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1996 SRA Annual Meeting A Successful Partnership

The first joint meeting of the Society for Risk Analysis (SRA) and the International Society of Exposure Analysis (ISEA) met SRA President Rae Zimmerman's goal of creating opportunities for numerous disciplines to address risk problems in an interdisciplinary manner. The meeting, with the theme "Risk Assessment and Risk Management: Partnerships Through Interdisciplinary Initiatives," was a success in SRA's effort to improve the exchange of knowledge and information between the SRA and ISEA on issues of human exposure assessment, and had SRA's highest Annual Meeting attendance ever. "The Secretariat has completed the tally for the 1996 meeting in New Orleans, and the meeting was by far the most successful from the perspective of number of attendees, even taking into account the fact that there was a co-sponsor," Zimmerman announced.

"There was a general feeling among the ISEA membership that the joint meeting was a success and worked quite well," added Tom McKone, SRA councilor and president-elect of ISEA. "Several ISEA members told me that the exposure sessions were of high technical quality." McKone said that because many members of ISEA are also members of SRA and the societies often hold their meetings at about the same time of year, the technical quality of the exposure sessions at both meetings can become diluted. "This year the combination of the two meetings provided an opportunity for the technical program committee to be more selective in the choice of exposure papers and sessions at the meeting," he commented. "The meeting provided the members of SRA with the opportunity to interact with another society whose members are often involved in risk assessment, but whose members are also involved in other fields that make use of exposure assessment methods—such fields as epidemiology, measurement science, and disease prevention. Overall, I think it worked well for both societies to have the opportunity for an exchange of ideas, perspective, and scientific methods. Given that the two societies approach similar problems from different directions, such exchanges serve to bring new insight to the problems."

McKone said the actual technical sessions and symposia on exposure assessment and risk characterization were of special interest to ISEA members. "Many of the ISEA members who were not familiar with (and in some cases were suspicious of) the field of risk assessment reported that they really appreciated the opportunity to learn more about it," he said. "For me the evidence for this was the attendance in the various sessions. As technical program chair on behalf of ISEA, I spent my time checking the sessions. I found most of the rooms were filled near to or above capacity."

Zimmerman said one of the session highlights was the forum on the Cancer Risk Assessment Guidelines with Scott Baker of EA Engineering, Science, and Technology Inc., and Jeanette Wiltse of EPA as co-chairs. "This was a very important session because the Cancer Risk Assessment guidelines are being revised," she commented. "This provided an opportunity to present the guidelines to the whole Society." The forum included an overview of the guidelines, information about the public comment period, and an open-microphone dialogue on the guidelines and the implications for conduct of cancer risk assessment.

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President-Elect Yacov Y. Haimes

It was announced at the 1996 Annual Meeting that Yacov Y. Haimes was elected as the 1997 SRA president-elect. Haimes, the Lawrence R. Quarles Professor of Engineering and Applied Science and director of the Center for Risk Management of Engineering Systems at the University of Virginia, is already thinking of what he can do to benefit the Society when he becomes president in December 1997.

"I have two major goals," he said. "One is to strengthen the long-term financial security and the institutional infrastructure of SRA. Important progress has been made in the establishment of appropriate operational rules and regulations for SRA. My goal is to continue to develop a sustainable institutional and organizational infrastructure built on well-developed operational procedures, and supported by functional committees and committed volunteers. Although our finances are in good shape we are still behind in terms of the acceptable level of reserves that are commonly maintained by similar professional organizations."

Haimes' second goal is to build sustainable bridges of communication between the various disciplines so that risk

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(Haines, continued from page 1)

analysis theory, methodology, and other tools and related technology can be transferred across the existing disciplinary walls. "As a member of eight diverse professional societies, I find technical articles on risk analysis published in all of their journals," he explained. "These articles address tools and technologies that have been developed and practiced in such areas as design, development, system integration, prototyping, and construction of physical infrastructure; in reliability, quality control, and maintenance; and in the estimation of cost and schedule and in project management. The challenge that we face at SRA is that all this knowledge has not been fully duplicated, shared, and transferred from one field of endeavor to another." Haines believes a transfer of knowledge among fields would benefit society as a whole and is a key to the advancement of the natural, social, and behavioral sciences and of engineering.

"SRA has the ability to accomplish this through our journal, newsletter, workshops, forums, and Annual Meeting, as well as through our classrooms in colleges and universities," he continued. "It is essential to build bridges among the disciplines and to facilitate the process of learning from each other."

Haines' plans for the 1997 Annual Meeting, which will be held in Washington, D.C., will help build these bridges. (See page 7 for meeting information and the call for papers.) "I would like to have at least a couple of sessions in each of the tracks with invited papers from some top people in the field," he commented. He feels SRA members would benefit from the information presented in these commissioned papers which will review the state of the art in specific fields.

"In addition, we will strengthen the poster sessions," Haines said. "I'm asking all the SRA Fellows and other committee chairs and section leaders to contribute. I'd like to upgrade the poster sessions to make them a medium with which to communicate technical results with SRA membership and conference participants."

Haines also wants the SRA to take advantage of the meeting location. "The proximity to Washington policy makers will enable many of our participants and members to engage in discourse with program managers in the Federal Government research establishment," he explained.

His experience as a member of the Program Committee for the 1995 and 1996 Annual Meetings has aided Haines in making plans for this year's Meeting. He is a Charter Member of the SRA and has been an SRA Fellow since 1992. His other contributions to the SRA include: member since 1991 of the Editorial Board of *Risk Analysis: An International Journal*; Chair of the Committee on Conferences and Workshops from 1988-91 and 1994-95; member of the Council since 1994; Chair of the Grants Management Committee in 1996; and a member of the Finance Committee and the Conferences and Workshops Committee. He also organized and lectured in two SRA workshops and has two others presently scheduled.

For over two decades, Haines has been a leader in risk assessment and management, focusing on water resources and environmental problems with relevance to and implications for public policy. He will carry his extensive experience into his role as SRA president-elect. ◇◇◇

Best Student Paper Awards for the 1996 Annual Meeting

The SRA and the ISEA presented awards, distributed among the SRA specialty groups, to six students for the highest quality student papers submitted for the 1996 Annual Meeting. The following students presented their papers in platform sessions at the meeting and received \$500 awards to fund travel to the Meeting.



Deanna L. Dowdy, Risk Sciences Program, Department of Environmental Toxicology, University of California, Davis, "Prediction of Food Chain Exposures from Contaminated Plants Using Quantitative Structure Activity Relationships."



Craig W. Trumbo, Mass Communication, Department of Agricultural Journalism, The University of Wisconsin, Madison, "Cost and Utility, and Their Interaction with Worry and Self-Efficacy, As Predictors of Individual Evaluation of Channels for Risk Information."

Angela C. Halfacre, Department of Political Science, University of Florida, Gainesville, "Risk Perception and Institutional Trust Among Ethnic and Racial Minorities: A Comparative Focus Group Study of Attitude Linkage Related to Environmental Restoration and DOE Nuclear Weapons Sites."



Matt Heberling, Department of Agricultural Economics and Rural Sociology, The Pennsylvania State University, University Park, "Estimating the Economic Effects of Global Climate Change on Pennsylvania Recreational Fishing in the Susquehanna River Basin."



Eileen Abt, Harvard School of Public Health, Department of Environmental Health, Boston, "Sources and Size Distribution of Indoor Particles: Preliminary Results from Boston Winter and Summer Sampling Periods."



Sameer Akbar, Imperial College Centre for Environmental Technology, London, "Modification of Exposure-Response Relationships by Activity Pattern and Land Use in Delhi, India: Risk of Exposure Misclassification."

Treasurer and Councilors Announced at Annual Meeting

Paul S. Price Re-elected as Treasurer



Paul S. Price will be serving his second term as SRA treasurer. Price is a supervising scientist with ChemRisk, Division of McLaren/Hart, and is responsible for performing technical and regulatory analyses for a variety of clients. He has more than 18 years of experience in exposure and risk assessment and has been employed by the U.S. Environmental Protection Agency (EPA), the American Petroleum Institute, and McLaren/Hart.

Price has a B.A. in chemistry and an M.S. in civil engineering from the University of Maryland.

A charter member of SRA, Price is the founder of the Exposure Assessment Specialty Group and was the chair from 1990-93. He has helped with the organization of sessions on exposure and noncancer dose response analysis for the last six annual meetings.

