

RISK *newsletter*

Published by the SOCIETY for RISK ANALYSIS

Volume 16, Number 2

Second Quarter 1996

Morgan Grades Risk Community

(The following article summarizes an address given by Professor M. Granger Morgan, head of Carnegie Mellon University's Department of Engineering and Public Policy, upon receiving SRA's 1995 Distinguished Contribution Award at the Society's 1995 Annual Meeting.)

Extending his role as a teacher who regularly assesses progress, Professor M. Granger Morgan handed a report card to the risk analysis community during his address at the opening plenary session of SRA's 1995 Annual Meeting.

Dividing "our collective endeavors" into eight areas, Morgan gave two grades to each, one for best practice (where "we apply everything we know in the best way we know how") and the other for typical practice ("my assessment of how things typically get done by federal risk management agencies and their contractors"). Each grade was absolute and was based on how close he felt risk analysts were to where they needed to be.

In judging each area, Morgan discussed subareas, assigning grades to each that ranged from A to F. In the end, his overall grade for all eight areas was a B for best practice (BP), with some areas receiving an A-. Far less generous to typical practice (TP), he gave four of the eight areas a D or D- and the overall practice a D+.

(1) Status and Use of Basic Science. Introducing basic science as the first of the eight areas, Morgan said it is probably the strongest aspect of risk analysis, although data gaps still exist and the available science is not used as much as it should be. "We typically do best on mortality and poorest on ecological and aesthetic impacts," he said, adding that the problems tend to be institutional and political, with a number of agencies under-investing in research and some research areas having no obvious sources of support (indoor air pollution, for example). Also, risk analysts have problems learning from their mistakes, and in some cases try to hide behind science to avoid making open and explicit value judgments. **Grades:** A- for BP, B- for TP.

(2) Analyzing Exposure and Effects Processes. Morgan feels that, in general, analysts do well in the analysis of exposure processes with a whole variety of tools (analytical models, fault trees, failure modes and effects models, and various statistical models). The problems arise, he said, when the models are too simple, when extrapolations are made from indirect evidence, or when institutional/behavioral factors are ignored. Similarly, problems arise in the analysis of effects processes when simple linear dose-response functions are used to describe dynamic processes and when correlation and interaction effects are ignored. **Grades:** A- for BP, C+ for TP.

(3) Handling Uncertainties. More critical of the characterization and treatment of uncertainties in exposure and effects processes, Morgan divided uncertainties into those associated with quantities (values of specific coefficients and other inputs) and those associated with the functional form of the models used.

With respect to quantity uncertainty, he said that best practice has a good understanding of the basics; however, it needs better tools for uncertainty

(Continued on page 5.)

SRA Names Five New Fellows

Honorees Are Crump, Fisher, Kasperson, Keeney, Paté-Cornell

The Society's 1995 Awards Committee, chaired by former SRA president D. Warner North and including past presidents Paul F. Deisler, Paul Slovic, and Chris G. Whipple, announced at the 1995 Annual Meeting in Honolulu that five of the Society's members had 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 five recipients are as follows:

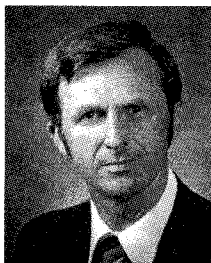
Kenny S. Crump. A vice-president of ICF-Kaiser International, Crump has worked in the development of risk assessment methodology and in the performance of risk assessments for over 20 years and has developed procedures, including the linearized multistage model for cancer risk assessment and the benchmark procedure for risk assessment of non-cancer effects, that have been widely applied. He has served on several committees of the National Academy of Science and on the science advisory boards of the U.S. Environmental Protection Agency, California EPA, National Institute of Environmental Health Sciences, and National Center for Toxicological Research. His current professional interests include the development and application of innovative methodologies for risk analysis and the promotion of improved practices in risk assessment.

A charter member of SRA, he has a Ph.D. in mathematics from Montana State University and has served as a

(Continued on page 2.)

This newsletter is printed on recycled paper.

professor of mathematics and statistics at Louisiana Tech University and as president of an environmental risk assessment company which he founded.



Crump

Ann N. Fisher. A senior research associate in the Department of Agricultural Economics and Rural Sociology at the Pennsylvania State University, with a joint appointment in the Environmental Resources Research Institute, Fisher works with interdisciplinary teams on how risk perceptions affect individuals' decisions and well being and how people make decisions involving health or environmental risks and change their judgments when new information becomes available. She also evaluates the effectiveness of alternative ways of presenting information, especially about environmental risks. The results provide guidance to government and industry officials responsible for communicating about various risks to health and the environment. Her current research also includes how to communicate effectively about small risks, how to evaluate the effectiveness of risk information programs, and how to measure values of non-market goods ranging from ground water to unique ecosystems.



Fisher

A charter member of SRA, she was the recipient of the Society's Distinguished Service Award in 1991. She initiated the Risk Communication Specialty Group, which she chaired for four years. She has also served on the council and on several annual meeting program committees, and is currently a member of the SRA Advisory Board. She has a Ph.D. in economics from the University of Connecticut and has taught economics at the State University of New York, Fredonia. In addition, she has analyzed the benefits of environ-

mental regulations at the U.S. Environmental Protection Agency, and has managed EPA's Risk Communication Program.

Roger E. Kasperson. Provost at Clark University since 1992 and a senior researcher at the Center for Technology, Environment, and Development (CENTED) and the George Perkins Marsh Institute, Kasperson has written numerous books and monographs on technological risks, risk communication, risk policy, radioactive wastes, and global environmental change, including his latest book *Regions at Risk: Comparison of Threatened Environments* (United Nations University Press, 1995). He chairs the International Geographical Union's Commission on Critical Environmental Situations and Regions and is a member of the Social Science Research Council's Committee on Global Environmental Change Research. He is a



Kasperson

fellow of the American Association for the Advancement of Science and has been honored for his work on environmental hazards by the Association of American Geographers. He has served on various committees of the National Research Council and the National Science Foundation and the subcommittee on risk reduction strategies for the Science Advisory Board's report to the U.S. Environmental Protection Agency, *Reducing Risk: Setting Priorities and Strategies for Environmental Protection* (1992).

A charter member of SRA, Kasperson has served on the council, was general program chair of the 1986 SRA Annual Meeting, and has served on the editorial board of *Risk Analysis*. He has a Ph.D. in geography from the University of Chicago.

Ralph L. Keeney. A professor of systems management at the University of Southern California, Keeney has been a consultant for several private and public organizations addressing decisions about large-scale siting studies, energy

policy, environmental and risk studies, and corporate management problems.

