



Society for Risk Analysis

## New Ideas for Risk Regulation

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FOR THE FUTURE

**Alison Cullen,**  
SRA President

**Jonathan Wiener,**  
SRA Past-President

**Phil Sharp,**  
RFF President

**Mark Cohen,**  
RFF Vice-President  
for Research

**Lisa Robinson,**  
Conference Chair

**Matthew Adler**  
**Alberto Alemanno**  
**Laina Bush**  
**James Hammitt**  
**Sandra Hoffmann**  
**Amber Jessup**  
**Alan Krupnick**  
**Dominic Mancini**  
**Stuart Shapiro**  
**Jun Zhuang**

# Conference Summary

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## **PREFACE**

On January 30, 2009, shortly after his inauguration, President Obama directed the U.S. Office of Management and Budget (OMB) to develop recommendations for a new Executive Order on Federal regulatory review in consultation with the agencies. This initiative would replace Executive Order 12866, which was issued by President Clinton in 1993 and is still in force. On February 26, 2009, OMB then requested public comments on improving regulatory processes and principles. In combination, these actions indicated an unprecedented interest in new ideas, resulting in the submission of over 180 comments.

To foster innovative thinking on these issues, the Society for Risk Analysis (SRA) and Resources for the Future (RFF) sponsored the “New Ideas for Risk Regulation” conference on June 22-23, 2009. This meeting brought together invited speakers with diverse perspectives from many disciplines. Participants included current and former government officials, economists and legal scholars, representatives of interest groups, and many others. The conference focused on regulating environmental, health, safety, and security risks, and considered the national and international role of OMB’s Office of Information and Regulatory Affairs (OIRA). This report summarizes the presentations and discussions from the conference.

SRA ([www.sra.org](http://www.sra.org)) is a multidisciplinary, interdisciplinary, scholarly, international society that provides an open forum for all those who are interested in risk analysis. Risk analysis is broadly defined to include risk assessment, risk characterization, risk communication, risk management, and policy relating to risk, in the context of risks of concern to individuals, to public and private sector organizations, and to society at a local, regional, national, or global level.

RFF ([www.rff.org](http://www.rff.org)) improves environmental and natural resource policymaking worldwide through objective social science research of the highest caliber. It is a nonprofit and nonpartisan organization that conducts independent research – rooted primarily in economics and other social sciences – on environmental, energy, natural resource, and public health issues.

The conference video and audio, as well as downloadable copies of the slides and papers from many sessions, are posted on the event websites: <http://www.rff.org/Events/Pages/New-Ideas-for-Risk-Regulation.aspx> and [http://sra.org/events\\_2009\\_risk\\_regulation\\_conf.php](http://sra.org/events_2009_risk_regulation_conf.php). The December 6-9, 2009 SRA Annual Meeting in Baltimore, Maryland will feature related sessions, and articles based on selected presentations will be published in SRA’s journal, *Risk Analysis*, in 2010.

We hope that you will find the following summary informative, and look forward to further discussion and debate of these important issues.

Best,

Lisa Robinson, Conference Chair  
([Lisa.A.Robinson@comcast.net](mailto:Lisa.A.Robinson@comcast.net))

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## SUMMARY OF PRESENTATIONS

The “New Ideas for Risk Regulation” conference, sponsored by the Society for Risk Analysis (SRA) and Resources for the Future (RFF), involved eight panels and two plenary sessions over two days. The speakers included respected scholars from several disciplines, such as economics, law, risk assessment, and psychology, as well as current and former senior government officials. The detailed agenda is provided in Appendix A, and links to each speaker’s biography and publications are provided in Appendix B.

Each panel consisted of four 15 minute presentations and 30 minutes of audience discussion, with the exception of the concluding roundtable which provided general commentary on the proceedings. The presentations and discussions are briefly summarized below; more detailed information is available on the conference websites. Video and audio recordings of the sessions, as well as downloadable copies of the slides and papers from many speakers, are posted at: <http://www.rff.org/Events/Pages/New-Ideas-for-Risk-Regulation.aspx> and [http://sra.org/events\\_2009\\_risk\\_regulation\\_conf.php](http://sra.org/events_2009_risk_regulation_conf.php).

### AGENDA

#### Monday, June 22, 2009

**Panel 1** - OIRA Domestically:

Towards Better Regulation

**Panel 2** - OIRA Internationally:

Towards Global Cooperation

**Speaker** - Sally Katzen

**Panel 3** - Regulating Highly Uncertain and Potentially Catastrophic Risks

**Panel 4** - Integrating Risk Assessment and Risk Management

#### Tuesday, June 23, 2009

**Panel 5** - What does Benefit-Cost Analysis Tell Us? Positive and Normative Justifications

**Panel 6** - Beyond Efficiency:

Incorporating Equity in Regulatory Analysis

**Speaker** - Paul Portney

**Panel 7** - Do We Know What We Prefer? Implications of Behavioral Economics for Research on Preferences

**Panel 8** – Concluding Roundtable: The Future of Regulatory Oversight

### Panel 1 - OIRA Domestically: Towards Better Regulation

The advent of a new Administration provides an opportunity to reconsider the regulatory development process. This panel focuses on the role of the Office of Information and Regulatory Affairs (OIRA) in the U.S. Office of Management and Budget (OMB) in prompting and reviewing domestic regulations as well as its requirements for regulatory analysis, reflecting the views of those who have worked within OIRA, interacted with OIRA as agency representatives, and studied OIRA’s legal authority and effectiveness. (Arthur Fraas, Resources for the Future, Moderator)