Price co-organized and led highly successful workshops on the application of Monte Carlo modeling to exposure and risk analysis at the 1993 and 1994 meetings.

Newly Elected SRA Councilors

The three new councilors, William H. Farland, Robin Cantor, and H. Christopher Frey, will serve through 1999.

H. Christopher Frey is an Assistant Professor in the Department of Civil Engineering at North Carolina State University. He has over ten years of experience in the general areas of probabilistic analysis and energy and environmental systems.

Frey has a B.S. in mechanical engineering from the University of Virginia, and received a Master's degree in mechanical engineering and a Ph.D. in engineering and public policy from Carnegie Mellon University.

Research Triangle Chapter Past President Frey has chaired several sessions and presented papers at Annual Meetings, and served on the Technical Program Committee for the 1994 An-

nual Meeting. In October 1994 he co-organized the SRA workshop on "Developing Distributions in Probabilistic Exposure Assessment," and in 1995 and 1996 co-organized a workshop at the Annual Meeting on variability and uncertainty.

William H. Farland is the Director of the EPA's National Center for Environmental Assessment (NCEA) which has major responsibility for the conduct of chemical specific risk assessments in support of EPA regulatory programs, the development of Agency-wide guidance on risk assessment, and the conduct of research to improve risk assessment.



Farland holds a B.S. from Loyola University, Los Angeles, and an M.A. in zoology and Ph.D. in cell biology and biochemistry from UCLA.

Prior to his election to the Council he was a member of SRA's Advisory Committee. He is active participant in the Annual Meetings and the annual risk assessment course.

Farland has been a member of the Editorial Board for *Risk Analysis* since 1987.

Robin Cantor is a managing economist at the Law and Economics Consulting Group in Washington, D.C. She was program director for the Decision, Risk, and Management Science Program, a research program of the National Science Foundation in the Social, Behavioral, and Economic Sciences Directorate. Prior to that she was a senior researcher at Oak Ridge National Laboratory.



Cantor has a B.S. in mathematics from Indiana University of Pennsylvania and a Ph.D. in economics from Duke University.

She has been an SRA member since 1986 and is currently chair of the Grants Management Committee. Cantor was on the program committee for the 1996 Annual Meeting and chaired the University Round-Table Discussion. ◇◇

(Annual Meeting, continued from page 1)

Another session of interest was the poster session and round-table discussion on University programs, which was part of a new SRA initiative to begin to make information on university programs in risk analysis, risk management, and risk communication available. "We had a really good turnout," said Robin Cantor, a new SRA councilor who chaired the University Round-Table Discussion. "People spent a lot of time talking about the interdisciplinary nature of the programs. We talked about how the Society can network the various programs and discussed how we can create electronic networking tools to get information—about programs offered, faculty members, dissertations that have been written, internships available—to students in a very effective way."

A round-table discussion devoted to papers based in the Louisiana/New Orleans area was an attempt to call attention to the local connection to New Orleans. "The effort was headed by Robert Gramling, Professor of Sociology at the University

of Southwest Louisiana," Zimmerman said, "and was complemented by having the Executive Director of the New Orleans City Planning Commission, Dr. Kristina Ford, give an opening welcome at the start of the conference."

Zimmerman added that the Plenary Session (see page 6), the Distinguished Achievement Award address by Dr. Stan Kaplan (see page 8), and the luncheon talk by Dr. Paul Portney (to be summarized in the Second Quarter 1997 issue) also contributed to the accomplishments of the 1996 Annual Meeting. "We had an extremely successful joint venture with ISEA," she concluded. "We're going to try to build on this co-sponsorship other joint meetings in the future, which will strengthen connections to various risk-related societies." ◇◇

Additional news from the 1996 Annual Meeting will follow in the Second Quarter 1997 issue.

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1997 Committee Chairs

Standing Committees

Annual Meeting: **Yacov Y. Haimes***

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Finance: **Paul S. Price***

Gifts and Grants: **Gail Charnley***

Membership: **Annie M. Jarabek***

Nominating: **M. Elisabeth Paté-Cornell**, Stanford University, Department of Industrial Engineering and Engineering Management, Stanford, CA, phone: 415-723-3823, fax: 415-725-8799, e-mail: mep@leland.stanford.edu

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Sections and Chapters: **Charles A. Menzie***

Specialty Groups: **Robert J. Mulvihill***

SRA Historian: **Robert B. Cumming**, Oak Ridge, TN, phone: 423-483-0837, e-mail: rbcumming@aol.com

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Advisory Board: **John Garrick**, PLG Inc., Newport Beach, CA, phone: 714-833-2020, fax: 714-833-2085, e-mail: garrick@plg.com

Grants Management: **Robin Cantor***

Electronic Media: **Steve Brown**, Oakland, CA, phone: 510-430-8118, fax: 510-430-8063, e-mail: slbrown@idiom.com

Public Policy: **Gail Charnley***

Improve Risk Assessment Practice: to be announced

*Contact numbers are provided in the list at left.

SRA Names Three New Fellows

Honorees Are Bier, Gough, and Budnitz

The Society's 1996 Awards Committee, chaired by former SRA president James D. Wilson and including past presidents B. John Garrick, Lester B. Lave, and Richard C. Schwing, announced at the 1996 Annual Meeting that three of the Society's members have been chosen to receive the award of Fellow of the Society for Risk Analysis. The award recognizes members whose professional records are marked by significant contributions to any of the disciplines served by the Society. The three recipients are as follows:

Vicki M. Bier



An associate professor with joint appointments in the Department of Industrial Engineering and the Department of Nuclear Engineering and Engineering Physics at the University of Wisconsin-Madison, Bier has research interests in risk analysis, decision analysis, and operations research.

Her expertise is in the areas of Bayesian and classical methods for use of accident precursor data, aggregation and decomposition in estimation, human judgment and decision making under uncertainty, risk analysis of nuclear power plants, and treatment of uncertainty in estimation and decision making.

Prior to working at the University of Wisconsin, she was in the Chemical and Nuclear Engineering Department, University of Maryland, on a National Science Foundation Visiting Professorship for Women. While there she performed research on the use of accident precursors or "near misses" in Bayesian estimation of rare event frequencies. She also worked previously for Pickard, Lowe, and Garrick, Inc., and Arthur D. Little, Inc.

The engineering editor for *Risk Analysis*, she has a Ph.D. in operations research with a minor in statistics from the Massachusetts Institute of Technology and a B.S. in mathematical sciences from Stanford University. She was an SRA councilor from 1992-1995. In 1993, Bier received the Women's Achievement Award from the American Nuclear Society.

Robert J. Budnitz

A physicist in energy/environmental research and nuclear safety, Budnitz has been president of Future Resources Associates, Inc., since 1981. Concurrently he is a research affiliate with the University of California at Berkeley in the Energy and Resources Group. He is also vice president of Thermalux LP at Berkeley.



Previously he was vice president and director of the Energy and Environmental Technologies Division, Teknekron, Inc., at Berkeley. For several years he was director of the Office of

Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission (NRC) and deputy director of the Office of Nuclear Regulatory Research, NRC.

A member of SRA since 1982, Budnitz received a B.A. in physics from Yale University, an M.S. in physics from Harvard University, and a Ph.D. in physics from Harvard University.

In the field of waste management, he has just concluded a three-year term as chair of the National Academy of Sciences Committee on the Remediation of Buried and Tank Wastes. In the field of reactor safety, he has been the U.S. representative since 1993 to the Safety Review Group of the European Bank for Reconstruction and Development, responsible for advising on the safety-backfit program for the eastern-European reactors of Soviet design.

Michael Gough

Director of Science and Risk Studies at Cato Institute, Washington, D.C., Gough has more than 40 publications in public policy related to cancer risk assessment and dioxin risks. He has a B.A. from Grinnell College and a Ph.D. in biology from Brown University.



He joined the Office of Technology Assessment (OTA) in 1977 after holding academic positions at Baylor College of Medicine and the State University of New York at Stony Brook. He left OTA in 1985 and during a five-year period was the director of the Risk Science Institute, a project director at Environ Corporation, and an analyst, then director at the Center for Risk Management, Resources for the Future. While in the last position, he collaborated with T. S. Glickman in editing *Readings in Risk* (Johns Hopkins, 1990).

Gough returned to OTA in 1990 and remained there until the office closed in 1995. He spent a year as a visiting scholar at the Center of Technology Assessment in Stuttgart, Germany, before he joined the Cato Institute in January 1996.