He is the co-author (with Howard Raiffa) of the book *Decisions with Multiple Objectives* (reprinted by Cambridge University Press, 1993) and the author of *Value-Focused Thinking* (Harvard University Press, 1992). In 1995, Keeney was elected to the National Academy of Engineering. His current research includes quantitatively examining the implications of the "richer is safer" phenomenon in order to develop models that estimate the fatalities induced by expensive regulations, with the intent to include those fatalities in estimating the full range of consequences of existing and proposed regulations and to provide guidance for a reasonable value trade-off between public funds spent and statistical lives saved for regulatory decision making.



Keeney

A charter member of SRA, he has a Ph.D. in operations research from Massachusetts Institute of Technology, where he was also a professor in engineering and in management. He was a research scholar at the International Institute for Applied Systems Analysis in Austria and the founder of the decision and risk analysis group for a geotechnical and environmental consulting firm.

M. Elisabeth Paté-Cornell. Professor of industrial engineering and engineering management at Stanford University and the immediate past president of SRA, Paté-Cornell specializes in risk analysis, engineering reliability, engineering and environmental risk management, engineering economy, and decision analysis.



Paté-Cornell

With years of consulting and public service experience, she has served on sev-

(Continued on page 8.)

Yokoyama Describes Status of Risk Assessment in Japan

(Dr. Eiji Yokoyama, retired director general of Japan's National Institute of Public Health, former president of the Japan Section of SRA, and current president of the Japan Society for Atmospheric Environment, addressed the December 1, 1995, plenary session of the joint annual meeting of the Society for Risk Analysis and the Japan Section of SRA held in Honolulu. His remarks are summarized in the following article.)

After launching his career as a respiratory clinician at the University of Tokyo School of Medicine in 1954, Dr. Eiji Yokoyama was always concerned about the health effects of environmental pollutants, particularly air pollutants, and he and his colleagues began to push for pollution control in Japan. However, it was not until the early 1980s that they became aware of the potential for applying risk assessment and management techniques to their work.

Addressing the first plenary session of the joint annual meeting of SRA and its Japan Section, Dr. Yokoyama pointed out that Japan's rapid industrialization from the mid-1950s to the mid-1960s was accompanied by intense environmental problems that resulted in serious health injuries to the populace. For example, asthma-like attacks were observed in elderly residents in areas severely polluted by smoke from the combustion of high-sulfur oil at petrochemical plants, and other diseases were caused by releases of mercury and cadmium. In 1967, the Basic Law for Environmental Pollution Control was passed to set an environmental quality standard, or goal, for pollutant reduction. The goal was defined as the level below which human health could be protected and living environments could be conserved. Subsequently, specific standards were set for ambient air, water, and soil pollution and for noise.

Setting Ambient Air Standards.

With respect to ambient air, standards were set for five pollutants—SO₂, CO, suspended particulate matter, NO₂, and photochemical oxidants—and in 1968 an Air Pollution Control Law was enacted that provided the broad basis for controlling the emissions of pollutants, both from stationary sources and from automobiles.

Two systems of control have been applied to stationary sources. The first was determined on a facility-by-facility basis and focuses on SO₂, NO_x, soot and dust, and some toxic chemicals.

The second is a total emission control system used in areas where emission standards on a facility-by-facility basis are inadequate. It was introduced for SO₂ in 1974 (now applying to 24 regions) and for NO_x in 1981 (now applying to four regions).

With regard to automobiles, each car is required to meet permissible limits of exhaust emission established for CO, hydrocarbons, NO_x, and diesel particulates.

Ambient SO₂ and NO_x. Dr. Yokoyama said that the ambient concentrations of SO₂ and NO_x are continuously monitored at stations located in residential areas and along roadsides with heavy traffic. The results show considerable success in the reduction of SO₂ levels. NO_x levels, however, remain too high, even though the early 1970s emission standards for NO_x have been revised downward five times for stationary sources and eight times for gasoline- and diesel-powered vehicles.

Countermeasures have not been effective in reducing NO_x concentrations, he explained, because the use of automobiles in Japan has tripled during the last 20 years. In 1992, a new law, generally called the NO_x Law, was enacted to restrict the use of vehicles that cannot meet the NO_x emission standards in certain specified areas.

Ambient Photochemical Oxidants. With respect to photochemical oxidants, Dr. Yokoyama said that efforts to reduce air pollution from photochemical oxidants began in 1970 with the first regulations on hydrocarbon emissions from automobiles. In 1976, guidelines were set for ambient concentrations of non-methane hydrocarbons, and in 1982 the government called for the reduction of hydrocarbon emissions from stationary sources. While the situation has been considerably improved, the threshold for issuing a warning (0.12 ppm as an hourly average) is still exceeded periodically.

Chemical Substance Pollution.

Japan has also experienced environmental pollution from chemical substances resulting from the careless use of various products. Typical of these have been PCBs (polychlorinated biphenyls), which were found to be widely distributed throughout the environment and even in human tissues, including breast milk. To confront these problems, Japan enacted a Chemical Substances Control Law in 1974 which states that any chemical substance to be produced or imported in annual amounts exceeding 1 ton must first be examined for its biodegradation, bioaccumulation and chronic toxicity.

According to its test results, a chemical substance is categorized as a Class I Specified Substance, a Class II Specified Substance, or a Designated Substance, and it is subject to regulations specific for its particular category. For instance, a substance that is highly bioaccumulative, less biodegradable, and chronic-toxic will be registered as a Class I Specified Substance, and, in principle, its production, importation and use is prohibited. At present, nine substances are included in this category. Another 23 substances are in Class II, and 135 are Designated Substances. About 300 new substances are subjected to these tests annually.

The carcinogenicity of chemical substances is of particular concern. As in other industrialized nations, cancer mortality in Japan is steadily increasing—by about a factor of 2.5 for all cancers during the last 40 years. For lung cancer, the mortality is much higher. Adjusted for age, lung cancer mortality has increased a factor of 13 for males and a factor of 9 for females. The impact of smoking is clear, but it is also commonly suspected that various chemical carcinogens in all media, particularly in ambient air, are also responsible for the increase in lung cancer. Dr. Yokoyama feels that new ideas based

(Continued on page 4.)

Program Committee Chosen for 1996 Annual Meeting

The program committee for the joint 1996 annual meeting of the Society for Risk Analysis and the International Society of Exposure Analysis (ISEA), to be held in New Orleans, Louisiana, on December 8-11, will meet on June 21 to review abstracts submitted for presentation. The chair of the committee is Rae Zimmerman, SRA's president-elect and chair of its Annual Meeting Committee.

The program committee is comprised of representatives from various groups within SRA and ISEA. For SRA, these include the Society's specialty groups, the SRA Council and Executive Committee, and several relatively new members of the Society. In general, the committee members live near Washington, D.C., or will be in the area on June 21.