*“Analysis on the 17 Most Political Acres on Earth”* - Donald Arbuckle

Dr. Arbuckle is Clinical Professor of Public Administration at the University of Texas and a former OIRA Deputy Administrator. He described the “the balance between respect for analysis and the power of politics in the White House.” While political considerations often overpower analytic results, he indicates that this is not necessarily a bad outcome – the Constitution allows officials to make decisions on whatever grounds they believe are most appropriate. The extent to which analytic results are considered will depend on whether they are viewed as understandable and useful by policymakers. Several characteristics of the White House help protect the role of analysis, such as the separation between offices whose functions are primarily political and those that are more



analytic (such as OMB). OIRA's role is to support both good analysis and the goals of the President, balancing analytic conclusions and political judgment. It also acts as an advocate for restraint in the face of political pleading from those asking for more funding for their own interests.

*“OIRA: What's It Good For?”* - Donald Elliott

Professor Elliott is adjunct Professor of Law at Yale University and Partner at Willkie, Farr, and Gallagher LLP, as well as former General Counsel for the U.S. Environmental Protection Agency (EPA). He considered the strengths and weaknesses of OIRA, advocating greater involvement in setting priorities rather than its current focus on fine-tuning regulations immediately prior to promulgation. Imprecision in the results of benefit-cost analyses often limits their usefulness in determining whether small changes should be made in regulatory standards, but such analyses can be useful in identifying priorities. Some criticisms of OIRA are unfair because they compare a realistic process to an idealistic view of how humans make decisions. However, OIRA is weak in some areas that are best addressed by other groups. In particular, peer review provides a better approach for ensuring the use of high quality science and White House task forces are better suited for integrating different views. OIRA's strengths include coordinating interagency review, convincing skeptical politicians to move ahead, and providing a check on interest groups and agency power by weeding out bad regulations.

*“Using Regulatory Impact Analyses to Inform Regulatory Decisions”* - Richard Williams

Dr. Williams, Managing Director at the Mercatus Center at George Mason University and previously a senior manager within the Food and Drug Administration, discussed how to increase the use of benefit-cost analysis to inform decisions. He notes that agency managers often view regulatory analyses as a means to get their decisions through OMB, and suggests that OMB ask each manager how they used the analysis to make their decision. He also indicates that the Executive Order requirements for economic analysis are directed at managers, not economists. In addition, he suggests that the Administrative Procedures Act should be amended to require “nudging” agencies to choose less restrictive options to achieve their goals. This could be accomplished by requiring more analysis for more restrictive regulatory options, including pairwise analysis that starts from the least restrictive option and continues through the option selected.

*“Defragmenting the Regulatory Process”* - Stuart Shapiro

Dr. Shapiro, Assistant Professor at Rutgers Edward J. Bloustein School Of Planning And Public Policy and a former OIRA manager, focused on “defragmenting” the regulatory process by consolidating and strengthening requirements. He identifies eight statutes and nine executive orders that affect many of the rules promulgated by Federal agencies. He notes that agencies often comply with the executive orders (other than Executive Order 12866 on regulatory review) simply by inserting a paragraph of boilerplate text into their analyses, noting whether the regulation is expected to affect the issue of concern (e.g., children, environmental justice) – rather than conducting more thorough assessment. The effect of the statutes on regulation, particularly the Paperwork Reduction Act, the Regulatory Flexibility Act, and Unfunded Mandates Act, appears small in proportion to the costs of meeting their requirements. The goals of these executive orders



and statutes could be better met by improving benefit-cost analysis and including more rigorous assessment of distributional impacts. In addition, requirements for public comment, as well as executive, legislative and judicial review, should be retained and/or strengthened.

### *Audience Comments and Discussion*

Issues raised in the discussion included: (1) improving consideration of the effects of regulations on small businesses; (2) providing incentives for enhancing the quality of regulatory analysis; (3) using multi-criteria analysis to increase transparency; (4) ensuring that peer review is truly independent; (5) making OIRA's political role more transparent; (6) shifting the burden of proof for chemical safety from government to private industry; (7) assessing OIRA's role in de-politicizing White House debates by providing analytic results; and (8) identifying ways in which the Unfunded Mandates Reform Act requirements can be more effective than the results of benefit-cost analysis.

## **Panel 2 - OIRA Internationally: Towards Global Cooperation**

As nations work to improve the quality of their policies and legislation, there are substantial opportunities for mutual learning. This panel explores the successes and failures of US, European Union (EU), and other regulatory reform efforts, highlights opportunities to learn from other's policy innovations, and examines options for increasing international cooperation in evaluating and improving the quality of each nation's policies and laws. (Dominic Mancini, U.S. Office of Management and Budget, Moderator)

### *"Better Regulation in the EU: Learning by Doing"* - Marianne Klingbeil

Dr. Klingbeil, the Director for Better Regulation, Evaluation, and Impact Assessment in the Secretariat-General of the European Commission, discussed the EU's requirements for impact assessment. The EU applies impact assessment to primary legislation, not only to its implementation through regulation or other measures. It first developed basic requirements in 2002, then enhanced and expanded them. The EU requires an assessment for all legislative proposals with substantial impacts; over 450 have been completed since 2003. The assessments integrate consideration of economic, social, and environmental impacts, and include monitoring and evaluation of the program once implemented. Each assessment consists of a standardized 30-page document written for the general reader, with technical annexes, and is subject to independent quality control provided by the EU's Impact Assessment Board.

