SRA Newsletter, February 2016

2015 SRA Annual Meeting in Arlington, VA, USA: "Empires of Risk Analysis: Science, Policy and Innovation"

In December 6-10, 2015, SRA members and risk enthusiasts gathered at the 35th annual SRA meeting. The topics of this meeting included: a look at the past, a taste of the future and appreciation for what we have.

The future of Risk Analysis presented itself first thing on Monday morning in the youthful and eager faces of the new member, student and young professionals, and SRA Fellows' breakfast. Veterans and first timers discussed research topics and upcoming meeting highlights while sipping the day's first much needed taste of caffeine. Meanwhile a variety of other groups caught up on the year's progress, including the publications and conferences, finance and workshop committees.

Our first plenary on "Risk Analysis, Enterprise Innovation and the Corporate Scientist" featured a group of early-career scientists working in disciplines that are at the forefront of headline-making debates. Marine biologist Nicky Cariglia kick-started the meeting with how risk tactics have led to a dramatic drop in instances of ocean freighter spills; from 24.5 average spills per year in the 1970s, to a current average of 1.8 per year. As a member of the International Tanker Owners Pollution Federation (ITOPF) team, Ms. Cariglia and her colleagues advise 99% of freight fleets on effective response tactics in the wake of a spill of hazardous materials. Established after the Torrey Canyon spill, the ITOPF deploys tailored non-destructive cleanup techniques with a focus on a net

environmental approach. Ms. Cariglia concluded her talk with great advice for aspiring assessment scientists: Listen and learn from the locals, learn from your peers, and always admit when you don't know the solution.

Our next plenary speaker hailed from the research lab of West Virginia University. Dr. Arvind Thiruvengadam recently made headlines following his discovery of a breech in emissions in Volkswagen diesel engines. Uncovering the voluntary "defeat device", a scandal that not only resulted in major diesel model recalls but the resignation of the VW CEO, Dr. Thiruvengadam cautioned scientists of media amplification by stressing the importance of sticking to the facts.

Former US Food and Drug Administration Branch Chief turned entrepreneur Sonna Patel-Raman rounded off the discussion with her experience in the bureaucracy of medical-device regulation. Dr. Patel-Raman spoke of the hurdles new technologies face and the unintentional adverse consequences of risk mitigation. It is unfortunate, she argued, that regulation is now guiding our behavior in technology advances; that the objective is "will the FDA approve" and not "is this drug effective". The bar is set too high for approval; risk mitigation needs to be balanced with innovation.

Parallel sessions and specialty group meetings followed and the day was crowned by the Poster Reception. As usual hundreds of submissions were presented and discussed over food and drink. The reception was judged by two separate panels, resulting in two separate sets of awards; a panel of appointed judges and a digital vote cast by members. Read about first place judges choice winner Pete Vanden Bosch as well as Jinhyok Heo, the only participant to win an award from both panels, on page 11. Congratulations to the following poster winners:

Judges Choice

1st Pete Vanden Bosch "The Goldilocks fallacy"

2nd Kristen Spicer "Poker, beer, and zombies: The application of adult learning theory to teach risk management to undergrads."

3rd Jinhyok Heo, PJ Adams, HO Gao "Quantifying the contribution of individual emissions sources to PM2.5 social costs for designing cost-effective control strategies."

3rd Diane Henshel, Marina Cains, B Hoffman "Framing risk assessment of complex systems"

3rd Matthew Bates, JM Keistler, NP Zussblatt, KJ Plourde, BA Wender, Igor Linkov "Balancing research and funding using value of information and portfolio tools for nanomaterial risk classification."

Members Choice

1st Abhinav Mishra, AK Pradhan "Development of pre-harvest system model to understand the ecology of E. coli O157:H7 in leafy greens production"

2nd Jinhyok Heo, PJ Adams, HO Gao "Quantifying the contribution of individual emissions sources to PM2.5 social costs for designing cost-effective control strategies."

3rd Guillaume Digoin, N deMarcellis-Warin, T Warin "Launching a new product in a buzzing world: the Apple Watch's reputation at risk"

The day concluded for many with the annual TERA, Toxicology Excellence for Risk Assessment, ice cream social.

Tuesday morning began with more committee sessions: grad student breakfast, risk governance new initiative breakfast, audit committee meeting as well as the regions committee where the discussion focused on the upcoming Latin American SRA meeting in São Paolo, Brazil.