SRA specialty group representatives or members include Scott R. Baker, EA Engineering, Science, and Technology Inc., for dose response; Robert J. Fares, Environmental Standards Inc., for ecological risk assessment; Thomas E. McKone, E. O. Lawrence Berkeley National Laboratory and University of California, Berkeley, for exposure assessment; Stanley H. Levinson, Framatome Technologies, for engineering; Richard C. Rich, Virginia Polytechnic Institute, for risk communication; Barbara Petersen, Technical Assessment Systems, for food safety risk assessment; and Michael Gerrard, Arnold &

Porter, and Paul A. Locke, Environmental Law Institute, for risk science and law.

Current or former SRA councilors and officers serving on the committee include Donald G. Barnes, U.S. EPA Science Advisory Board; Annie M. Jarabek, U.S. EPA National Center for Environmental Assessment; Gail Charnley, Commission on Risk Assessment and Risk Management; Yacov Y. Haimes, University of Virginia; and James D. Wilson, Center for Risk Management, Resources for the Future. Also serving are Robin Cantor of the National Science Foundation's Decision, Risk, and Management Science Program and Larisa Rudenko of Environ Corporation. Other SRA members are also filling key positions for the meeting. In particular, James L. Regens of Tulane University Medical Center is coordinating abstract submissions that emphasize New Orleans and other Louisiana areas.

ISEA representatives include McKone, a councilor of both SRA and ISEA and ISEA's technical program committee chair for the 1996 joint meeting, and Petersen. Other ISEA or SRA/ISEA representatives are Alan H. Stern, New Jersey Department of Environmental Protection, and Mark P. van Veen, National Institute of Public Health and Environmental Protection, Netherlands.

Risk Assessment in Japan

(Continued from page 3.)

on the practice of risk assessment and management are necessary to properly manage these carcinogenic chemicals.

The first official step in this direction occurred in 1992, he said, when the administration in Japan used the concept of risk assessment for amending the nation's drinking water quality standards. Following, in principle, the World Health Organization's guidelines, values of carcinogenic substances classified as Group I and 2A by the International Agency for Research on Cancer (IARC) were set for drinking water on the basis that a 10^{-5} increment of a lifetime cancer risk is a safe level. In the same year, the environmental quality standard for water pollution was similarly amended.

More recently, the Air Pollution Control Law has been amended to include more carcinogenic substances. Only a few chemicals—cadmium, chlorine, fluorine, lead—and their compounds had previously been regulated, with asbestos added as a special particulate in 1989. Hazardous substances like benzene in automobile fuels have now been added.

In another recent development, Dr. Yokoyama chaired a special committee for reviewing countermeasures against hazardous air pollutants. The key recommendation in the committee's 1995 report was that risk assessment be used in determining the regulation of hazardous air pollutants, particularly non-threshold chemicals.

Development of Risk Assessment in Japan. Dr. Yokoyama believes that the administrative acceptance of risk assessment and management practices in Japan is somewhat behind international trends, but that is changing.

Risk assessment was first used in Japan in the late 1970s by groups engaged in food safety and civil engineering research, but the real push for risk assessment and management came from two workshops on risk analysis and management, the first one held in Tsukuba in 1984 as a joint U.S.A.-Japan workshop organized by the University of Tsukuba and Vanderbilt University. The other was held in Osaka in 1987. Both workshops compared risk assessment processes between the United States and Japan. Similar workshops on the risk assessment and management of toxic chemicals were held three times from 1989 to 1993 by the

National Institute for Environmental Research of Japan and U.S. Environmental Protection Agency.

At the 1987 Osaka workshop, the Japanese participants decided to establish the Japan Section of the Society for Risk Analysis. This occurred in 1988, and the section now has more than 300 members engaged in various disciplines. They are also active in environmental issues and in various social activities throughout Japan.

Dr. Yokoyama feels that there are fundamental differences in approaches to risk analysis and management between Japan and the United States. In Japan, negotiation and consensus building are very important to decision making on the regulations of environmental pollution, whereas in the United States more emphasis is placed on rigorous scientific analysis and open discussion. He attributes the differences to the different social and cultural backgrounds of the two nations.

Still, he says the two nations are moving toward the same goals. In 1993, Japan replaced the 1967 Basic Law for Environmental Pollution Control with the Basic Environment Law, which defines the basis of policies for environ-

mental conservation consistent with sustainable development. The Basic Environmental Plan, which was established as a long-term comprehensive national plan for environmental conservation under the Basic Environment Law, re-

quires the development of risk assessment and management practices as measures against hazardous chemical substances in the environment.

In conclusion, Dr. Yokoyama pledged that the Japan Section of the

Society for Risk Analysis would continue to promote research in risk assessment and management in Japan, and stated that he believed that the joint annual meeting of the section with SRA was providing support to those efforts.

Risk Community Graded

(Continued from page 1.)

analysis (as opposed to sensitivity analysis), and analysts have a long way to go in treating both second-order uncertainties ("not all uncertainties are created equal") and extreme uncertainties (e.g., socioeconomic structures in the future), especially when they are intermingled with manageable uncertainties. Typical practice has many more needs, including the recognition that uncertainties on quantities should even be addressed. "The number of first-rate practitioners is still much too small given the amount of work," and "federal agencies urgently need in-service training and staff development activities," Morgan said.

The uncertainties associated with models arise when the basic science underlying the processes is not known, when the processes involved are too complex for their behavior to be modeled, and when the system is changing in some unknown way over time. The research community does not know how to deal with model uncertainty, and many practitioners actively seek to avoid it. This is a particular problem in cancer risk assessment, Morgan stated, where a much better treatment of dose response is clearly within current analytical capabilities. He reinforced his criticism by assigning his only F to the subarea of model uncertainty analysis in typical practice. **Grades:** B for BP, D for TP.

(4) Analyzing Risk Perceptions.

Morgan believes that risk perception analysts should provide (a) coherent post-hoc explanations of why the public feels the way it does, (b) broad guidance for risk management and communication strategies, and (c) specific predictive power for how various publics will react to new risks and strategies, although he feels the complexity of task c may preclude its success. Analysts have learned a great deal about public perceptions, he says—e.g., that the public cares about more than just numbers of

deaths and injuries, that cognitive heuristics play a key role in decisions, and that the public is more rational about matters of risk than first impressions. However, he is unsure just how well the knowledge is being communicated to decision makers. **Grades:** B for BP, C- for TP.

(5) Incorporating Values. Morgan is more sure about inadequacies in the treatment of values. He feels that better methods are needed both for eliciting values from the public and for systematically analyzing the value issues in risk analysis. "We too often take values as exogenous and fixed when in fact they are labile and can be modified by the process of addressing and dealing with a risk," he said, adding that a concerted long-term effort should be made on the characterization and treatment of values. **Grades:** C+ for BP, D- for TP.