### *"Transatlantic Regulatory Impact Assessment: Tomorrow's Dream or Realization"* - Alberto Alemanno

Dr. Alemanno is Associate Professor of Law at HEC Paris and worked previously at the European Court of Justice. He described the results of over 20 years of transatlantic regulatory cooperation. The EU-US partnership developed to ensure that regulatory actions do not create trade obstacles. It began in the 1990s with a focus on harmonization and mutual recognition of equivalent standards, resulting in cooperation at a vertical, sector-specific level. In 2002, it shifted to focus on horizontal cooperation. Participants developed a common set of principles to improve the dialogue on

regulatory practices, impact assessment, and risk assessment. However, impact assessment in the EU and the US differs in many important respects, including the individuals and institutions involved, and its timing, scope, and methods. While this dialogue has promoted better understanding of “how regulation is regulated,” the chief need is now to develop better methods for incorporating impacts on international trade and investments in these assessments. A common method would promote transparency and consultation, complementing the World Trade Organization (WTO) system in helping to prevent trade disputes.

*“Fostering Quality Regulation for the 21st Century”* - Stephane Jacobzone

Dr. Jacobzone, Principle Administrator in the Organization for Economic Co-operation and Development’s (OECD’s) Regulatory Policy Division, discussed recent trends in global regulatory reform. OECD acts as a clearinghouse, promoting good practices and identifying emerging issues. Since 1995, it has issued three sets of related principles, resulting in a significant increase in the number of countries following best practices. Almost all OECD countries now have explicit policies promoting regulatory reform, and most have formal consultation processes and require impact assessment. While the institutional framework has been improved, further strengthening of regulatory oversight bodies is desirable in many countries. The lessons from the OECD experience include the critical importance of leadership, the role of crises as a catalyst for change, the harmful effects of a short-term perspective, the need for central regulatory bodies to change the administrative culture, the need for a communication strategy to build a constituency for reform, and the importance of determining the right level of intervention.

*“Toward a Global Policy Laboratory”* - Jonathan Wiener

Professor Wiener is the immediate past President of SRA as well as Perkins Professor of Law, Professor of Environmental Policy, and Professor of Public Policy at Duke University, and a University Fellow at RFF. He noted that both the US government and the European Commission now support the conduct of regulatory impact assessments, but they differ on a number of specific issues, including the institutional roles of their regulatory oversight bodies, the timing and conduct of impact assessments, the types of proposals for which impact assessment is required, and the analytic methods used in the impact assessments. For example, among other elements, they differ on which regulations deserve which degree of review (dollar impact thresholds versus “proportionate analysis”), the value of a statistical life, the analysis of international impacts, the assessment of legislative proposals, and the authority of the oversight body to reject or prompt regulations. Rather than focusing solely on uniform harmonization, however, Professor Wiener suggested that the US, EU, and other jurisdictions should use this diversity to test and evaluate different approaches. This effort, a “global policy laboratory,” could involve both observing the effects of different approaches, and, more proactively, purposefully designing experiments that test different approaches. These studies would promote learning and an evidence-based approach to improving the conduct of impact assessments.



*Audience Comments and Discussion*

Issues raised in the discussion included: (1) developing a system for removing unnecessary or inefficient regulations currently on the books; (2) improving our understanding of the impact of different groups on regulatory development, and encouraging experimentation across a larger number of jurisdictions, as part of the proposed global policy laboratory; (3) involving China in regulatory reform efforts; (4) moving towards more consideration of global impacts in US analyses of climate change and other policies; and, (5) collecting information on the administrative costs of developing different types of regulations, including the costs of conducting the regulatory analysis.

**Speaker - Sally Katzen: *Which Way the Political Winds Are Blowing***

(John Morrall, U.S. Office of Management and Budget (retired), Moderator)

Professor Katzen of the Podesta Group, a former OIRA Administrator and member of the Obama transition team, discussed the history of centralized regulatory review as context for understanding the actions that may be undertaken by the new Administration. Until the mid-1960s, regulatory development was highly decentralized. As the number of statutes requiring economy-wide regulation began increasing rapidly, the process for centralized White House review evolved from narrow consideration of selected issues to a much broader scale. Under President Reagan, the focus shifted from regulatory development to regulatory relief, and Executive Order 12291 was issued to both define the process (centralized review) and the substance (regulations should provide net benefits). Several concerns and partisan debates then led to demands for reform. OIRA review was seen as a “black hole” from which regulations never emerged, and the requirements for benefit-cost analysis were seen as biased against regulation because costs can be easier to assess than benefits. However, President Clinton did not eliminate centralized review. Instead, in replacing Executive Order 12291 with Executive Order 12866, he developed a more flexible benefit-cost test, one that encouraged consideration of nonquantified effects and distributional outcomes in determining whether benefits “justify” costs. In addition, OIRA’s role was limited to “significant” proposals and its process became more transparent. Subsequently, the Bush Administration made relatively few changes to the Executive Order, but OIRA substantially increased the requirements it imposed on the agencies by issuing a number of guidance documents and OMB Bulletins.

The new Obama Administration is likely to continue to focus on data-driven decisionmaking. Revisions to Executive Order 12866 are therefore expected to retain the requirement for benefit-cost analysis, but with increased focus on the implications of behavioral economics and on the assessment of distributional effects and equity. OIRA’s role in centralized review is also likely to continue, which is consistent with the President’s early actions in bringing more policy-making into the White House by increasing the number of “czars” responsible for particular issues. While transparency in OIRA interactions with outside groups will be maintained, it is unclear whether there will be greater transparency in OIRA’s dealings with the agencies. As the elected official in charge of the Executive Branch, the President requires mechanisms to coordinate policy across agencies and to ensure that his goals are met.



