.org/policy.htm#events.



Advertisements

Scientist Position

ChemRisk is a consulting firm providing state-of-the-art toxicology, industrial hygiene, epidemiology, and risk assessment services to organizations that confront public health, occupational health, and environmental challenges. ChemRisk is seeking applicants with training in toxicology, pharmacology, the environmental sciences, risk assessment, biomedical engineering, industrial hygiene, medicine, or health physics.

This position requires a bachelor's degree in environmental or toxicological sciences. Candidates with a master's degree in environmental sciences are preferred. Candidates with a background in consulting are especially desired.

Please send résumés to:

Neha Patani
ChemRisk
100 Spear Street, Suite 525
San Francisco, CA 94105

or email: hr@chemrisk.com
Phone: 415-896-2400, Fax: 415-896-2444
www.chemrisk.com

Short Courses for Regulators and Radiation Health Specialists

Three Short Courses for Regulators and Radiation Health Specialists: Emerging Topics in Radiation Protection and Risk Assessment, sponsored by the Risk Assessment Corporation (www.racteam.com) 16-18 March 2004, Kiawah Island, South Carolina.

Course fee: \$1,200.00 (\$1,000.00 if paid prior to 15 January). For more information, contact Kristen Jacobucci (kjacobucci@caps-ltd.com) or Phoebe Boelter (pboelter@caps-ltd.com), phone +1-312-372-1255, fax +1-312-372-1427.

Day 1: Recommendations of the International Commission on Radiological Protection—An In-Depth Summary of the Past and Future. Presenter: Dr. Roger H. Clarke, Chairman, ICRP.

Day 2: A Crash Course on Risk Assessment. Presenter: Dr. John E. Till and the Risk Assessment Corporation Team.

Day 3: Working with Stakeholders in Risk Assessment. Presenters: Ms. Laura Till and Dr. John E. Till.

CALL FOR PAPERS

Non-Linear Dose-Response Relationships in Biology, Toxicology and Medicine June 8-10, 2004

University of Massachusetts at Amherst

- Adaptive • Bidirectional • Biphasic • Hormetic • Non-Monotonic
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- Subsidy-Stress Gradient (Ecology) • Reverse Dose-Responses

Deadline for Submission - December 1, 2003

Submit online or e-mail. Visit our website for more information,
Abstract Submission Guidelines and Abstract Submission

www.belleonline.com

For further Information contact

Edward J. Calabrese, Ph.D.
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University of Massachusetts Amherst, MA 01003
Phone: (413) 545-3164 • FAX: (413) 545-4692
• edwardc@schoolph.umass.edu

AAAS Risk Policy Opportunities in Washington, DC, 2004:05

Po Work with **policymakers** on the economic, environmental and human health aspects of risk. Learn about risk analysis at federal agencies that use scientists and engineers in regulatory decision-making. The AAAS Risk Policy Fellows in Health, Safety and the Environment Program provides one-year opportunities for scientists and engineers to apply their scientific and technical input to issues relating to risk, beginning in September 2004. Qualified Fellows serve in the U.S. Department of Agriculture, the Environmental Protection Agency or the Food and Drug Administration. The stipend is \$60,000.

Fe The AAAS Risk Policy Fellows Program is sponsored by the American Association for the Advancement of Science (AAAS). It is designed to provide each Fellow with a unique public policy learning experience and to bring technical backgrounds and external perspectives to decision-making in the U.S. government. Applicants must have a PhD or an equivalent doctoral-level degree by the application deadline (January 10, 2004). Underrepresented minorities and persons with disabilities are encouraged to apply.

For more information:
Phone: 202/326-6700
AAAS E-mail: fellowships@aaas.org

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Address Changes: Send to SRA@BurkInc.com

Check out the SRA Web site for the latest information on the 2003 SRA Annual Meeting

[http://www.sra.org/
03annual_meeting.htm](http://www.sra.org/03annual_meeting.htm)

Editor's Note:

The photos of Baltimore that appeared on pages 1, 5, 9, and 13 of the Third Quarter 2003 issue of the RISK newsletter were provided by Richard Nowitz of the Baltimore Area Convention and Visitors Association. The RISK newsletter staff apologizes for not including the credit with the photos.

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