(6) Considering Organizational and Social Context. Social settings matter, Morgan said, and yet to date, most risk analyses are focused on the risks themselves without consideration of organizational settings. Somewhat more is understood about the political aspects of risk analysis and management, but even here most of the literature is about "what went wrong" with little advice for risk managers before they get in trouble. Careful experimental study and empirical evidence in this area is needed, he feels. **Grades:** C for BP, D for TP.

(7) Applying Decision Rules and Risk Management Strategies. In public debates, risk analysts must be explicit about the decision rules being used, i.e., whether they are utility based, rights based, procedural based, etc., and which specific rules under these categories have been applied. (Example: If it is a rights-based rule, is it zero risk, bounded or constrained risk, prior approval with compensation for tradeoffs, etc.?) Also, risk management strategies must be inventive and must allow for

different risks to be managed in different ways. Various possible strategies include use of tort and common law, insurance, individual and collective corporate initiatives, mandatory government standards, market-based solutions such as emissions taxes, etc. **Grades:** B for BP, C- for TP.

(8) Communicating Risks. For communications conducted in "hot" or crisis settings, Morgan feels that risk communicators have little advice to offer risk managers, to the extent that he assigns a C- for BP and a D- for TP. For cool settings, in which people have time to consider risks carefully, communicators have progressed beyond the two-pronged traditional approach of finding a knowledgeable health or safety specialist and having a communications expert write what the specialist thinks the public should be told. Inherent faults of the traditional method are that it does not determine what people already know about the risk, nor does it determine the specific information they need to know to make decisions. The development and use of current "mental model approaches" based on open-ended elicitations of people's beliefs, structured questionnaires, and iterative testing and refinement of the message qualify for a B grade for BP and a C- for TP for cool settings. **Grades:** C+ for BP and D for TP.

In conclusion, Morgan said the report card shows that while there is room for improvement, the risk analysis community can feel pretty good about the quality of its best practice. Conversely, it has a serious problem with the quality of typical practice, and at a time when wider use of risk analysis methods in federal risk management decision making is being called for, it is a problem that cannot be ignored.

(Editor's Note: Morgan's suggestions for improvements in risk analysis capabilities will be given in the next issue of RISK newsletter.)

SRA Guidelines for Conferences and Workshops

(Editor's Note: By request, RISK newsletter is reprinting the operational guidelines approved by the Conferences and Workshops Committee and the SRA Council for all conferences and workshops sponsored or co-sponsored by the Society.)

The Society for Risk Analysis has three classifications for conferences and workshops:

Class 1. SRA organizes and runs the event with complete technical, logistical, and financial responsibilities.

Class 2. SRA co-sponsors and co-organizes the event with other organizations and with financial responsibility.

Class 3. SRA co-sponsors the event without technical or financial responsibility.

Procedures for Requesting Sponsorship. A request for sponsorship of a Class 1 or 2 event should include the following: (1) title of activity and intended location, (2) names of organizers with complete address and telephone and fax numbers, (3) goals, objectives, and importance of the proposed activity, (4) intended audience, (5) outline and dates of the activity, (6) names of principal participants, and (7) a detailed budget. Item 7 must include the number of expected attendees, the fee to be charged, itemized costs for all projected expenditures (including any honoraria), and expected amount of subsidy or financial responsibility to be requested from SRA.

The request for sponsorship of a Class 3 event should include items (1) through (6) above plus the following: names of other sponsoring societies, if any, and a request for access to SRA's mailing list. (SRA should be compensated for the costs associated with providing the mailing labels.)

The organizer of an approved Class 3 event should clearly acknowledge SRA for its sponsorship.

Committee Reviews. All requests for sponsorship should be sent to the SRA Secretariat, who will distribute them to the committee members. The members will have two weeks to communicate directly to the committee chair whether they approve, reject, request further clarification of, or suggest modifications to a request.

A committee member who votes to reject a request for sponsorship may specify whether he will accept the committee's majority vote or believes that the reasons for rejection are strong enough to merit a discussion. If the chair cannot reach a consensus with the member, then the committee will decide on the request via a conference telephone call. Unless rejections with strong reasons exist, a majority vote will prevail.

If a request receives approval with a weak majority, the chair may delay or withhold the decision until more committee members are willing to approve it. The chair may also initiate a peer review of a request if the committee needs additional expertise.

SRA Conferences and Workshops Associated with

Funded Projects. If an SRA project funded by an outside agency requires that a workshop or conference be conducted as part of the project, the workshop or conference will fall under Class 1.

Committee Members. Members of the Conferences and Workshops Committee for 1996 are Elizabeth L. Anderson (chair) of Sciences International Inc., Yacov Y. Haimes (past chair) of University of Virginia, George Apostolakis of Massachusetts Institute of Technology, Alison C. Cullen of University of Washington, Robert B. Cumming, consultant, Elaine M. Faustman of University of Washington, Stanley Kaplan of PLG Inc., Mary B. Paxton of American Petroleum Institute, Virginia H. Sublet of University of Cincinnati, and Michael J. Sullivan of Rockwell International Corporation.

Call for Proposals

The SRA Conferences and Workshops Committee is soliciting proposals for tutorial workshops to be conducted in conjunction with the 1996 SRA Annual Meeting in New Orleans, Louisiana, December 8-11. Proposals must include a syllabus of the workshop and a detailed budget. Send proposals to the attention of the committee chair, Elizabeth L. Anderson, in care of the SRA Secretariat (see masthead). The final date for submissions has been extended to June 28, 1996.

SRA Risk Assessment Workshop Scheduled

SRA will sponsor a workshop on "Human Health Risk Assessment: Advances and Uncertainties," September 30 – October 1, 1996, at the Crystal City Hilton in Arlington, Virginia. The workshop, the ninth in a series of risk assessment courses begun in 1986, will be organized by a subcommittee of the SRA Workshops and Conferences Committee. The subcommittee members are Elizabeth L. Anderson (chair), Virginia H. Sublet, Mary B. Paxton, Robert B. Cumming, Michael J. Sullivan, and Richard J. Burk. The registration fee is \$500.00 if paid by July 15, 1996, or \$650.00 thereafter.

SRA To Hold Risk Assessment Forums

The SRA Workshops and Conferences Committee is organizing three one-day forums for 1996 that will explore current issues of national interest in risk assessment. The committee will choose the topic for the first forum but is soliciting suggestions for the other two forums. Submissions, which should include a brief description of the topic, target audience, and relevance, should be sent to the committee chair, Elizabeth L. Anderson, Sciences International, Inc., King Street Station, 1800 Diagonal Road, Suite 500, Alexandria, VA 22314, fax (703) 684-2223.