### *Audience Comments and Discussion*

Issues raised in the discussion included: (1) recognizing the importance of the phrase, “to the extent permitted by law,” in Executive Order 12866; (2) debating whether regulatory review and assessment should be removed from the White House and instead conducted by an independent, nonpolitical organization; (3) learning from what other countries are doing without necessarily subjecting the US to international law; (4) assessing the extent to which White House “czars” fragment the process and limit agency input, or help coordinate and facilitate policy development; and, (5) considering how differences in political systems limit the US’s ability to apply the EU’s process for centralized impact assessment of legislation.

### **Panel 3 - Regulating Highly Uncertain and Potentially Catastrophic Risks**

Risks that are highly uncertain but potentially catastrophic, such as climate change, terrorism, or natural disasters, provide special challenges for regulators. Difficult issues include determining the effects of regulations on the likelihood of catastrophic outcomes, the ways in which government agencies should address the associated fear, the extent to which regulations should be precautionary, and the appropriate roles of the public and private sectors. (Jennifer Baxter, Industrial Economics, Incorporated, Moderator)

*“The Five Neglects: Risks Gone Amiss”* - Richard Zeckhauser

Dr. Zeckhauser, the Frank P. Ramsey Professor of Political Economy at Harvard’s Kennedy School of Government, discussed the shortcomings of individuals making risk-related decisions, whether choosing for themselves or as agents for others or for institutions, including the institution of society at large. Individuals often fail to incorporate in their decisionmaking five elements identified as critical for rational decisions: consideration of probability, valuation of potential benefits and losses, accurate use of (subjective) probability and statistics, delineation and evaluation of all available alternatives, and incorporation of all benefits and costs accruing to the decision maker and all external parties. Failure to consider the five criteria give rise to the five neglects: (1) probability neglect, (2) consequence neglect, (3) statistical neglect, (4) solution neglect, and (5) external risk neglect. These neglects are illustrated with two case studies: reclamation of mines in the American West, where the external risks of water body acidification and contamination were ignored, and the Pontine Marshes below Rome, where farmers ignored the effects of their actions on saltwater intrusion.

*“Duty to Inform When All Hell Could Break Loose”* - Baruch Fischhoff

Dr. Fischhoff, the Howard Heinz University Professor at Carnegie Mellon University and a past President of SRA, focused on developing trusted, comprehensible information about the risks and benefits of possible actions when faced with extreme events. Scientifically sound communication involves: (1) identifying the information essential to individual decisionmaking; (2) formulating messages that draw on behavioral decision research; and (3) evaluating and iterating the communication as needed. Individuals will usually act sensibly if they receive concise, credible, and comprehensible information; are judged by their own goals; can control their environment; and have

basic decision-making competence. Key issues to address include identifying defensible, usable rules for novel but predictable situations; creating socially credible, scientifically-sound standards for disasters while protecting standards for other contexts; strengthening the public's ability to respond to and recover from extreme events; encouraging the public to make better choices and have warranted faith in the authorities without creating new vulnerabilities; and, after an incident, determining the appropriate tradeoffs between successful criminal investigation and returning to normal. In addition, better organization is needed, including improvements in procedures, staffing, and leadership.

*“Considering Risk in Developing a Regulatory Response to Climate Change” - Mort Webster*

Dr. Webster, Assistant Professor of Engineering Systems at the Massachusetts Institute of Technology, discussed the need for risk-based information about climate change. Such information is important because of the potential for low-probability high-consequence outcomes in the form of extreme changes to the earth's climate and the impacts of those changes on economic and natural systems. However, much of the debate over policy responses and the scientific analysis to support these decisions rely on deterministic framing. For example, choosing a long range stabilization target for greenhouse gas concentrations is a key decision now faced by policymakers. Relying on deterministic estimates of the mean temperature change associated with different carbon dioxide concentrations leads to different conclusions about the desirable target than would a probabilistic approach. Effective approaches for communicating probabilistic information are also needed. This type of information is beginning to be integrated into the policymaking process. For example, the U.S. Environmental Protection Agency (EPA) is assessing the marginal reductions in risks associated with different abatement levels. The scientific community can help by providing more probabilistic risk-based results, as well as more information about impacts that matter to the public and regulators, in a useful form.

*“At War with the Weather and Other Extreme Events” - Howard Kunreuther*

Dr. Kunreuther, Cecilia Yen Koo Professor of Decision Sciences and Public Policy and Co-Director of the Wharton Risk Management and Decision Processes Center, considered preparing and recovering from large-scale disasters. Data on losses from natural disasters and other extreme events suggest we are now in a new era of catastrophes. Hurricane Katrina alone caused \$45 billion in insured losses, the most costly disaster the insurance industry has ever experienced. Of the 20 most costly events to this industry, half of them occurred since 2001. Mitigation measures, such as strengthening the roofs of homes, can significantly reduce these losses. However, property owners may not invest in these measures because they focus on short-term return on their investments, engage in hyperbolic discounting, underestimate the likelihood of disaster, face problems in financing upfront costs, expect government disaster relief programs to cover most of their losses, and move frequently. New programs that involve long-term contracts, such as long-term property insurance and long-term loans for investing in protective measures, are needed to avoid these problems. Such insurance programs should include premiums that reflect risk and should address concerns about equity and affordability.