The plenary started the day emotionally with some reflection and appreciation. To provide a good overview of the current refugee situation, Jana Mason, Senior Advisor of the United Nations High Commissioner for Refugees, played a film that didn't leave a dry eye in the room.

True perspective of a bad day is gained by the following facts; every year political unrest, war and climate change result in tens of millions of people being removed from their homes, a population mostly comprised of women and children who spend on average 17 years in a state of displacement. As Dr. Mason set out the extent of outward refugee flow, Katherine Newland discussed the future global impact of incoming refugee immigration. Ms. Newland is the Co-Founder and Senior Fellow at the Migration Policy Institute, a non-profit organization that is devoted to the study of the movement of people worldwide. She noted that in the context of migration flows the opposite of risk is opportunity, in this case that diversity is an asset and many successful corporations have founders or CEOs of migrant decent, e.g. Pepsi, Coke, Chobani, Google and Amazon. Ms. Newland noted that despite popular perception migrants are less likely to break the law than non-migrants.

We were then all urged to see how, of the 52 disciplines of risk, each member's work can be applied in solving the future integration, accommodation, mitigation and prevention of crises surrounding human suffering due to displacement.

Throughout the annual meeting, the 2014-2015 SRA President Dr. Pamela Williams co-hosted a series of compelling joint roundtables sponsored by SRA and other professional organizations. The first of the roundtables on Monday featured co-sponsorship with the Society for Benefit-Cost Analysis (SBCA) and focused on the link between risk assessment and economic analysis. The discussion was centered around the progress of the NRC's (2009) proposed new risk-based decision-making framework and to what extent this assessment approach has been implemented.

On Tuesday, the American Industrial Hygiene Association (AIHA) co-sponsored our second roundtable with a timely and highly controversial discussion on the risks and benefits of Electronic Cigarettes. Aspects of the debate on public health, social dimensions and regulation were presented to the group followed by a heated discussion on the future of e-cigarette usage.

The Toxic Substances Control Act (TSCA), the statute that regulates commercial chemicals in the US, has recently been the focus of renewed Congressional attention, fueling the third joint roundtable also on Tuesday, which was co-sponsored by the Society of Toxicology (SOT). Risk assessors, administrative lawyers, regulators, NGO's and a variety of other stakeholders discussed the reform bill as well as its societal and regulatory implications.

Finally, on Wednesday the Society of Environmental Toxicology and Chemistry (SETAC) co-led a roundtable discussion and debate on scientific integrity in publications. A clear call to arms was made for the audience to challenge peers when they believe the scientific principles are not being adhered to, and the importance of publishing negative results dominated the discussion.

Midday Tuesday, attendees congregated for the 'Awards Luncheon and Business Meeting' where lunch is served while annual business is discussed. Dr. Williams presented her year as President, first listing her ambitious set of goals for the past year and providing a recap on what was achieved; this included introducing new member webinars, a reformed newsletter template, the SRA joint roundtable with EU Nanotechnology Safety Cluster, a formal Twitter campaign, and the above mentioned society collaborations through joint roundtables. Dr. Williams presented two new inductees to the Pantheons of Risk, Virginia Apgar and Frances Oldham Kelsey and

honored the passing of some hugely influential individuals in the field of risk: George Alexeeff, Paul Lioy, Philip Morey and Jack Gibbons.

Newly elected members were introduced and awards were presented. Congratulations to the following outstanding 2015 award recipients:

Distinguished Achievement Award: James K. Hammitt, Harvard University
Distinguished Educator Award: Michael Siegrist, ETH Zurich
Chauncey Starr Awards: Pia-Johanna Schweizer, University of Stuttgart and Abani Pradhan, University of Maryland
Richard J Burk Outstanding Service Award: Rae Zimmerman, New York University
Outstanding Practitioner Award: Jo Anne Shatkin, Vireo Advisors, LLC
SRA Fellow Awards: David Hassenzahl, Robert O'Connor, Joseph Rodricks and Jo Anne Shatkin
Presidential Merit Award: David Drupa

Members were given a financial update from Treasurer Jacqueline Patterson and heard a journal recap from Tony Cox. Finally, over dessert the SRA torch was passed on to the newly appointed 2015-2016 SRA President Dr. Jim Lambert and President-Elect Dr. Margaret MacDonell. We wish them great success in achieving their goals for the future of the society.

Wednesday morning meetings included the education committee breakfast, the Environment System & Decisions editorial board meeting as well as the specialty group chairs breakfast.