Seven Students Receive Awards

The Society for Risk Analysis chose seven students to receive awards for the highest quality student papers submitted to the 1995 SRA Annual Meeting. Six of the students presented their papers in platform sessions at the meeting and received \$500 awards to help with their travel expenses. The students and their affiliations and topics are as follows:

Melissa L. Finucane, University of Western Australia, "Risk Perception Biases and Decision Strategies"

Ginger V. Gibson, University of Alberta, Canada, "The Role of Traditional Knowledge in Environmental Risk Decision-Making"

Dmitri I. Solovyov, Russian Academy of Administration to the President of Russia, Moscow, "The Role of Risk Management in Enforcing the Sustainable Development of the Sakha Republic (Yakutia)"

Kelly A. Toy, University of Washington and Tulalip Tribe Department of Natural Resources, "A Fish Consumption Survey of the Tulalip and Squaxin Island Tribes"

Donna J. Vorhees, Harvard School of Public Health, "Residential Multimedia Exposure to Polychlorinated Biphenyls Near New Bedford Harbor, Massachusetts"

Michaela T. Zint, Michigan State University, "Improving Risk Decisions Through Formal Science Education: Final Results of a Teacher Needs Assessment"

The seventh student, **Oksana V. Shilova** of International Independent University of Ecology and Politology, Russia, could not attend the meeting.



Student award winners (from left to right) are Ginger Gibson, Michaela Zint, Kelly Toy, Melissa Finucane, and Donna Vorhees.



Dmitri Solovyov (left) described environmental problems in the Sakha Republic, a region in northeast Russia which he referred to as the "raw materials appendix" of the Soviet regime for 70 years.

Institute Offers Information On Chemical Industry

The Texas Institute for Advancement of Chemical Technology (TIACT), founded in 1986, seeks to interact with the public, says its founder and president, Charles D. Holland, professor emeritus of Texas A&M University. A non-profit organization with about 80 corporate members, the institute publishes and distributes documents on chemical industry issues of interest to the public. It also interacts with civic groups and citizen advisory panels, generally in areas near chemical plants and petroleum refineries.

A series of Institute publications, called *Insights*, and their corresponding condensed versions, called *Flyers*, cover topics such as chemicals and cancer, workplace safety, the real and perceived risks of chlorine and chlorinated compounds, and cancer in Texas. The institute has also published a book for engineers and scientists, *Quantitative Cancer Modeling and Risk Assessment* (Prentice Hall Inc., 1993), by Holland and Robert L. Sielken Jr. of Sielken Inc., which brings together the mathematical derivations of commonly used cancer risk assessment models in one easily accessible place. To obtain information about the Institute or its publications, contact Holland at Mail Stop 3125, College Station, TX 77843, telephone (409) 845-3371 or -3372, fax (409) 862-4202.

Risk Commission To Release Draft Report

The Commission on Risk Assessment and Risk Management, established by Section 303 of the 1990 Clean Air Act Amendments, will release a draft of its report for public review and comment on June 13, 11:00 a.m. to 12:30 p.m., in a public meeting at the J.W. Marriott Hotel, Washington, D.C. The report will also be available June 13 on the Internet at <http://www.riskworld.com>, the address of the World Wide Web publication *RiskWorld*.

The release comes 13 months past the mandated due date; however, because of delays in appointing its 10 members, the commission's first meeting was postponed from May 1992 to May 1994. The commission was charged with investigating the "policy implications and appropriate uses of risk assessment and risk management" in federal regulatory programs concerned with exposures to hazardous substances.

The commission's executive director, Gail Charnley, says comments on the draft report should be received by August 9. They should be mailed to the Commission on Risk Assessment and Risk Management, 529 14th Street, N.W., Room 452, Washington, D.C. 20045, or faxed to (202) 233-9540. A hard copy of the draft report may also be requested.

New Fellows

(Continued from page 2.)

eral committees of the National Research Council and National Science Foundation and has published many articles on risk analysis and related topics in scientific journals, including *Risk Analysis*.

In 1989, Paté-Cornell received the Best Paper Award of the American Nuclear Society's Reactor Safety Division. She was a Stanford University Fellow from 1989 to 1991 and is currently an elected member of the Stanford University Senate. She was elected to

the National Academy of Engineering in 1995. Her recent work has focused on the organizational and managerial aspects of systems safety with applications to the management of jacket-type offshore platforms and the space shuttle's heat shield.

A member of SRA since 1981, she has served on the council and is a past president of the Northern California Chapter. She holds a Ph.D. in engineering-economic systems from Stanford and was previously an assistant professor of civil engineering at Massachusetts Institute of Technology.

Is Your SRA Membership Current?

The SRA Secretariat has mailed second notices to those who have not yet renewed their SRA membership. If you did not receive a renewal notice, please contact the Society's Secretariat at the address shown in the masthead on page 12.

SRA International Reports

SRA-Europe To Hold 1997 Annual Meeting in Sweden

The Society for Risk Analysis-Europe will hold its 1997 annual meeting June 15-18 in Stockholm, Sweden, on the theme "New Risk Frontiers." Founded in 1987, SRA-Europe will also celebrate its tenth anniversary in 1997.

The Center for Risk Research at the Stockholm School of Economics will host the meeting, in collaboration with the Center for Safety Research of the Royal Institute for Technology and Riskkollegiet, A Swedish Risk Academy. The local organizing committee includes Britt-Marie Drottz Sjöberg and Lennart Sjöberg of the Center for Risk Research, Ulla Swarén of the Swedish Environmental Protection Agency, Torbjörn Thedéen of the Center for Safety Research, and Birgitta Lewander and Torbjörn Malmfors of Riskkollegiet.

The organizers have issued a call for papers on the following annual meeting themes: risk comparisons, risk analysis, risk management, risk and welfare (economics and insurance), risk perception, risk communication, risks in time and space (across time and national boundaries), and information technology—safety and risk. Abstracts should be 200-600 words and include a title, choice of theme (listed above), designation of oral or poster session, five key words, and the full name, address, fax number and e-mail address of the author(s). The deadline for abstract submission is January 15, 1997. Submit abstracts to the conference secretary Kristina Eddon, Center for Risk Research, Stockholm School of Economics, fax (46) 8 30 72 25, e-mail pks@hhs.se.

For questions on scientific issues related to the meeting or for information about SRA-Europe, contact Britt-Marie Drottz Sjöberg, who is also the secretary of SRA-Europe, telephone (46) 8 736 95 76, fax (46) 8 30 72 25, e-mail pbmds@hhs.se.

For information on annual meeting registration, hotel booking, the city of Stockholm, and Sweden, contact the secretariat of the Stockholm Convention Bureau, Box 6911, S-102 39 Stockholm, Sweden, fax (46) 8 34 84 41.