## Audience Comments and Discussion

Issues raised in the discussion included: (1) being realistic about behavioral responses in communicating both with the public and with decisionmakers; (2) motivating effective government (as well as private) involvement in long-term problems such as flooding risks; (3) considering the appropriate role for local planning in addressing wide-scale potentially catastrophic risks such as climate change; (4) developing a new framework that redefines the role of insurance generally; (5) improving the understanding of differences between expert and public evaluation of risks such as climate change.

### Panel 4 - Integrating Risk Assessment and Risk Management

Better integration of science, economics, and decisionmaking has long been a significant concern in regulation. Most recently, the National Research Council report, *Science and Decisions: Advancing Risk Assessment*, made several recommendations for changing how these issues are addressed by the U.S. Environmental Protection Agency. These recommendations, as well as preceding proposals and newer ideas for fundamental change, have significant implications for how environmental and numerous other risks are assessed and regulated. (Kara Morgan, U.S. Food and Drug Administration, Moderator)

*“Assessing and Managing Risk: First Things First”* - Gail Charnley

Dr. Charnley is a toxicologist and Principal at HealthRisk Strategies as well as a past SRA President. She discussed the evolution of regulatory risk analysis and the need for greater focus on public health outcomes. In recent years, several expert committees have recommended increasing the extent to which risk assessment is driven by the type of decision it is intended to inform, adding an initial problem definition and scoping phase to the traditional framework. A public health approach is needed that emphasizes prevention and effectiveness, including characterizing adverse health effects, identifying possible causes and their relative contribution, and targeting risk management actions on those hazards with the largest impacts on public health. To implement this approach, more surveillance data are needed to assess interventions' effects on public health, moving away from the current focus on permitting, enforcement, and standard-setting activities. Such an approach appears feasible within current statutory requirements, which (while focused on regulating individual contaminants) do not prohibit following more of a top-down approach that addresses reductions in the risks of illness and death.

*“Integration of Risk Assessment and Risk Management: The Need for Caution”* - Bernard Goldstein

Dr. Goldstein, Professor of Environmental and Occupational Health at the University of Pittsburgh and a previous SRA President, described the need for a good problem statement to justify radical changes in the interface between risk assessment and risk management. The goal of risk assessment should be to develop an actionable indicator, and will be viewed differently depending on the context. For example, toxicologists are interested in setting priorities for new research, while risk managers are interested in addressing identified hazards. There are three problems with risk assessment currently. First, weight-of-evidence approaches involve putting a “bright line” through

what is best viewed as a continuum, focusing debate on resolving small scientific disagreements about the appropriate dividing line. Second, for many compounds, the societal desire to be protected against low level risks means extrapolating from the available data to levels where the results cannot be verified. Third, risk assessment is more suitable for addressing population-based public health than for individual risk, because the importance of different hazards will vary depending on the context.

*“Solution-Focused Risk Assessment: Reversing the ‘Red Book’ Relationship”* - Adam Finkel

Dr. Finkel is a Fellow at Penn Law School and the Executive Director of its Program on Regulation, as well as a Professor of Environmental and Occupational Health at the University of Medicine and Dentistry of New Jersey. He proposed a new approach, “Solution-Focused Risk Assessment (SFRA),” which reverses the traditional sequence from the 1983 “Red Book” (National Research Council, *Risk Assessment in the Federal Government: Managing the Process*). Both approaches begin with a signal of harm, but the next steps vary. The Red Book approach moves directly into the risk assessment process, while the SFRA approach first considers what products or processes lead to exposures and what alternatives exist. It is designed to encourage more innovative thinking about alternatives and more holistic consideration of risks. In addition, it moves towards decisions more quickly, by establishing natural stopping points for the analysis; melds risk-based and technology-based standard-setting; supports assessment of the value of additional information; involves stakeholders in commenting on decisions rather than on science; focuses on making good decisions rather than on developing best estimates; highlights the need to improve the estimation of uncertainty and variability in regulatory costs; and focuses attention on risk-risk tradeoffs.

*“Risk Assessment and the Behavioral Science of Economics”* - Sandra Hoffmann

Dr. Hoffmann, an economist and Fellow at Resources for the Future, discussed the role of economics in risk assessment. Traditionally, economic analysis has been used primarily to assess the costs and benefits of alternative risk management decisions. However, economics is a behavioral science and as such can contribute to risk assessment as well. In particular, estimating exposure and characterizing risks, both in the baseline and in response to policy options, can be improved by considering the role of economic decisionmaking. For example, dietary exposures to pesticides in produce and mercury in fish depend in part on supply and demand conditions in related markets. As a result, involving economists in risk assessment could yield more accurate risk estimates as well as better integrate the risk assessment with the benefit-cost analysis. To determine whether encouraging such involvement is worthwhile, review of existing practices is needed. Case studies can then be conducted to evaluate the potential contribution of economics and to develop a more systematic process for pursuing interdisciplinary risk assessments.

*Audience Comments and Discussion*

Issues raised in the discussion included: (1) recognizing the relationship of risk analysis to decision analysis; (2) considering the implications of normative and positive economics, as well as behavioral economics, for risk assessment and risk management; (3) recognizing the Red Book discussion (pp. 38-40) of adapting risk assessment to the risk management decision; (4) assessing



whether a problem results from the risk assessment process, or from the statutory or other factors that establish the requirements for the assessment; and (5) being selective in deciding when it is important to consider various factors, rather than trying to “always think about everything.”