Gough chaired the Department of Veterans Affairs Advisory Committee on Health-Related Effects of Herbicides from 1987 until 1990 and the Department of Health and Human Services Committee for Review and Oversight of the U.S. Air Force Study of the Health Effects of Agent Orange from 1990 until February 1995. Gough has been a member of SRA since 1983.◇◇◇

Three Plenary Speakers Highlight 1996 Ground-Breaking Reports

(Dr. Richard A. Becker, Director, Office of Environmental Health Hazard Assessment (OEHHA) within the California Environmental Protection Agency (Cal/EPA); Caron Chess, Director, Center for Environmental Communication, Rutgers University; and Dr. Gil Omenn, Dean, School of Public Health and Community Medicine, University of Washington, addressed the December 9, 1996, plenary session of the joint meeting of the Society for Risk Analysis and the International Society of Exposure Analysis held in New Orleans. The three speakers at the plenary presentation, "Risk Assessment, Risk Management, and Public Policy: A Vision for the Millennium," discussed three ground-breaking reports released in 1996 that will guide risk policy into the next century. Gail Charnley, executive director of the Commission on Risk Assessment and Risk Management, moderated the session.)

BECKER--CALIFORNIA COMMITTEE

Dr. Richard A. Becker presented the findings and recommendations of the Cal/EPA Risk Assessment Advisory Committee in his talk, "Review of the California Protection Agency's Risk Assessment Practices, Policies, and Guidelines." This Committee, mandated by the California Legislature, was composed of more than 30 independent expert scientists drawn from academia, industry, and research institutions. The Committee conducted a year-long public review of the risk assessment practices, policies, and guidelines of all of the Cal/EPA organizations. "Over the years, California has taken a leadership role in establishing its own programs in environmental risk assessment and risk management, and in particular, in the use of risk assessment as an integral part of the risk management decision-making process," Becker said.

Review Committee Set Up

After a law was passed in California which called for increasing consistency in the state's environmental programs, an external review panel was chosen to look at the methods, policies, and practices used by Cal/EPA to conduct a chemical risk assessment. "One of the hardest things we had to do was to set up a committee that could be multidisciplinary in nature and have the expertise necessary to conduct a comprehensive study in a manageable time frame and within our budget," Becker said.

Committee Recommendations

The Committee concluded that the risk assessment efforts of Cal/EPA are of high quality, both from a professional and scientific standpoint. The Committee went on to make general and specific recommendations focused upon improving Cal/EPA's leadership in risk assessment sciences to address environmental problems. The Committee made general recommendations in the following areas: improving harmonization and consistency across all environmental mediums, focusing on hazard identification, exposure assessment, and environmental fate and transport; bringing new scientific data and techniques to the forefront of risk assessment practices, in particular, developing multimedia, multipathway risk assessment models, which address variability and uncertainty; enhancing and improving internal and external scientific peer review; improving the interface and interactions between risk assessment and risk management; optimizing organization structure and management to address complex environmental problems which cut across the various Cal/EPA programs; and enhancing environmental exposure data collection, management, organizations, and accessibility.

Implementation Begins

In an effort to implement the increased consistency and

harmonization between the California Office of Environmental Health Hazard Assessment and its federal counterparts, a memorandum of understanding (MOU) was developed in late 1996 with the U.S. EPA National Center for Environmental Assessment. "This MOU will allow us to exchange scientific information and analyses to increase our cooperation in hazard identification and risk assessment methodology development efforts and to enhance peer involvement and peer review across both our organizations," Becker said.

CHESS--NATIONAL RESEARCH COUNCIL REPORT

Caron Chess, member of the National Research Council (NRC) Committee on Risk Characterization, began her talk about the report "Understanding Risk: Informing Decisions in a Democratic Society" by pointing out that of the 17 members on the Committee, 13 were members of SRA.

Deliberative Processes

Chess noted that risk characterization is usually thought of as a summary of the results of technical analysis, and problems with risk characterization are often seen as failures of translation of scientific information into terms useful to decision makers. "But if you look at the risk wars, the battles over science are often surrogates for fights over other issues--from potential economic impacts to differences in values about risk regulation," said Chess. To reduce the number and length of protracted battles, the report suggests that risk characterization should be viewed as "a prelude to decision making" that depends on two linked processes: analysis and deliberation. Analysis addresses factual questions while deliberation involves collectively discussing issues, including the most useful analyses to conduct.

Principles of Risk Characterization

Chess presented three of the report's seven principles for risk characterization. The first principle, she said, is that risk characterization is decision driven. The report stresses the need for analysis to be directed at answering the right questions--the questions that are important to decision makers and interested and affected parties. These parties, she said, should be involved in formulating the problem from the outset because "the problem definition will constrain options for analysis, deliberation, and ultimately the decision at hand." She cautioned, "Agencies can collect a lot of data that may add to scientific knowledge but may not help make the decision."

The second principle advocates a broad understanding of consequences to interested and affected parties. Risk characterization should address concerns about risk "because failure to do so will undermine the usefulness of the risk characterization." The concerns may go beyond "morbidity and mortality to worries about a broader set of losses that may

impact quality of life.”

The third principle stresses that the success of a risk characterization is dependent on the appropriateness of the analytic-deliberative process to the problem at hand. The appropriateness is context-specific. She underscored that not every decision requires extensive processes and that limited processes may be more appropriate for routine decisions with limited impact and little potential for controversy.

Five Criteria for Successful Risk Characterization

Chess outlined the report's five criteria for successful risk characterization:

- Getting the science right (doing the science well),
- Getting the right science (doing the appropriate analysis),
- Getting the right participation (involving the appropriate interested and affected parties),
- Getting the participation right (developing an appropriate process), and
- Developing an accurate balanced informative synthesis.

She concluded by emphasizing that the process advocated in the report is meant to enhance the role of science. The analytic-deliberative process avoids putting pressure on science to answer non-scientific issues in which the disputes are about values, according to Chess.

OMENN--COMMISSION ON RISK ASSESSMENT AND RISK MANAGEMENT

Dr. Gil Omenn, chair of the congressionally mandated Commission on Risk Assessment and Risk Management, opened his talk by showing a slide of Paris, France, on a bad day in 1994 with pollution from municipal activities and traffic. He reminded the audience that it's that kind of air pollution problem that triggered the 1990 Clean Air Act Amendments by Congress to require maximum available control technologies for sources of air pollution, after which the mandate was laid on all of us to analyze residual risks and determine whether further action would be required. The Congress also mandated the formation of a committee of the National Academy of Sciences, which prepared the Science and Judgment in Risk Assessment report, and the Commission on Risk Assessment and Risk Management, to address the

broader issues associated with making decisions about reducing or eliminating environmental health risks. The Commission emphasized risk management and the role of risk assessment, risk characterization, and risk communication in making better and better-accepted decisions about the best ways to reduce and eliminate risks to health and the environment.

Public Expectations

“It's quite sobering to go out to the public as we did every month to hear what people think about risk assessment and about science,” Omenn said. “In general, the public is quite keen to have our expertise, but demanding and impatient that there should be realistic translation,” he continued. What the community out there sees is a divided array of scientific experts, people with similar degrees and apparently similar credentials, who can't determine if something is “safe” or not. They also want attention paid to chemical mixtures, risk-risk tradeoffs, and ways to compare cancer and non-cancer risks.

Commission's Process

Omenn discussed the process the Commission went through to prepare the report, how they involved stakeholders, and what the stakeholders brought to their meetings. He emphasized the importance of using an iterative process to make risk-management decisions.

Highlights of the Commission's Report

Omenn briefly highlighted a few parts of the Commission's Report and reminded the audience that the details--the actual documents--are available on the *RiskWorld* Web Site, www.riskworld.com. He said that the final report will have two parts: the first part is a discussion of the framework, the context, and the stakeholder engagement process, with many examples; the second part will contain the full revision of the Risk Assessment and Risk Management Report that was published as a draft in June 1996. He discussed the parts of the Report dealing with health risk assessment and toxicity assessment. The final report recommends a new framework for making risk management decisions that explicitly engages stakeholders in the decision-making process from the start and that, instead of looking at risks one at a time, looks at them in the larger multimedia, multisource, and multirisk contexts. ◇◇◇

1997 Annual Meeting: Call for Papers--Deadline May 12

The 1997 Annual Meeting will be at the Capital Hilton in Washington, D.C., December 7-10. With the theme “Improving Public Policy Through Risk Assessment and Risk Management,” three major topics are representative of the envisioned sessions for the Meeting: Physical Infrastructures, Service Systems and Consumer Products, and Theory and Methodology.