SRA-Japan Section To Hold Spring Symposium

The Japan Section of the Society for Risk Analysis will hold its spring symposium and annual business meeting on Friday, June 28, at Sanjo Kiakan of Tokyo University. Katsuhiko Kuroda of Kobe University and Taketoshi Taniguchi of the Central Research Institute of Electric Power Generation are organizing the event, which will include the elections of new section officers for 1996-1998.

The symposium will focus on "Risk Management in the Establishment and Management of Social Capitals." Social capitals (known in the United States as "public works") are established by governments, by non-governmental bodies, or by both in a joint effort, and risks are inherent at each stage of the process. This is particularly true in developing countries, where the governments lack financial resources and establishing social capitals largely depends on non-governmental bodies, with or without government participation.

An experienced researcher on this subject, Masaki Arioka of Kumagayagumi Construction Company, will deliver the symposium's keynote address on recent risk issues in the methods of social capital formulation. Other leaders in this field, including Yasunori Shibahara of Mitsubishi Research Institute, Kaoru Ikeda of Japan's Ministry of Transportation, Siji Nishioka of Japan's Ministry of Construction, and Naoki Mori of the Overseas Economic Cooperation Fund, will join Arioka in a panel discussion following his address. Kazuaki Miyamoto of Tohoku University will chair the panel.

By the end of the year, the section will publish the proceedings of its 1995 joint annual meeting with SRA in Hawaii in a special volume of its *Japanese Journal of Risk Analysis*.

For more information, contact: Secretariat of SRA Japan Section, c/o Saburo Ikeda, Institute of Socio-Economic Planning, University of Tsukuba, 1-1-1 Tennodai, Tsukuba-shi, Ibaraki-ken, 305 Japan, telephone (81) 298-53-5380, e-mail ikeda@shako.sk.tsukuba.ac.jp, fax (81) 298-55-3849.

SRA Specialty Groups

SRA's specialty groups are developing sessions for the joint meeting of the Society with the International Society of Exposure Assessment in New Orleans, December 8-11. Reports of plans submitted to RISK newsletter by two groups are as follows:

Dose Response Specialty Group will sponsor four sessions at the 1996 SRA/ISEA annual meeting. One on "Time: The Forgotten Dimension in Risk Assessment" will explore the effect of time on dose-response curves. "Emerging Biologically Based Dose-Response Models for Both Carcinogenic and Non-Carcinogenic Endpoints" will address the goals and definitions of biologically based models in two sessions—the first utilizing case studies to emphasize basic principles of model development and the second identifying general characteristics of biologically based dose-response models in a speaker/panel format encouraging open discussion. "Microbial Dose Response" will describe the unique challenges which pathogen risk assessment poses. "Variability and Uncertainty in Assessing Dose Response" will explore concerns related to variability and uncertainty in quantitative risk assessment, especially its effects on environmental risk management decisions. For more information, contact the group's president, Scott R. Baker of EA Engineering, Science, and Technology Inc., Silver Spring, Maryland, telephone (301) 565-4216, fax (301) 587-4752, e-mail sb@eaeng.mhs.compuserve.com.

Exposure Assessment Specialty Group has several session topics under consideration, including activity patterns, biological contaminants, biomarkers of exposure, environmental epidemiology, regulatory issues, probabilistic methods of exposure assessment, and exposure monitoring and modeling, including topics related to food-chain pathways, dermal exposure, indoor air pollution, water contamination, and hazardous waste. For more information, contact the group's chair-elect, Alison C. Cullen of the University of Washington, e-mail alison@u.washington.edu, telephone (206) 543-4900, fax (206) 543-1096.

Other SRA specialty groups and their contacts are:

Ecological Risk Assessment Specialty Group, William (Bill) Alsop, ChemRisk, Alameda, California, telephone (510) 748-5657, fax (510) 521-1547, e-mail bill_alsop@mclarenhart.com

Engineering Specialty Group, Ali Mosleh, University of Maryland, College Park, Maryland, telephone (301) 405-5215, fax (301) 314-9601, email mosleh@eng.umd.edu

Risk Communication Specialty Group, Branden B. Johnson, New Jersey Department of Environmental Protection, Trenton, New Jersey, telephone (609) 633-2324, fax (609) 292-7340, e-mail brandenj@eoehsi.rutgers.edu

Editor's Note: Rae Zimmerman, chair of the 1996 SRA/ISEA annual meeting program committee, distributed to the SRA membership a detailed list of topics for which the specialty groups were soliciting abstracts. Contact the SRA Secretariat (see masthead) for copies of that mailing.

SRA Council Approves New Specialty Groups

The SRA Council approved the formation of two new specialty groups at its meeting on April 26:

Food Safety Risk Assessment Specialty Group will promote risk assessment techniques and their applications to food safety issues, expand opportunities for communication and interaction among researchers interested in food safety and risk assessment, and foster multidisciplinary interaction and collaboration among scientists from the various disciplines involved with food safety risk assessment. The group's interest will focus on human health risks—primarily microbial but also including chemical and other risks—attributable to food consumption.

The group collected over 130 signatures to petition the Society for authorization to organize at the 1996 SRA/ISEA Annual Meeting in New Orleans. Several members planning to join the group have submitted abstracts on food safety risk assessment for the meeting.

To express interest in the group or request information, contact its spokesman, Michael D. McElvaine of the Office of Risk Assessment and Cost-Benefit Analysis, U.S. Department of Agriculture, telephone (202) 720-8022, e-mail mmcelvaine@sies.wsc.ag.gov, fax (202) 720-1815.

Risk Science and Law Specialty Group aims to attract SRA members investigating both scientific and legal principles as the basis for risk-related legislative acts, regulatory rules, and judicial processes. Although not intended primarily as a policy forum, the group will examine the scientific as well as the legal basis of policy issues and alternatives that arise at the intersection of science and law. The group is also recruiting scientists and lawyers representing industry, government, and academia from outside the Society to join SRA and participate in the group.

The specialty group is planning a series of symposia and platform sessions for the 1996 SRA/ISEA Annual Meeting in New Orleans and will also conduct a business meeting to recruit new members, nominate officers, and propose a charter and bylaws.

SRA members may register now to join the Risk Science and Law Specialty Group. To request a registration form or offer ideas on the group's mission, its role in the Society, and activities that would be worthwhile and challenging, contact the group's founder, Wayne Roth-Nelson of Roth-Nelson Risk Science, Lafayette, Colorado, telephone (303) 494-9694, fax (303) 494-3785, or Paul A. Locke of the Center for Public Health and Law, Environmental Law Institute, Washington, D.C., telephone (202) 939-3842, fax (202) 939-3868.