### **Panel 5 - What does Benefit-Cost Analysis Tell Us? Positive and Normative Justifications**

While benefit-cost analysis has long been the dominant method for assessing regulatory impacts, its focus on individual preferences and on monetary valuation of nonmarket benefits has been the subject of some debate. This panel discusses the role of benefit-cost analysis as a positive or normative framework. It also considers alternatives to benefit-cost analysis, including cost-effectiveness analysis and utilitarian decision analysis, as aids to decision-making. (Joseph Cordes, George Washington University, Moderator)

*“Positive and Normative Justifications for Benefit-Cost Analysis”* - James Hammitt

Dr. Hammitt is Professor of Economics and Decision Sciences and Director of the Harvard Center for Risk Analysis. He discussed justifications for benefit-cost analysis and the implications for its legitimacy as a guide to policy choice and for the methods used in its conduct. Under the positive justification, benefit-cost analysis attempts to determine whether a population could devise a set of transfers such that it unanimously prefers the project with these transfers to the status quo. Under the normative justification, benefit-cost analysis attempts to determine whether a population should perceive itself as better off with the project rather than the status quo. The two justifications are inconsistent and each have limitations. The difference arises because benefit-cost analysis typically assumes that individuals act in accordance with standard economic theory. There is much evidence that individuals do not act in this way, and so may not prefer a change in circumstances that standard economics predicts they should prefer. The positive justification is consistent with respect for individual autonomy and provides clarity about the objective of the analysis, but can require endorsing “irrational” preferences. The normative justification implies endorsing policies that the population would not prefer and requires determining which preferences are normatively acceptable.

*“Prospects for Utilitarian Decision Analysis”* - Jonathan Baron

Dr. Baron, Professor of Psychology at the University of Pennsylvania, advocated applying utilitarian decision analysis (based on utility) as a modification of cost-benefit analysis (based on money). This approach would remove the influence of cognitive biases on the expression of values, rather than accepting these values as democratic expressions of preferences. To elicit such judgments, researchers may need to abstract the essentials and remove realistic context that can lead to biases, such as whether an outcome is caused by nature or human activity. Studies can be designed to avoid range effects (insensitivity to magnitude or scope), to avoid bias associated with irrelevant factors (cost, act or omission, distribution), and to take fairness into account. For example, sensitivity to scope can be improved by asking respondents to report their willingness to pay per unit, or by asking them to report both a monetary amount and a quantity of the good. Conjoint analysis is also useful, if respondents attend to all of the attributes that are varied so that

trade-offs can be measured. Implementing this framework requires judgment, not reliance solely on market data.

*“Self-Selection in Cost-Effectiveness Analysis”* - David Meltzer

Dr. Meltzer is Associate Professor in the Department of Medicine, Department of Economics and Graduate School of Public Policy Studies, as well as the Director of the Center for Health and the Social Sciences, at the University of Chicago. He discussed the potential importance of self-selection for evaluating environmental and health care policy. The self-selection hypothesis is that individuals differ in their preferences concerning alternate programmatic choices, and that the choices they make given those preferences may alter the consequences of interventions. Traditionally, analysts average preferences (utilities) across individuals. Because utilities may vary, influencing exposures and the expected benefits of treatment, this approach may lead to misleading conclusions. Instead, analysts should consider the importance of self-selection and rely on empirical studies or models that account for behavior. The implications vary depending on the voluntariness of the program. Where interventions are voluntary (such as most medical treatment), consideration of self-selection will improve the analysis. Where interventions are involuntary (as in many environmental and safety regulations), population estimates may be appropriate. In these latter cases, the harms caused by the hazards as well as the effects of the regulations are more likely to be non-selectively distributed.

*“What Should Benefit-Cost Analysis Tell Us?”* - Maureen Cropper

Dr. Cropper is Senior Fellow at Resources for the Future and Professor of Economics at the University of Maryland. She discussed how benefit-cost analysis should be used, providing examples related to the assessment of hazardous air pollutants. She notes that people should be asked to value objectively measured rather than perceived risks, and that the valuation measures used should be those that have tested whether people understand what they are valuing. Revealed preference studies should not be used unless they demonstrate that people accurately perceive associated health effects. This approach can identify efficient and inefficient policies, assuming people are well informed about objectively measured risks. However, it should not be the sole criterion for making a regulatory decision: equity and distributive considerations matter. The distribution of benefits across members of society should be clearly documented to help identify when equity-efficiency trade-offs are needed, but scale-independent equity measures should not be valued in dollar terms.

*Audience Comments and Discussion*

Many of the discussants referenced Paul Portney’s 1992 *Journal of Policy Analysis and Management* article, “Trouble in Happyville,” introduced in Dr. Hammitt’s presentation. In that article, Portney asked what should be done in a case where residents are willing to pay for removal of a drinking water contaminant they believe is carcinogenic, even though they know that the experts have found that the contaminant tests negatively for carcinogenicity.



Issues raised in the discussion included: (1) addressing public overreaction to risk information; (2) recognizing the many relevant factors left out of the Happyville example; (3) focusing on understanding what people would prefer if they were well-informed; (4) recognizing that we only observe choices, which the analyst then explores to see if they appear coherent; (5) dealing with decisions based on impressions rather than science; (6) debating whether inequality measures should be valued separately alongside risks; (7) addressing misunderstanding of probabilities by comparing the results of presenting them in different ways; (8) determining which normative framework is appropriate; and (9) balancing the limitations of stated preference research against the limitations of revealed preference research.