The unorthodox format of Wednesday morning was a welcome surprise to all attendees. In lieu of plenary presentations, Jim Lambert hosted the all-day Plenary Exhibition in the main ballroom allowing artists from the national capital area and

beyond to portray their work related to the aims of the Society and the themes of the meeting. New additions to the meeting also included gifts for first time members, membership survey, and as always attendees collected their iconic yearly meeting t-shirt.

As the meeting came to a close there was opportunity to reflect on the fact we had all come together to discuss risk in a major capital of the world. It brought home how much this issue of risk has developed into now being central to many of the central political debates of the day; for instance immigration, healthcare or tackling climate change.

A note from President Dr. Jim Lambert

Dear SRA Members:

I am delighted to serve as the SRA President from December 2015 to December 2016.

Thank you and particularly the SRA Annual Meeting Committee for the success of the 2015 Annual Meeting in Arlington, VA USA, a summary of which appears above in this newsletter. We welcomed 900 meeting attendees for presentations, roundtables, mentoring, workshops, plenary sessions, plenary exhibition, exhibitors, business meeting, awards presentations, editorial board meetings, membership drive, etc.

As President, I will grow the role of the Society in advancing global industrial and corporate innovation and in addressing the challenges of world population migrations. I will continue the Society's thirty-five year tradition of excellence in business practices. I will ensure you are aware and involved in the numerous member initiatives including regional activities in Africa and Cuba, topical meetings around the world, nanotechnology new initiative, liaison with related professional societies, mentoring of early- and mid-career scientists, risk science informing technology policy, member communications including the SRA website and newsletters, the Society's journal Risk Analysis, etc.

The SRA Council and I encourage you to become involved in leadership of our SRA Committees, SRA Specialty Groups, and SRA Regional Organizations, all of whose Chairs

and other members are identified at our website www.SRA.org.

Please welcome from the SRA Secretariat Brett Burk as the new SRA Executive Secretary and Jill Drupa as the new SRA Director of Administration. They have assumed the functions of David Drupa who was recognized with an SRA Presidential Merit Award for his ten years of outstanding service as SRA Executive Secretary at the SRA 2015 Annual Meeting. The SRA Secretariat at our worldwide headquarters outside Washington DC has served the Society with wisdom, dedication, and fiscal responsibility since the Society's founding thirty-five years ago.

We are utmost grateful to Pamela Williams who has served as SRA President in 2014-2015 and will lead this coming year 2015-2016 the SRA Publications Committee. Pamela was recognized at the Annual Meeting for her distinguished accomplishments as a scholar, entrepreneur, and Society leader, including as President and Treasurer among several other roles. Please support the SRA President-Elect Margaret MacDonell who will Chair the SRA 2016 Annual Meeting in San Diego, CA, USA, and become the SRA President in December 2016.

Please continue to share your interests, needs, and offers to serve the Society to me, the SRA Secretariat, the SRA Executive Committee, and the SRA Council.

Thank you and regards,
Jim

A note from poster winners

Judges choice 1st place poster winner, Dr. Pete Vanden Bosch

Dr. Pete Vanden Bosch works for the Institute for Defense Analysis and Marymount University. He retired from USAF in 2010 as the chief analyst for NORAD and U.S. Northern Command. His current research interests are in optimization and the psychology of decision-making.

The Goldilocks heuristic is the tendency of decision makers, when presented with a range of options, to choose an intermediate one. In many cases, this heuristic works very well. We drive in the middle of our lane without thinking about the potential risks of hugging one side. We discount outliers in data sets. We seek political compromise.

But when we apply a heuristic to inappropriate situations, it becomes a fallacy. In particular, the Goldilocks heuristic is inappropriate to multicriteria decision-making, and using it to make such decisions is worse than mere guessing. Nevertheless, psychosocial forces driving us to use it are compelling. Pete's contribution was to provide examples from DoD and DHS, quantify the fallacy, and connect the situation to psychosocial drivers like anchoring and prospect theory.

Judges choice 3rd place winner and members choice 2nd place winner, Dr. Jinhyok Heo

At the SRA meeting last December, I was surprised two times when the best poster awards were announced; my poster was selected not only by the conference judges (for the third place) and but also by the participant votes (for the second place)! I presented a new model called "The Air Pollution Social Cost Accounting (APSCA) model," which I developed at Cornell University as a postdoc since last March, right after I had finished my doctoral study at Engineering and Public Policy (EPP) in Carnegie Mellon University. In my opinion my work has been acknowledged for two reasons: scientific achievement and clear presentation.