U.S. Chapter News

Chicago Regional Chapter has a World Wide Web site that provides information about the chapter, including its scheduled events, mission statement, committees, and membership list; the chapter's newsletter issues; and a list of suggested Internet sites. The site's uniform resource locator (URL) is <http://www.ead.anl.gov/~web/sra/index.html>.

East Tennessee Chapter has elected new officers for 1996. The new president, F. Owen Hoffman of SENES Oak Ridge Inc., spoke on "The Role of Uncertainty Analysis in Dose Reconstruction and Risk Assessment" at the chapter's meeting in April.

Lone Star Chapter held a meeting in February in Houston with 19 attendees, who discussed goals for the revived chapter and plans to expand membership involvement statewide. In addition, Stephanie Norman, the director of library services for the University of Texas School of Public Health, made a presentation on "Using Internet Resources to Access Risk Assessment Information." The chapter also met in April at Texas A&M University in College Station. Stephen Safe of the university's Department of Veterinary Physiology and Pharmacology spoke on "Environmental Estrogens."

Metropolitan Chapter cosponsored a three-hour evening seminar in April on "Emerging Microbial Threats: Public Policy Implications" with Rockefeller University, the New York Academy of Medicine, the Pan American Health Organization, and the U.S. Pharmaceuticals Group of Pfizer Inc. The chapter's past president, Miriam de Salegui, organized the event, which featured the following speakers and their topics: Joshua Lederburg of Rockefeller University, "Newly Emerging Viruses"; Alexander Tomasz of Rockefeller University, "Emerging Microbial Drug Resistance"; and Laurie Garrett, health and science writer for *Newsday* and *New York Newsday*, "Waiting for the Next Outbreak: Will We Have a Stitch in Time?" In addition, Stephen S. Morse of Rockefeller University, James M.

U.S. Chapter Contacts

Chicago Regional: Tom Wolsko, interim president, (708) 252-3733, tdwolsko@anl.gov
Columbia-Cascades: Jim Dukelow, president, (509) 372-4074, js_dukelow@pnl.gov
East Tennessee: Owen Hoffman, president, (423) 483-6111, 7.3304.3262@compuserve.com
Greater Pittsburgh: Gregg Claycamp, president, (412) 967-6524, hgc2@vms.cis.pitt.edu
Lone Star: John Mikus, president, (713) 266-1361, jamikus@aol.com
Metropolitan (CT-NJ-NY): Wayne Tusa, president, (212) 369-5400
Michigan: Joan Fassinger, secretary, (313) 556-7691, lnusgmb.dzzm5x@gmeds.com
National Capital Area: Cindy Jengeleski, president, (202) 833-2183, cjengeleski@aihc.org
New England: Michael Hutcheson, president, (617) 292-5998, mhutcheson@state.ma.us
Northern California: Garrett Keating, secretary, (510) 422-0921, keating2@llnl.gov
Ohio: Ron Marnicio, president-elect, (614) 431-8700, ext. 215, ohio!columbus!marnicio@fwengctw.attmail.com
Philadelphia: Linda Burg, secretary, (215) 641-7482, rsymb@rohmmaas.com
Research Triangle: Christopher Frey, president, (919) 515-1155, frey@eos.ncsu.edu
Rocky Mountain: Yvette Lowney, president, (303) 444-7270
Southern California: Krishna Nand, president, (818) 585-6043, krishna_nand@parhou.ccmil.com

Hughes, M.D., of the National Center for Infectious Diseases, and Marcelle C. Layton, M.D., of the New York City Department of Health's Bureau of Communicable Diseases presented international, national, and local perspectives, respectively, on "Timely Management of the Risks: What We Need and What It Will Cost."

New England Chapter departed from its monthly meeting format, which usually features two speakers, to hold a poster session in April for members to display their work. More than 25 members of the chapter and the local organization which regularly meets with them, the Boston Risk Assessment Group, presented posters and interacted with over 100 who attended the session. Camp Dresser & McKee Inc. in Cambridge, Massachusetts, hosted the event.

Northern California Chapter held its 1996 elections. The newly elected officers include the president-elect, Stephen L. Brown of Risks of Radiation and Chemical Compounds (R2C2) in Oakland, California. The chapter president is William S. Pease of

the University of California's School of Public Health, Berkeley.

Ohio Chapter held a half-day seminar in February at Wright State University. Hosting the event were Robert Koerker of the university and its Department of Pharmacology and Toxicology, which also cosponsored the seminar with the university's Institute for Environmental Quality and the Foster Wheeler Environmental Corporation. More than 110 persons attended the three seminar presentations. Captain Wade Weisman of the Wright-Patterson Air Force Base Toxicological Division, who chairs the Total Petroleum Hydrocarbons Criteria Working Group, discussed the progress in establishing health risk-based methodologies for defining acceptable cleanup strategies for soil contaminated with petroleum hydrocarbons. Jeffrey Fisher of the same division, who is the principal investigator of the trichloroethylene (TCE) cancer assessment project, reviewed the progress to date on the reevaluation of the metabolism and mechanisms of action of TCE in the body. Rita Schoney of the U.S. Environmental Protection

Agency's National Center for Environmental Assessment, Cincinnati, reviewed EPA's efforts to revise the Guidelines for Cancer Risk Assessment and the likely impact on the weight-of-evidence classification scheme, dose-response data evaluation, and the form of the agency's communication of toxicological information.

Philadelphia Chapter met in April at the University of Pennsylvania Faculty Club to hear Peter Montague, co-founder and director of the Environmental Research Foundation in Annapolis, Maryland. He spoke on "Uses and Misuses of Risk Assessment in Decision Making."

Research Triangle Chapter met in February. Jonathan B. Wiener, an associate professor of law at Duke University, spoke on "Risk - Risk Tradeoffs" and also addressed the status of regulatory reform legislation in the U.S. Congress. He and SRA President John D. Graham edited the recently published book *Risk vs. Risk: Tradeoffs in Protecting Health and Environmental Protection* (Harvard University Press). In March, the chapter meeting featured Chris L. Waller of the U.S. Environmental Protection Agency, who discussed "The Role of Computational Chemistry in the Hazard Identification Process." At an April meeting, Hugh A. Barton of ICF Kaiser International spoke on "Noncancer Risk Assessment for Trichloroethylene: Making Choices in Developing Dose-Response Values." The chapter's president-elect for 1996 is Bruce Allen of ICF Kaiser International.