## **Panel 6 - Beyond Efficiency: Incorporating Equity in Regulatory Analysis**

While Federal agencies have been required to consider the distributional impacts of their regulatory actions for many years, these effects are not subject to the same sort of rigorous assessment as economic efficiency. This session discusses how to improve consideration of distributional impacts and equity. (Kelly Maguire, U.S. Environmental Protection Agency, Moderator)

*“Distributional Effects of Environmental Policy”* - Don Fullerton

Dr. Fullerton is Gutsell Professor in the Department of Finance and Institute of Government and Public Affairs at the University of Illinois. He reviewed the research on the distributional effects of environmental and energy policy, and finds that many effects of such policy are likely to be regressive. First, such policies raise the price of fossil fuel-intensive products, expenditures on which are a high fraction of low-income budgets. Second, if abatement technologies are capital-intensive, then any mandate to reduce pollution may induce firms to use more capital. If demand for capital is raised relative to labor, then a lower relative wage may also hurt low-income households. Third, pollution permits handed out to firms bestow scarcity rents on well-off individuals who own those firms. Fourth, low-income individuals may place more value on food and shelter than on incremental improvements in environmental quality. If high-income individuals receive the most benefits from pollution abatement, then this effect is regressive as well. Fifth, low-income renters miss out on house price capitalization of air quality benefits. Well-off landlords may reap those gains. Sixth, transition effects could well hurt the unemployed who are already at some disadvantage. These six effects might all hurt the poor more than the rich.

*“Incorporating Equity Metrics into Regulatory Review”* - Matthew Adler

Professor Adler, Leon Meltzer Professor of Law at the University of Pennsylvania, discussed the range of currently available quantitative frameworks for assessing equity and advocated the use of Atkinsonian social welfare functions in regulatory analysis. The possible frameworks, each of which is widely employed in some scholarly literature, include: (1) inequality metrics; (2) poverty metrics; (3) incidence analysis; (4) social gradient metrics; (5) social welfare functions and benefit-cost analysis with distributive weights; and (6) quality-adjusted life year (QALY)-based cost effectiveness analysis with equity weights. Of these options, social welfare functions are the most attractive, because they are sensitive to the population-wide distribution of well-being and provide guidance for balancing equity against overall well-being or efficiency. To ensure that equity is

considered in regulatory analyses, OMB should instruct agencies to quantify distributive impacts. Its guidance should include detailed discussion of existing metrics and recommendations, requiring that agencies explain their choice of metric. Where a metric favors some policy option, and an agency ends up choosing a different option, the choice should be explained in the regulatory analysis.

*“Incorporating Equity in Regulatory and Benefit-Cost Analysis”* - Scott Farrow

Dr. Farrow is Professor and Chair of the Department of Economics at UMBC. He discussed the need for more useful descriptive and normative information on distributional impacts in regulatory analyses. First, OMB should enforce existing requirements for descriptive information about distributional effects and provide guidance on the types of measures to be provided, such as various inequality statistics already published by the U.S. Bureau of the Census. In addition, more normative analysis is needed. OMB should convene multi-disciplinary advisory panels to: (1) review whether a reasonable reading of key legislation identifies groups who are not to be made worse off as a result of government action and request estimates of the costs to compensate any such sub-groups; and (2) provide advice on the sensitivity analysis of distributional weights, including inequality aversion for which a value of zero is currently required with no guidance on a test of its sensitivity.

*“Whose Injustice? Relevant Inequalities and How We Should Address Them”* - Wilhelmine Miller

Dr. Miller is Associate Research Professor in the Department of Health Policy at George Washington University. She argued that regulatory analysis need not, and probably cannot, adequately address distributive impacts quantitatively within a benefit-cost or cost-effectiveness framework. Because the relevant distributive dimensions and implications are so various, they are better captured in a narrative and discursive process that accompanies the quantitative analysis. The primary task of regulatory analysts and decisionmakers is to improve societal well-being with respect to a certain set of activities (e.g., food processing) or a specific domain (e.g., air quality), and such well-being includes considerations of equity or fairness as well as economic utility. Addressing these issues requires identifying the most salient distributive consequences of a particular regulatory intervention; considering where responsibility for rectifying unequal burdens and benefits rests (with the regulatory agency or elsewhere); and assessing the relative merits of quantifying the distributive impacts versus addressing these impacts discursively. Opportunities for public engagement need to be developed at the appropriate level, pairing modes of engagement with the appropriate venue. Some forms of public engagement (e.g., notice and comment, hearings, advisory committees) are better suited for some topics and venues than others.

#### *Audience Comments and Discussion*

Issues raised in the discussion included: (1) determining the extent to which equity is already embedded in estimates of individual willingness to pay for public programs; (2) addressing uncertainty in the Atkinsonian inequality aversion coefficient; (3) considering the role of emotions that are not picked up in quantitative indicators; and (4) assessing equity impacts internationally as well as nationally.



**Speaker - Paul Portney: *Benefit-Cost Analysis and Common Sense: Friends or Foes?***  
(Alan Krupnick, Resources for the Future, Moderator)

Dr. Portney is currently the Eller College of Management Dean, Halle Chair in Leadership, and Professor of Economics at the University of Arizona, and was formerly the RFF President. He discussed the need to consider when to take the results of benefit-cost analysis seriously, and when to be more skeptical. Benefit-cost analysis is essentially an institutionalized version of common sense. In making any decision, we think about the pros and cons, weight them, then decide what is best for us. While benefit-cost analysis is usually denominated in dollars, it could be based on any quantitative metric, or could be qualitative in whole or in part. We should ignore those who think that benefit-cost analysis is unethical. Particularly in this era of large deficits, its clear that resources are scarce and that we need to think about how to best allocate them for the common good – it would be unethical not to.