The APSCA model identifies the sources of air pollution affecting a certain location (or receptor) and quantifies their contributions with unprecedented detail and efficiency. Although it may sound basic, such accounting has been a challenge in air quality research because there exist innumerable responsible emission sources and air pollutants travel long distance (e.g. hundreds of kilometers) while they undergo complex chemical reactions. The APSCA model is built based on a model called "The Estimating Air pollution Social Impact Using Regression (EASIUR, available at <http://barney.ce.cmu.edu/~jinhyok/easiur/>) model," a major part of my PhD dissertation at Carnegie Mellon. Derived from running regressions on a large dataset generated by a computationally demanding state-of-the-art air quality model, the EASIUR model estimates the sum of public health costs or social costs of emissions imposed on large regions surrounding any emission source located in the United States. I found out an efficient method to allocate the EASIUR's social cost estimates to affected locations. By doing the spatial allocations for all the sources in the national emissions inventory, I built the APSCA model. Evaluations show that both EASIUR and APSCA produce estimates comparable to their parent state-of-the-art model but without costly computations.

In addition to what they can already contribute to policy research community, I am very excited about future works. First of all, I am currently working on combining the two models with optimization methods to build another model that will assist in optimal decision-making associated with air quality, energy, and climate change. Next, the two models will be able to keep linking up-to-date science with policy research because they can be updated as new understanding or data (e.g. emissions and meteorology) are fed to their parent state-of-the-art air quality model. Lastly, I plan to derive models for other important regions such as China, India, and Europe. Along the way, my models would open up many other opportunities for original research.

I believe the art of preparing a good poster or presentation lies in creating a pleasant tension between content and audience. Because my audience are often busy and from multiple disciplines, I always try my best to present my research succinctly using plain language, intuitive figures and diagrams, and proper colors and fonts. I learned a lot from my own trial and errors as well as good examples during my PhD study at the strong interdisciplinary research environment of Carnegie Mellon's EPP. I'd like to thank my co-authors: my PhD advisor, Prof. Peter Adams, for his superb guidance on all aspects of my academic life and my postdoc advisor, Prof. Oliver Gao, for his generous support for pursuing my research ideas.

Dr. Jinhyok Heo (jinhyok.heo@cornell.edu)

What makes a good *Risk Analysis* article?

Risk Analysis: An International journal publishes original research articles, perspectives, book reviews, and occasional biographical profiles and Current Topics essays that identify topics of wider public interest that might benefit from the methods and insights of risk analysis. Our main focus has traditionally been on public health, safety, and environmental (HS&E) risk analysis, including risk assessment, modeling, and model validation; risk perception; risk communication and deliberation; and risk management decision-making, policy-making and evaluation. We especially seek important real-world applications where analysis demonstrably improves the management of HS&E risk. Papers that focus purely on reliability engineering, inventory management, financial risk engineering, quality control, project management, healthcare management or other single-discipline topics that involve risks are usually better suited to journals that specialize in those areas. *Risk Analysis* papers are usually characterized by cross-disciplinary methods applied to important real-world HS&E problems; they typically advance the theory and practice of risk analysis in ways that are useful to other practitioners.

We seek to expand *Risk Analysis* as a trusted and trustworthy source for the most-cited, most-used innovations in the theory and practice of HS&E risk analysis; as a preferred outlet for the best work of top authors in the field; as a reference for authoritative and accessible explanations of advances, disseminating useful knowledge and improvements in risk analysis theory and practice; and as an intellectual hub linking and applying

progress in multiple disciplines to improve important real-world risk management and policy decisions. In 2016, we encourage authors to consider submitting policy-oriented papers showing how risk analysis has been used successfully to inform and to demonstrably improve policy decisions and decision processes. This could include papers on global risks and risk management policies and results in areas such as Infrastructure risks analysis; HS&E risks in supply chain networks; import/export hazards; and risk analysis of cybercrime and cyberphysical hazards. We also encourage papers that forge tighter links between risk analysis and benefit-cost analysis.

Further discussion of the historical scope of the journal and what makes for a good *Risk Analysis* paper are offered in Cox et al., 2008 and Guikema and McClay, 2014.

Cox, LA Jr., Greenberg MR, Bostrom A, Haas C, Haimes Y, Landis W, Lowrie KW, Moolgavkar S, North W. (2008) What is the scope of the journal *Risk Analysis*. *Risk Analysis* 28(5): 1135-1136
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