Symposia: Proposals for symposia are to be submitted on forms available from the Secretariat by **May 12, 1997**, to the Program Committee, SRA Secretariat (see masthead) and will be submitted to the Program Committee for approval and scheduling.

Workshops: The Conferences and Workshops Committee is accepting proposals for Workshops. A syllabus and budget must be submitted and sent by **May 12, 1997**, to the Conferences and Workshops Committee, SRA Secretariat.

Exhibits: There will be an exhibition of risk products and services at the Annual Meeting. For further information on exhibiting, contact Lori Strong or Sue Burk at phone: 703-790-1745, fax: 703-790-2672.

Book Exhibit: For \$50 per title, books will be displayed and each attendee will be provided information through our list of publications. The list will include prices, any discounts that may be offered, and ordering information. For more information or book reservation forms, contact Lori Strong at phone: 703-790-1745, fax: 703-790-2672.

Preliminary Program: Preliminary programs will be mailed to members of the Society, as well as to those non-members whose abstracts have been accepted. Final programs, containing the abstracts, will be available at the Meeting in December. Preregistration and hotel reservation materials will be mailed as a part of the Preliminary Program.

Session Types: Presentations are expected to be approximately 60% oral and 40% posters.

A Talk About Words

(The following article summarizes an address given by Dr. Stan Kaplan, PLG and Kaplan and Associates, Rancho Palos Verdes, California, upon receiving SRA's 1996 Distinguished Achievement Award at the Society's 1996 Annual Meeting. An article summarizing Kaplan's achievements appeared in the Fourth Quarter 1996 newsletter.)

When asked to prepare this speech, a "voice in his head" told Stan Kaplan he should "talk about the words" of risk analysis with the purpose of contributing toward a single, uniformly understood language for the risk analysis community.

Definitions

Kaplan opened by saying that the words of risk analysis have been, and continue to be, a problem. He reminded his audience that when the Society was brand new, one of the first things it did was to establish a committee to define the word "risk." This committee labored for four years and then gave up, saying in its final report that maybe it's better not to define risk. Each author should define risk his own way, explaining clearly what that way is.

"Moreover," he continued, "the discipline of risk analysis is heavily entwined with the subject of probability, in which the verbal chaos is legendary." He explained that there are three major meanings of the word probability. The first is the statisticians' meaning, which he calls frequency or fraction. This refers to the outcome of a repetitive experiment, like flipping coins. It includes the idea of population variability. Such a number is called an "objective" probability because it exists in the real world and is in principle measurable by actually doing the experiment.

In contrast, the Bayesian meaning of probability, which is the degree of confidence or degree of certainty, does not exist in the real world—it exists only in our heads. For that reason it's often called "subjective" probability. Kaplan claims that this usage is misleading and has led to enormous controversy.

The third is the mathematician's meaning. To the mathematician a probability curve is a mathematical abstraction. He is interested in the formal properties of such curves independent of their interpretation.

Two Communication Theorems

"The point for now," according to Kaplan, "is that, with all these meanings and viewpoints kicking around it's no surprise that there have been communication problems, big time." He continued that after struggling with these problems for a number of years, he was moved to formulate two theorems on communication. They are:

- Theorem 1: 50% of the problems in the world result from people using the same words with different meanings.
- Theorem 2: The other 50% come from people using different words with the same meaning.

Definition of Risk

Kaplan then came back to the definition of risk. He said in the

first issue of *Risk Analysis* (Vol. 1, No. 1, 1981), he and John Garrick published a paper, "On the Quantitative Definition of Risk." In it they argued that when one asks "What is Risk?" one is really asking three questions: What can happen? How likely is that to happen? If it does happen, what are the consequences? Kaplan went on to develop these concepts finally coming up with a general definition of risk as a complete set of triplets involving the scenarios, the likelihoods, and the consequences. He added that he and Garrick thought this definition was totally general and applied to all kinds of risk. "Indeed," he said, "we applied it to engineering risk, investment risk, risk from agricultural pests, programmatic risk, strategic risk, environmental risk, etc."

Dose Response

Kaplan went on to say that many people use a different definition, "When they say 'risk' they have in mind a dose response curve." He showed that this usage could be seen as a special case of the set of triplets definition.

Bayes' Theorem

Calling himself an extremist Bayesian, Kaplan explained Bayes' Theorem, and argued that it was not only the fundamental principle of logical inference, but that it could, and should, be adopted as the very definition of logical thinking. Moreover, the theorem allows an "objective/subjective" interpretation of probability, which resolves all the historical paradoxes and controversies. He argued that the "quantitative" part of Quantitative Risk Assessment (QRA) should be done by explicitly processing all of the available evidence items through Bayes' Theorem. He dubbed this the "evidence based" approach to risk analysis and decision making.

Pulling It All Together

His final slide identified three components of decision making: identifying the options, predicting the outcomes of each, and making value judgments on those outcomes. It showed the relationships to those three of utility theory, QRA, Bayes', the "evidence-based" idea, and the Russian theory called TRIZ (an acronym for the Russian words meaning "Theory of the Solution of Inventive Problems"). In conclusion, he pointed out that making the decision is not the end of the job. "It's necessary to get the decision accepted and implemented," he explained. "For that we need the support of the people affected by it. That means risk communication and decision communication. For that to take place, it's crucial that we have words we all understand and use in the same way." ◇◇◇

Call for Nominations for SRA Officers

The SRA Nominating Committee invites nominations for the following offices in the Society's 1997 elections:

President-elect Secretary Three Councilors

The secretary serves for two years. Councilors serve for three years and are ineligible for reelection until one year has elapsed following the completion of their terms.

Please submit nominations with a brief paragraph supporting each by **May 30** to the chair of the Nominating Committee: M. Elisabeth Paté-Cornell, Stanford University, Department of Industrial Engineering and Engineering Management, Stanford, CA 94305, e-mail: mep@leland.stanford.edu.



Advisory Board

The SRA Advisory Board, established in 1994 by the SRA Council, acts as general advisors on matters that might improve the SRA, and is intended to stimulate thinking and promote progress. Paul Deisler chaired the Board for its first two years. A grateful thank you is extended to Dr. Deisler for his notable work as chair. He is continuing to serve the Society as the SRA journal's editor of environmental and health sciences.

Current Advisory Board members are Chair John B. Garrick, Donald Barnes, Ann N. Fisher, Roger E. Kasperson, Catherine L. St. Hilaire, Paul Slovic, Lawrence Barnhouse, and Brett Burk.

The Board members are appointed by the SRA president. They are individuals from SRA with varied disciplinary and organizational backgrounds and public and private sector career histories. In choosing members, an attempt is made to cover a broad distribution among the fields.

The Board has several teleconference meetings a year, creates interim reports to the Council, and reports to the president

and president-elect of the SRA at the Annual Meeting.

Topics of suggestions made by the Board in 1996 included:

- **Increasing SRA's membership.**
- **The taking of public positions by the SRA.**
- **Expanding the role of the SRA in risk education.**
- **Facilitating student participation in SRA.**
- **Improvement of the quality of information exchange.**
- **Provision of year-to-year continuity of purpose within the SRA.**
- **SRA (U.S.) Chapters and their purposes.**
- **Establishment of a Risk Management Specialty Group.**

Initiatives being discussed by the Board in 1997 include:

- **Merging of Cultures.**
- **The Truth about the Risk Sciences.**
- **Risk-informed, performance-based regulation (RIPB).**
- **Lawyers and risk assessment practitioners—is there a conflict?**

The Council is addressing these items in a separate session in the spring of 1997.



SRA-Europe

1997 Annual Meeting in Stockholm Will Celebrate 10th Anniversary of SRA Europe

The next annual meeting and conference of SRA-Europe will be in Stockholm, Sweden. The registration desk, at Sveavagen 65, the Stockholm School of Economics, will be open Sunday, June 15th, noon-6 p.m. Sunday also includes the 10 a.m. bus trip to the final repository for radioactive operational waste at Forsmark nuclear power plant and the reception at the City Hall in the evening. For security reasons, participation at the City Hall reception requires a special invitation ticket, which will be found in the materials collected at registration.