Southern California Chapter held its ninth annual workshop and meeting in May at the University of Southern California. The workshop's two sessions focused on "Current Issues in Risk Management and Human Health." In the first session, the speakers presented techniques useful in risk assessment, as follows: Robin Keller of the University of California, Irvine, "Applications of Multi-Attribute Utility for Decision Analysis"; Michael V. Frank of Safety Factor Associates, "The Analytic Hierarchy Process for Risk Management"; David Johnson of PLG Inc., "How To Calculate Uncertainty and Communicate It for Decision Making"; and Mary F. McDaniel of Unocal Corporation, "How To Develop a Five-Part Answer to Tough Questions." In the second session, a regulatory forum, Sandra Connor of the U.S. Environmental Protection Agency, San Francisco, addressed the new EPA Risk Management Plan Regulations, and Melanie Marty of the California Air Resources Board spoke on the new Air Toxics Risk Assessment Guidelines. Remaining copies of the workshop proceedings will be distributed at the SRA Annual Meeting in New Orleans. For more information about the chapter, visit its Web site at <http://users.aol.com/scsra>.

Advertisements

Environmental and Research Senior Scientist/Toxicologist

The ILSI Risk Science Institute, a nonprofit scientific institute working in the areas of health and environmental risk assessment, seeks a Senior Scientist with a working knowledge of human health risk assessment and expertise in reproductive/developmental toxicology. Position requires a Ph.D. in toxicology or related biological science and 3+ years of professional experience. Successful applicant will work with scientists from diverse disciplines on issues related to human health risk assessment. Responsibilities include coordinating and staffing technical working groups, evaluating and analyzing technical data, drafting and editing manuscripts as well as creation of project concepts and identification and solicitation of funding support for projects. Position level and salary commensurate with experience. Send resume to Human Resources, ILSI, 1126 Sixteenth St., N.W., Washington, D. C. 20036, or fax to (202) 659-3859.

An Equal Opportunity Employer / MF

RAMAS Ecological Software

- ◆ Ecological risk analysis
- ◆ Ecological risk models linked to GIS
- ◆ Population-level ecotoxicology
- ◆ Endangered species

RISK CALC

- ◆ Uncertainty in risk analyses
- ◆ Interval and fuzzy arithmetic

FREE Catalog 800-735-4350, fax 516-751-3435

<http://gramercy.ios.com/~ramas>

Applied Biomathematics



RiskWORLD™

<http://www.riskworld.com>

Visit *RiskWorld* on or after June 13 to read the draft report of the federal Commission on Risk Assessment and Risk Management. Also see abstracts from 1994 and 1995 SRA meetings and reprints of RISK newsletter stories. (*RiskWorld* is a publication of Tec-Com Inc., Knoxville, Tennessee, USA.)

Wanted: Risk Analysis Course Materials

The **Kiev Chapter of the Society for Risk Analysis**, which has 127 members in eight cities of the Ukraine, urgently needs textbooks, monographs, and other materials appropriate for use in risk analysis courses to be taught at the university level. Advice is also sought on which postgraduate courses and what specific training should be offered to students interested in studying risk issues. The chapter hopes that by offering such courses it can transfer the large body of experience in the field of risk analysis to its own country. If you have materials or advice, please contact Naoum Borodianskii, secretary of the chapter, at Kiev International Solomon University, e-mail naoum@pmg.kiev.ua, fax (380) 44 265 1650.



RISK newsletter
is published by
the Society for
Risk Analysis

Lorraine S. Abbott, *Editor*
Mary Bryant, *Associate Editor*
Amy Charlene Reed, *Associate Editor*
Katie Ingersoll, *Production Manager*

Society Officers:

John D. Graham, *President*, 1995-96
Rae Zimmerman, *President-elect*, 1995-96
W. Gary Flamm, *Secretary*, 1995-97
Paul S. Price, *Treasurer*, 1994-96
M. Elisabeth Paté-Cornell, *Past President*, 1995-96

Members of SRA Council:

Caron Chess, 1996
Yacov Y. Haimes, 1996
Tohru Morioka, 1996
David E. Burmaster, 1997
Gail Chamley, 1997
Thomas E. McKone, 1997
Annie M. Jarabek, 1998
Charles A. Menzie, 1998
Robert J. Mulvihill, 1998

Secretariat: Richard J. Burk Jr., Executive Secretary, Society for Risk Analysis, 1313 Dolley Madison Blvd., Suite 402, McLean, VA 22101, telephone (703) 790-1745, fax (703) 790-2672, e-mail sraburkmgmt@aol.com

Publications Chairman: M. Elisabeth Paté-Cornell, Stanford University, Dept. of Industrial Engineering and Engineering Management, Stanford, CA, telephone (415) 723-3823, fax (415) 725-8799, e-mail ng.mep@forsythe

Newsletter Contributions: Send to Editor, RISK newsletter, Tec-Com Inc., 1303 Wilson Road, Knoxville, TN 37912; office numbers: Mary Bryant, telephone (423) 689-5315, fax (423) 688-9888, e-mail bryant@usit.net; Lorraine Abbott, Amy Reed, and Katie Ingersoll, telephone (423) 691-0176, fax (423) 691-0229, e-mail abbott@usit.net

Member News

George Apostolakis became a professor in the Department of Nuclear Engineering at Massachusetts Institute of Technology last August. He is also affiliated with the institute's Operations Research Center and the Alliance for Global Sustainability. His new address is Room 24-221, 77 Massachusetts Avenue, Cambridge, MA 02139-4307, telephone (617) 252-1570, e-mail apostola@mit.edu, fax (617) 258-8863.

Naoum Borodianskii, secretary of the SRA chapter in Kiev, of Kiev International Solomon University, Ukraine, has a new e-mail address: naoum@pmg.kiev.ua.

Stanley H. Levinson of Framatome Technologies has a new e-mail address: slevinson@framatech.com.

Rao V. Kolluru, the SRA Metropolitan (CT-NJ-NY) Chapter president-elect, of CH2M Hill recently gave lectures on risk assessment and management at Peking and Tsinghua Universities in Beijing and on strategic environmental management in Tokyo. Peking University has requested permission to translate into Chinese two books edited by Kolluru, *Risk Assessment and Management Handbook for Environmental, Health, and Safety Professionals* (McGraw-Hill, 1996) and *Environmental Strategies Handbook - A Guide to Effective Policies and Practices* (McGraw-Hill, 1994). Negotiations are also under way to translate these books into Japanese and German.

Vlasta Molak of GAIA UNLIMITED Inc. conducted an interactive workshop in April on "Legislation Impact on Cost-Benefit, Risk Analysis, and Risk Management" for Ohio State government decision makers from the Ohio Senate, House of Representatives, and Governor's Office.

Paul S. Price, SRA treasurer, of ChemRisk, a Division of McLaren-Hart, has a new e-mail address: paul_price@mclaren-hart.com.

SOCIETY FOR RISK ANALYSIS
1313 Dolley Madison Blvd., Suite 402
McLean, VA 22101

Bulk Rate
U.S. Postage
PAID
Permit No. 309
Knoxville, TN