The conference starts Monday the 16th at 9 a.m., with the registration desk open 9 a.m.-4 p.m. on Monday and 9-11 a.m. on Tuesday and Wednesday. The conference ends at 4 p.m. Wednesday, June 18th. The business meeting (for all SRA members) will be held at 6 p.m.

We have received more than 230 abstracts, representing more than 25 countries, including a broad array of theoretical and empirical work from a variety of different disciplines. The abstracts accepted for presentation at the conference can be found on the Internet at <http://www.hhs.se/cfr/rip.htm>, and we are just now in the process of adding late incoming abstracts.

We are especially grateful for the impressive interest from Eastern European researchers. We are in the process of sending out (by airmail and fax) the proper invitation letter for visa applications, and you will have yours as soon as possible. We would like to be able to contribute to travel expenses; at this point in time, however, we don't have enough resources to accommodate everyone. We are still in the process of attracting funding for travel expenses and will continue to do so as long as possible. We hereby also invite SRA supporting organizations and firms to get in contact with the Stockholm secretariat or specific researchers (see the abstracts) for contributions to travel expenses for Eastern and Central European researchers.

Participants presenting a paper orally or by poster are invited to write an extended abstract or a full paper to the proceedings, which must be available in Stockholm by April 15th (absolute deadline). All instructions are in the second announcement and the latest communication regarding the acceptance of abstracts. The preliminary program will be airtailed or e-mailed to all registered participants and found on the Internet at the end of April. There will be three prizes presented at the conference: for the best student paper and the best poster (presented by the conference Technical Program Committee) and the best full paper (presented by the Foundation for Risk Research). The SRA-Europe Executive Committee and former presidents will also present their awards at the conference.

For travel arrangements or hotels (as well as other activities in Stockholm) please contact the Stockholm Convention Bureau, fax no: +46 8 34 84 41, or look at our conference site on the Internet. Stockholm will be very busy in June (and summer) so please make your travel arrangements well in advance.

This conference will celebrate the 10th anniversary of SRA-Europe. We will look back as well as ahead in time, and present some memorable material and events for the occasion. The conference will also include a meeting for constituting the Scandinavian Chapter of SRA-Europe (details on the Internet). We look forward to a high-quality conference including many of the areas in the field of current risk research, a great variety of disciplines, and participants from many countries.

Welcome!

The first issue of SRA-Europe's new Journal of Risk Research, under the editorship of Ragnar Löfstedt, is expected to be ready for the June Meeting.

SRA President Rae Zimmerman has been invited to give a plenary address at the Stockholm meeting.



SRA-Japan

SRA-Japan will be holding its Spring Symposium and Panel Discussions on June 27, 1997, at San-Zyou Memorial Hall at Tokyo University. With the theme "Policy Issues on Deregulation and Risk Management," the guest speaker will be Professor Y. Morimiya, of Chuo University, speaking on "Risk management in fluctuated period." The Chairperson of the Organizing Committee is Professor Y. Sakai, of the University of Tsukuba, and panel members will include public administrators, think-tankers, and academics.

The 1997 Annual Meeting of SRA-Japan will be held November 20-21 at Congress Hall of Research Institute of Disaster Prevention at Kyoto University. The main theme of the meeting is "Crisis Management on Environmental Disasters," and the chairperson of the Program Committee is Professor N. Okada, of Kyoto University.

The Official Section Journal containing over 25 papers presented at the 1995 Joint Annual Meeting in Hawaii is now under the final editing process and will be published in May or June, 1997.

Volume 8, number 1, of the Official Section Journal will be published in March 1997. Papers are written in Japanese with English titles and abstracts. The Journal can be purchased at a cost of 2,500 yen (\$20) from the SRA-Japan Section Secre-

tariat (e-mail: sra-japan@ecopolis.sk.tsukuba.ac.jp)

The SRA-Japan Section recently accepted a research contract with the Division of Environmental Health and Safety, Environment Agency-Japan to produce a report on "Risk Perception in Japan" by conducting a nation-wide survey in public society. Although the contract period is one year, the continuation can be expected, depending on the preliminary result.

The background of this contract is as follows: In 1994, the Environment Agency-Japan established the Basic Plan of Environmental Preservation, following the enactment of the Basic Environmental Law of 1993, which resulted from concerns of global and intergenerational issues. These concerns, which originally focused primarily on pollution-based health damages, now include health risks due to carcinogens and to hazardous chemicals and heavy metals. In addition, the preservation of biological diversity has been included as a principal concern. With all of these issues to be considered, the agency is focusing on risk-based decision making.

The SRA-Japan contact person is Saburo Ikeda, Institute of Policy & Planning Sciences, University of Tsukuba, phone: 0298-53-5380, fax: 0298-55-3849, e-mail: ikeda@shako.sk.tsukuba.ac.jp

SRA Call for Awards Nominations

The Society for Risk Analysis Awards Committee invites nominations for the following 1997 awards:

The **SRA Distinguished Achievement Award** honors any person for extraordinary achievement in science or public policy relating to risk analysis.

The **SRA Outstanding Service Award** honors SRA members for extraordinary service to the Society.

The **SRA Outstanding Risk Practitioner Award** honors individuals who have made substantial contributions to the field of risk analysis through work in the public or private sectors. The 1997 award will be for the private sector.

The **Chauncey Starr Award** honors individuals under the age of 40 who have made exceptional contributions to the field of risk analysis.

The **Fellow of the Society for Risk Analysis** award recognizes and honors up to one percent of the Society's membership whose professional records are marked by significant contributions to any disciplines served by the Society and may be evidenced by one or more of the following:

- (a) recognized, original research, application, or invention;
- (b) technical, scientific, or policy analysis leadership in an enterprise of significant scope that involves risk analysis in a substantial way;
- (c) superior teaching or contributions to improve education and to promote the use of risk analysis that are widely recognized by peers and students; or
- (d) service to or constructive activity within the Society of such a quality, nature, or duration as to be a visible contributor to the advancement of the Society.

Nominees must have been SRA members for at least five years and must now be members in good standing.

Please submit nominations and a brief paragraph supporting each by **May 30** to Ann Landis at the SRA Secretariat (1313 Dolley Madison Blvd., Suite 402, McLean, VA 22101).

The Awards Committee Chair is Robert G. Tardiff.



Committees

Conferences and Workshops Committee

SRA 10th Annual Symposium Announcement

The SRA Conferences and Workshops Committee announces the 10th Annual SRA Symposium, "Health Risk Assessment," scheduled for October 5-7, 1997, at the Monterey Plaza in Monterey, California. Internationally known experts will present their views of the methodologies, assumptions, and new research in the risk assessment/risk management fields, with special emphasis given to new developments in guidelines, biologically based modeling, and uncertainty analysis. The cost of this symposium is \$550/\$650 early/late registration. Questions can be addressed to the Secretariat or Elizabeth Anderson, Conferences and Workshops Chair (phone: 703-684-0123).

Committee Membership

SRA is pleased to announce the committee membership for the Conferences and Workshops Committee for 1997. The members of the committee are:

Elizabeth Anderson, Ph.D., Chair
 Patricia Bittner, M.S.
 David Burmaster, Ph.D.
 Robert Cumming, Ph.D.
 Elaine Faustman, Ph.D.
 Owen Hoffman, Ph.D.
 Stan Kaplan, Ph.D.
 Steve Lewis, Ph.D.
 David McCallum, Ph.D.
 Mary Paxton, Ph.D.
 Virginia Sublet, Ph.D.

Comments and inquiries regarding committee activities can be addressed to Elizabeth L. Anderson at Sciences International, Inc., King Street Station, 1800 Diagonal Road, Suite 500, Alexandria, VA 22314, or faxed to 703-684-2223.

Forums

The SRA Conferences and Workshops Committee is pleased to announce the schedule for the 1997 SRA Forums. These Forums are two-day conferences on "hot" topics that are highly relevant to the risk assessment community. They provide an opportunity for in-depth examination of a particular topic and are sure to spark much lively discussion.

Further information on these events will be forthcoming. Questions can be addressed to the Secretariat, the Forum Chair, or Elizabeth Anderson, SRA Conferences and Workshops Committee Chair (phone: 703-684-0123).

The following is the current schedule for the 1997 SRA Forums:

(1) "Communicating Scientific Information to Juries"

April 27-29, 1997, Sheraton Washington, Washington, D.C.
 Virginia Sublet, Chair (phone: 614-848-3534)

The objective of this Forum is to explore how the communication of scientific information presented in testimony is perceived, interpreted, and ultimately judged by the court using DNA evidence and silicone breast implant data as case studies. Notable speakers include Marcia Angell, Executive Editor, *New England Journal of Medicine*; Robin Cotton, DNA expert,

Cellmark Laboratories; and Jennifer Lindsay, Director, FBI DNA Unit. Juries and judges are often asked to resolve scientific disputes and decide if scientific evidence presented in the court is correct. Do juries understand the scientific data that is presented to them? How do they interpret the uncertainties associated with the data? Why do juries often make monetary rewards that outweigh what the scientific data shows would be appropriate and reasonable? What is the perspective of judges regarding scientific evidence and expert testimony? What makes the difference in how an expert is perceived when testifying before the courts? These are a few of the issues that will be considered in this Forum.

Cost: \$400/\$450 (early/late registration).

(2) "Biologically Based Dose Response Modeling: Fact or Fallacy?"

June 1-3, 1997, Annapolis, Maryland

Elaine Faustman, Chair (phone: 206-685-2269)

This Forum will provide an update and critical review of the development and use of Biologically Based Dose Response (BBDR) Models for risk assessment. We have spent the last 10 years developing second-generation models for use, but are they being used and if so, how? The limitations and advantages of approaches and status of model development for endpoints such as developmental toxicity, neurotoxicity, and immunotoxicity will be discussed. A panel discussion by "regulators" and the "regulated" aimed at defining future steps to improve the utilization of these methods will be included.

Cost: \$400/\$450 (early/late registration).

(3) "Risk of Extreme Events"

August 26-27, 1997, Sheraton Washington, Washington, D.C.

Yacov Y. Haimes, Chair (phone: 804-924-3803)

In risk assessment, extreme or catastrophic events are often underestimated in comparison with less consequential events. Because risk managers often focus on the risk associated with a specific case instead of the likelihood of average outcomes, which may result from the various risk situations, the expected value of risk is not only inadequate but can also lead to fallacious results and interpretations if used as the sole risk indicator.

This workshop will show how using conditional expectation to modify this approach is better for assessing the risk of extreme and catastrophic events. Conditional expectation, derived through the Partitioned Multiobjective Risk Method (PMRM), can be defined as the expected value of a random variable, given that this value lies within some specified probability or an outcome range. It will focus on the importance of addressing extreme and catastrophic events explicitly and within the overall risk-based decision-making process, and will include a hands-on application of extreme-event analysis. Case studies to be presented include the reliability of the navigation system of the Upper Mississippi (U.S. Army Corps of Engineers); risk assessment associated with the development of an automated finger identification system (FBI and Mitre Corp); use of technology for improved vehicle design (General Motors and the National Science Foundation); and risk assessment of dam safety (U.S. Army Corps of Engineers).

Cost: \$325/\$375 (early/late registration)

Grants Management Committee

Robin Cantor is the new chair of the Grants Management Committee. She can be contacted by phone: 202-466-4422, fax: 202-466-4487, or e-mail: robin_cantor@dc.lecg.com

Public Policy Committee

The SRA Public Policy Committee, chaired by Gail Charnley, is planning to hold two luncheon symposia on risk policy topics in Washington, D.C., as the 105th Congress gets under way. The symposia will be co-sponsored by the Risk Education Project of the American Chemical Society.

The role that risk assessment and risk management play in regulatory policy is a subject of continuing debate at the federal, state, and local levels. The SRA does not express particular opinions or views on public policy issues, due to the diversity of views within the membership. It is critical, however, that the Society play a role in providing education and information about risk policy issues of concern and to communicate the factual, scientific, and technical basis of that diversity. The symposia will be consistent with SRA's mission statement, facilitating the dissemination of knowledge about risk and risk analysis methods and their applications.

The first symposium, planned for April 18, will address the "real" causes of death and disease in the United States. Contro-

versies over how our limited resources should best be spent to reduce or eliminate risks to health have pitted environmental advocates, concerned about chemical contaminants in food, environmental media, and workplace, against the public health community, which focuses primarily on risk factors like smoking, alcohol consumption, and high-fat diets. Much of the regulatory reform effort has resulted from the belief that environmental causes of death and disease receive a regulatory emphasis that is out of proportion to their role in public health.

The second symposium, planned for May 13, will address the new national ambient air quality standards for particulates as an illustration of a risk-management decision-making process and the conflict between health-based standards and cost and feasibility considerations. The standards, the science on which they are based, and their implication if implemented are some of the most controversial environmental regulatory issues this year. The meeting will be moderated by Daniel Greenbaum, president of the Health Effects Institute in Cambridge, Massachusetts. Congressman David McIntosh (R-IN), of the House Government Reform and Oversight Committee, has also tentatively agreed to participate.

Both symposia will be held at the National Press Club in Washington, D.C. For more information, call Gail Charnley at 202-233-9532.



Specialty Groups

Food Safety Risk Specialty Group Holds First Meeting in New Orleans

SRA members from academia, industry, and government met for the first time during the 1996 SRA Annual Meeting to organize the Food Safety Risk Specialty Group. The focus of the Food Safety Risk Specialty Group will be fairly broad based with attention on microbial and chemical (including pesticides as additives) contamination of food and potable water with consideration of all points on the pathway from farm to fork. The group also plans to include information on risk management and risk communication as it pertains to food and water. The first slate of officers includes Michael McElvaine (USDA) as president, Peg Coleman (USDA) as president-elect, and Debra Street (FDA) as secretary.

Among its immediate goals, the Food Safety Risk Specialty Group is developing a mission statement and is planning a workshop on microbial risk assessment for the 1997 SRA Annual Meeting in Washington, D.C., as well as specific sessions within the Meeting to present papers related to food-safety risk. Charles Haas, Ph.D., has agreed to chair the 1997 SRA workshop, and its tentative title is "Microbial Risk for Foods: Quantitation and Characterization."

The current draft of the mission statement follows and is open to comment from the readership. The statement will be finalized and voted on during the Food Safety Risk Specialty Group meeting at the 1997 SRA Annual Meeting.

The mission statement: The Food Safety Risk Specialty Group of the Society for Risk Analysis is organized to focus

on the particular risk analysis issues and challenges posed by hazards in the food and water consumed and used by humans and animals. The hazards of primary concern are microbial contaminants and chemical residues that are naturally occurring or result from substances intentionally or unintentionally added during production or processing (such as pesticides, food additives, and drinking water disinfectants).

The objectives of the Food Safety Risk Specialty Group are: 1) to foster and promote the development, application, and improvement of risk assessment, risk communication, and risk management approaches and techniques for food and drinking water risks; 2) to facilitate communication and interactions among individuals and organizations interested in and engaged in food safety and drinking water risk analysis; and 3) to foster and promote multidisciplinary interaction and collaboration among our colleagues for food and drinking water safety issues.

If you have comments about the mission statement, send them to Michael McElvaine, D.V.M. (e-mail: mmcelvaine@oce.usda.gov) or Debra Street, Ph.D. (Food and Drug Administration; 200 C Street (HFS-728), SW; Washington, DC 20204; e-mail: das@fdacf.ssw.dhhs.gov).

The Food Safety Risk Specialty Group welcomes anyone who would like to join. For further information or to be added to the membership roster, contact Debra Street at the above address.

All of the Specialty Groups held sessions at the 1996 Annual Meeting. News of these meetings and other Specialty Group activities will follow in the Second Quarter 1997 issue.



U.S. Chapter News

The **Lone Star Chapter** had a productive year in 1996 with three regional meetings around the state and a 20% growth in membership. Speakers at the 1996 meetings included renowned dioxin researcher Dr. Stephen Safe of the College of Veterinary Medicine at Texas A&M University and Dr. Paul Deisler, formerly with the EPA Science Advisory Board.

Officer elections for the Lone Star Chapter were held in January. Administrative officers for 1997 are President B. C. Robison, D.V.M., Ph.D., D.A.B.T., and Secretary Keith Linton, both of ERM-Southwest, Inc., and President-elect Laura M. Plunkett, Ph.D., D.A.B.T., and Treasurer Annette B. Santamaria, M.P.H., D.A.B.T., both of ENVIRON.

Plans for 1997 include continued regional meetings throughout the state (Houston, Austin, and San Antonio) and an annual banquet and seminar in the fall.

The **East Tennessee Chapter** was joined by Dr. Milt Russell from the University of Tennessee for its December meeting. Dr. Russell chaired a panel discussion titled "How to Improve Risk Analysis and Risk Communication." The January meeting included nomination of new officers and discussion of plans for the next year, including proposed changes to the chapter bylaws.

The **Philadelphia Chapter** is having three meetings this year. The next one will feature a talk titled "The Politics of the Environment: 1997 and Beyond" by Peter Kostmayer of Zero Population Growth, Washington, D.C. The meeting, which is co-sponsored by the University of Pennsylvania Institute for Environmental Studies, will be held April 29, 1997, at the University of Pennsylvania Faculty Club. A reception/dinner at 6:00 p.m. will be followed by the talk at 7:30 p.m. Anyone interested in attending should contact Kenneth Foster at e-mail: kfoster@seas.upenn.edu or address: Department of Bioengineering, University of Pennsylvania, 220 S. 33rd St., Philadelphia, PA 19104-6392.

Continuing with its monthly seminar series, the **New England Chapter** in November heard speakers Kimberly M. Thompson, Harvard Center for Risk Analysis, "Going Beyond the Single Number: Using Probabilistic Risk Assessment to Improve Risk Management," and Edmund Crouch, Cambridge Environmental Inc., "The Hazardous Waste Identification Rule, and a practical, rapid, modular, and extensible approach for multichemical, multisource, multipathway, multireceptor, Monte Carlo, human and ecological, exposure and risk assessments using object-oriented programming."

The December seminar featured speakers Dave Burmaster, Alceon Corporation, "Estimating Exposure Point Concentrations for Surface Soils for Use in Deterministic and Probabilistic Risk Assessments," and Dale Hattis, Marsh Institute at Clark University, "Human Variability in Susceptibility--How Big, How Often, For What Responses to What Agents?"

At the January seminar Terri Bowers, Gradient Corporation in Cambridge, presented "Blood Lead Models for Adults: Overview and Empirical Comparisons," and Gary L. Ginsberg and Hari V. Rao, Division of Environmental Epidemiology and

Occupational Health of the State of Connecticut Department of Public Health, presented "PBP Model Assessment of MTBE Exposures and Risks During Bathing and Showering with Contaminated Groundwater."

February's speakers were Paul Price and Russell Keenan, ChemRisk, Portland, Maine, "An Approach for Characterizing Dose-Response Rates for Non-Carcinogens," and Sandy Baird, Harvard Center for Risk Analysis, Harvard School of Public Health, "New Probabilistic Approach for Estimating Human Population Noncancer Low Effect Levels."

The March seminar included a talk by Jane Rose and Michael Hutchison, Office of Research and Standards, Massachusetts Department of Environmental Protection, titled "Fish Mercury Distributions in Massachusetts Lakes--Why Are They Different?" Largemouth bass, yellow perch, and brown bullhead from 24 of Massachusetts' relatively least-impacted water bodies were sampled to determine the patterns of variation in edible tissues, mercury concentrations, and the relationship of these patterns to characteristics of sediment, water, and water bodies. Statistically significant patterns of mercury distribution were detected in one species in the study.

Jerry Cura, Menzie-Cura & Associates, Inc., spoke on "Identification of Massachusetts Bays at Risk of Eutrophication." The presentation focused on the results of a screening-level assessment to identify Massachusetts embayments at risk of eutrophication. The talk provided an overview of the methodology, including a discussion of the estimates of nitrogen loadings from point and non-point sources.

On April 9 the Boston Risk Assessment Group/New England Chapter of the SRA will hold a Poster Session meeting at Camp, Dresser & McKee (Ten Cambridge Center, Cambridge, MA) instead of its regular pair of seminars. This alternative format is intended to provide a forum for all of the members to come together and display their work and interact with their colleagues.

The **Northern California Chapter** of the SRA (NCCSRA) is preparing for the election of new officers and its annual spring meeting. SRA members interested in joining the chapter should contact Garrett Keating, NCCSRA secretary, at 510-422-0921 or by e-mail at keating2@llnl.gov. The chapter includes members from Palo Alto, the Bay area, and Sacramento.

The **Research Triangle Chapter** (RTC) held its annual workshop in November. Titled "Risk in the Republic: Comparative Risk Analysis and Public Policy," it was sponsored jointly with the Duke University School of Law and School of the Environment.

The two-day conference on the science, law, and ethics of evaluating and managing risks to health and the environment included presentations by SRA notables such as Gail Charnley, John Graham, Lester Lave, Bob Tardiff, and Chris Frey. Also participating were the Hon. Thomas Grumbly (Under Secretary, U.S. Department of Energy), Cass Sunstein (University of Chicago), Frank Cross (University of Texas), Howard Margolis (University of Chicago), James Hammitt (Harvard), and Ann Bostrom (Georgia Tech). The program included an

audience-participation session, as well as sessions devoted to case studies of risk comparisons, expert vs. public perceptions of risk trade-offs, and critical reviews of risk-ranking exercises on the local, state, and federal level. In addition, the public policy aspects of comparative risk analysis were addressed in sessions covering the role of public values and risk comparisons in policy decision-making.

The RTC sponsored a Student Travel award for a graduate student at an area university to attend the SRA Annual Meeting in December. The award was designed to recognize and provide exposure for outstanding student researchers from the Research Triangle area. The award winner was Mike Tornero, University of North Carolina School of Public Health. The title of his presentation was "Compliance vs. Risk in Assessing Occupational Exposures."

Thanks to efforts by past president Chris Frey, the RTC now has a web site. Visit the site for the latest information on chapter activities. The address is <http://www4.ncsu.edu/~frey/www/rtsra.html>

Finally, the RTC has continued its practice of holding monthly meetings at which area researchers describe risk-related work and projects that they have been working on. This season's presentations included the following:

August: George Christakos, University of North Carolina, Chapel Hill; "The Role of Stochastic Indicators in Site Characterization, Risk Assessment, and Remediation Analysis."

September: Ken Rudo, North Carolina Department of Environment, Health, and Natural Resources; "Hog Farms and Public Health."

October: Marina Villafane Evans, U.S. Environmental Protection Agency; "Application of Sensitivity Analysis to Assess the Influence of Model Parameters on Physiologically Based Pharmacokinetic (PBPK) Models for Different Chemicals."

January: Rich Cohn, Analytical Sciences, Inc.; "Deriving Meaningful Estimates of Environmental Parameters from an Episodic Computer Model."

February: Potpourri--our four student travel award applicants presented the material that they submitted, which included discussion of occupational exposure monitoring (Mike Tornero, UNC); sensitivity/uncertainty analysis in the context of correlated parameters (David Rhodes, NCSU); stakeholder perceptions and public policy model formulation (Terry Keating, UNC); and benchmark dose analyses for ecological risks (Charles Wheat, Duke).

U.S. Chapter Contacts

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East Tennessee: Owen Hoffman, president, 423-483-6111, 73304.3262@compuserve.com

Greater Pittsburgh: Gregg Claycamp, president, 412-967-6524, hgc2@vms.cis.pitt.edu

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Metropolitan (CT-NJ-NY): Rao V. Kolluru, president, 201-316-9300, rkolluru@ch2m.com

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Ohio: Ron Marnicio, president-elect, 614-431-8700, ext. 215, rmarnicio@fwenc.com

Philadelphia: Kenneth Foster, president, 215-898-8534, kfoster@seas.upenn.edu

Research Triangle: Bruce Allen, president, 919-547-1700, 75273.1627@compuserve.com

Rocky Mountain: Yvette Lowney, president, 303-444-7270, lowney@boulder.pti-enviro.com

Southern California: Krishna Nand, president, 818-440-6043, krishna_nand@parsons.com

Canada: Louise Houde, 514-289-5378, houde@envir.hydro.gc.ca



Member News

Ragnar E. Löfstedt, a Lecturer in Social Geography at the University of Surrey, with Ute Collier, a Research Fellow at the European University Institute, has published the book *Cases in Climate Change Policy: Political Reality in the EU*. The book is a volume of case studies and is the first to examine the constraints to and opportunities for the implementation of climate change strategies in the EU and its Member States. (£19.95, Paperback, ISBN 1 85363 414 9, January 1997, 256pp)

Nancy G. Doerr has been promoted to Vice President, Scientific & Policy Programs, at the American Industrial Health Council (AIHC). Doerr will continue to be responsible for

the daily management and coordination of the Council's scientific, science policy, environmental health risk assessment, and ecological risk assessment programs. Her new position reflects the greater emphasis science is having on policy decisions and the increased interest in expanding stakeholder involvement, including industry scientists, in the risk management process.

Cindy Jengeleski, president of SRA's National Capital Chapter, has accepted a new position as Vice President of Research, Science, and Technical Affairs at the International Bottled Water Association, Alexandria, Virginia.



News and Announcements

SRA Is on the World Wide Web

The Society extends special thanks to Steve Brown for the many hours spent developing the SRA Web Site.

Members are invited to visit the new SRA Web Site at <http://www.sra.org> to find:

- 1997 Annual Meeting information, including the Call for Papers and an abstract submission form (deadline May 12)
- information on the Society's Annual Symposium and its three Forums for 1997
- membership categories, including a membership sign-up form
- names and e-mail addresses for most Officers, Committees, and Specialty Groups
- contact information for North American Chapters and the European and Japan Sections, some linked to local Web Sites
- information on members receiving awards, current and past
- the Society's Bylaws (dull but good reference material)
- a News page with links to *RiskWorld*
- selected opportunities for members to apply for fellowships, grants, jobs, etc. (SRA policy on what opportunities may be featured on our Web Page is still evolving.)
- links to several sites with risk-related information, including the RISKANAL discussion list
- information on our journal, *Risk Analysis*, including instructions for submitting manuscripts and the Table of Contents from the last issue
- President Rae Zimmerman's message to the Society
- the SRA Vision Statement and Chapter Mission Statement

A risk analysis glossary is also in the works.

The Site is intended to serve the needs of SRA members, so visit it and look around. There are ample opportunities to provide feedback on the Site itself or on other Society issues.

The Site was developed by the Electronic Media Committee, chaired by Steve Brown. Other members are Jim Butler, Chris Frey, Steve Maher, and Paul Price. Brett Burk was the Secretariat's liaison. A Beta Test Group provided essential feedback for improving the Site's design and content.

SRA Year 2000 Meeting

SRA and SRA-Europe are working together on a plan for a year 2000 major conference to be held in June 2000, coinciding with SRA-Europe's annual meeting. Ortwin Renn is the chair for SRA-Europe, and Joanne Linnerooth-Bayer is the contact person (IIASA, Schlossplatz 1, Laxenburg, A-2361, Austria; phone: 02236-807-308; fax: 0043-2236-73147, e-mail: bayer@iiasa.ac.at). Lennart Sjöberg and Ragnar Löfstedt are also on the SRA-Europe committee. The SRA Executive Committee will be the planning group for SRA.

SRA Becomes AAAS Affiliate

At the February meeting of the American Association for the Advancement of Science (AAAS), SRA's application to be an affiliate of AAAS was approved. This is a further step in SRA's attempt to make ties with other societies.



Advertisements

Science Advisor

The National Center for Environmental Assessment-Cincinnati (NCEA-CIN) of the U.S. Environmental Protection Agency is seeking candidates for a significant multidisciplinary position, GS-14/15 (\$64,338 to \$98,382 per year, based on qualifications), located in Cincinnati, Ohio. The principal duties include responsibilities as Science Advisor and project leader for complex human health and/or ecological risk assessments. Selectee reviews and/or develops risk assessment documents, methods, or guidelines; identifies, resolves, or elevates to the Director (Dr. Terry Harvey) major issues arising from the scientific peer review of NCEA documents and other assessment products; provides scientific expertise/technical assistance to other federal, local government agencies, as well as national/international governments and organizations.

The applicant must have a highly developed proficiency (Ph.D. or equivalent experience) in at least one of the following disciplines: ecology, toxicology, pharmacology, microbiology, epidemiology, or environmental health sciences with at least three years' experience in the area of health or environmental risk analysis. Essential qualifications also include publishing and presenting papers at national/international meetings on risk assessment; knowledge of management practices, theories, and techniques; and evidence of effective coordination of team work efforts. Experience leading national/international scientific projects is desirable.

Please submit a résumé, SF-171 or OF-612, three references, bibliography and copy of two recent publications, and other

supporting documentation by April 17, 1997, to: Jessie Hopkins, U.S.EPA, (Mail Code 3648) 401 M Street, Washington, DC 20460. Telephone: 202-260-2965. *EPA is an Equal Opportunity/Affirmative Action Employer.*

Two QRA June Courses Offered

MIT offers two "QRA for Environmental and Occupational Health Hazards" short courses for persons actively engaged in assessing and controlling risks from hazardous substances.

June 16-20, 1997: "Basic Course," five-day introduction to techniques for mechanism-based pathway analysis. \$1,600.

June 23-25, 1997: "Practicum," three-day hands-on use of computer tools to address uncertainty/variability in risk analysis. \$1,300.

(Academic institutions are eligible for a 50% discount.)

Contact Dr. Dale Hattis, 508-751-4603.

Two Summer Institute Courses Offered

June 3-6, 1997: *Summer Institute in Risk Management in Environmental Health and Protection (including Quantitative Risk Assessment).*

May 19-23, 1997: *Summer Institute in Environmental Law.* For more information contact: Prof. R. Zimmerman, Wagner Graduate School of Public Service, New York University, 4 Washington Square North, New York, NY 10003, phone: 212-998-7432 or 212-998-7450, fax: 212-995-3890.

All-day courses (9 a.m.-5 p.m.) for graduate credit or non-credit certificate.



RISK newsletter
is published by
the Society for
Risk Analysis

Genevieve S. Roessler, *Editor*
Mary A. Walchuk, *Managing Editor*

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Newsletter Contributions: Send to Editor, RISK newsletter, RR1 Box 139H, Elysian, MN 56028; phone: 507-362-8958 or 507-362-4176, fax: 507-362-4513, e-mail: gnrsslr@mn.frontiercomm.net

**SRA NOW HAS A WEB SITE
ON THE INTERNET!**

The Site began to welcome visitors on March 14, 1997, and has over 30 pages of information, ranging from a listing of the officers to a description of opportunities available to members. The URL is www.sra.org. The Site is intended to be dynamic, so send us your suggestions! See page 15 for a fuller description of the Site.

RISK newsletter Change of Staff

From the very beginning, the SRA's RISK newsletter has been in the capable hands of Lorraine Abbott. It has been written, published, and distributed out of her offices in Knoxville, Tennessee. We are deeply indebted to Lorraine and her wonderful staff--Richard Abbott, Mary Bryant, Katie Ingersoll, and Amy Reed--for their many efforts, their continued attention to the details of the Society, and their responsible reporting of Society news to the membership.

With this issue, we introduce our new RISK newsletter staff: Dr. Genevieve (Gen) S. Roessler, editor; Mary A. Walchuk, managing editor; and Sharon R. Hebl, office manager. Phone, fax, and e-mail contacts are in the masthead on this page.

Gen is a past president of the Health Physics Society (HPS), a former editor of *Health Physics* (the HPS journal), and currently editor of the *HPS Newsletter*. She has a Ph.D. in radiological engineering and is retired from the University of Florida Nuclear Engineering faculty. For the past four years, Gen has conducted Radiological Risk courses for the Department of Energy.

Mary has a B.A. in mass communications. She is a writer and copy editor for the *HPS Newsletter* and editor of a number of community, church, and school newsletters.

Sharon works in the newsletter office full time. She has had considerable experience in editing as the managing editor of the *HPS Newsletter* and working for a local newspaper.

We welcome Gen and staff aboard, and again express our deep appreciation to Lorraine and crew.

Thank You to SRA Sustaining Members

The Society for Risk Analysis gratefully acknowledges the financial contributions of the sustaining members for 1996:

BP Chemical Inc
Chevron Research and Technology Company
Concurrent Technologies Corporation
Exxon Biomedical Sciences Inc.
Ford Motor Company
General Motors Research Labs
Procter & Gamble
Sciences International Inc.

The first 1997 sustaining member is **EA Engineering, Science, and Technology Inc.**

SRA Council Meeting

The SRA Council will hold a meeting May 1-2, 1997, in the Washington, D.C., area from 1:00-5:00 p.m. on Thursday, for a special session with the Advisory Committee, and from 8:00 a.m.-4:00 p.m. on Friday, for its general meeting.

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