However, individuals idiosyncratically find that at times the analytic results make them uneasy. One example is estimates of the shadow price of a gallon of gas. A National Academies committee found that the externalities associated with energy import dependence and with climate change are equivalent to a \$0.25 tax per gallon; a subsequent RFF review of additional research estimated this tax as \$0.18. Dr. Portney believes that both numbers feel too low in light of the seriousness of the problems. A second example is the relationship between fine particles and premature death. The epidemiological research suggests that a five to seven percent reduction in fine particles in ambient air nationwide will avert 12,000 to 15,000 premature deaths annually. He believes that this range seems far too high. However, in both cases, the estimates are supported by research that has no obvious flaws.

The discomfort with these estimates based on feelings rather than the empirical evidence. When faced with this sort of unease, the analyst bears the burden of proof – of figuring out what is wrong, if anything, with the available studies and conducting more research. If asked what values to use for regulatory analysis, the analyst should rely on the best available research despite any discomfort.

*Audience Comments and Discussion*

Issues raised in the discussion included: (1) providing some intuition behind the estimates for fine particles, which are only a small fraction of the deaths nationally; (2) noting that intuition and common sense are often proven wrong by research; (3) discussing the counterbalancing effects of climate change, which is expected to reduce fine particles; (4) noting that institutional and legal constraints designed to prevent capricious decisions can also limit the ability to address issues such as equity; (5) discussing whether additional data or research could lead to more confidence in the values, or whether these beliefs are unshakable; and, (6) noting the contradiction between the desire to reduce foreign oil dependence and efforts to encourage more foreign production.

## **Panel 7 - Do We Know What We Prefer? Implications of Behavioral Economics for Research on Preferences**

Nonmarket benefits of regulatory policies, including reduced risks to human health and the environment, are often valued using stated or revealed preference methods. However, work by behavioral economists has challenged the assumptions that underlie these methods, suggesting that individual preferences often diverge from the standard tenets of rational choice. This panel considers diverse perspectives on this problem. (James Hammitt, Harvard University, Moderator)

*“The Implications of Behavioral Economics for Stated Preference Research”* - Alan Krupnick

Dr. Krupnick is an economist and Senior Fellow and Director of Research at Resources for the Future. He discussed the insights provided by behavioral economics for stated preference (survey) research on monetary measures of preferences. Behavioral economics shows that the biases and anomalies found in stated preference research are also found in actual behavior, and provides important insights in six key areas. First, concerns about coherent arbitrariness should be addressed by accounting for or avoiding starting point bias. Second, because experienced subjects exhibit fewer anomalies, experience should be integrated into stated preference research. Third, practice and repetition should be used to produce stable and theoretically-consistent preferences. Fourth, choices should be limited because complexity can lead to bad decisions. Fifth, because context matters and people tend to value what they spend a lot of time doing, researchers need to attend to context dependence and keep respondent effort constant across treatments. Sixth, because joint decisions may differ from individual decisions, care must be taken in distinguishing household from individual preferences. Given these issues, stated preference research has an advantage over revealed preference research, because it allows the researcher more control over information provision.

*“How are Preferences Revealed?”* - David Laibson

Dr. Laibson is the Robert I. Goldman Professor of Economics at Harvard University. He discussed the differences between revealed preferences (the choices people make) and normative preferences (the choices they should make given their actual interests). While it at times makes sense to assume that these types of preferences are identical, this assumption is often violated. Five factors increase the likelihood of disparity: passive choice (the tendency to adopt defaults); complexity (which delays choice, biases choice towards simpler options, and adds confusion); limited personal experience (experience is the primary way of learning); third-party marketing (persuasion and shrouded attributes); and timing (actions are not always consistent with intentions, especially when effects are immediate). Six approaches jointly contribute to identifying normative preferences: structural estimation (econometric modeling with both psychological biases and normative preferences); active decisions (e.g., deadlines, forced choices, or tied choices); asymptotic choice (short-run passivity, long-run action); aggregated revealed preferences (medians and averages more sensible than individual results); reported preferences (may not match behavior but can express long-term goals); and informed preferences (views of experts or educated consumers). Each approach uses behavior to infer some property of normative preferences without equating them to revealed preferences.



*“Behavioral Economics and Preference Elicitation: Two Cheers and Six Nagging Questions”* - Jason Shogren

Dr. Shogren, the Stroock Professor of Natural Resource Conservation and Management at the University of Wyoming, discussed the ways in which behavioral economics improves our understanding of the dollar values people assign to risks. He cheers the emphasis on social preferences and context dependence. However, the latter can lead to constantly shifting baselines with different decisions for every situation, especially since numerous types of aversion mean that the direction of the change matters. Behavioral economics also leads to six nagging questions for research on preferences: (1) What exactly are the axioms of hypothetical behavior? (2) What is the association between hypothetical and actual behavior, if any? (3) What is the relationship between market experience and hypothetical-actual behavior? (4) Should we use market experience to remove anomalous behavior in preference elicitation? (5) How does preference elicitation fit into the bigger picture of coordination games? (6) At what point do we stop monetizing preferences when the good is unfamiliar, unknown, or overwhelming? While these questions may not be fully answerable, working to address them will help researchers understand what they can and cannot deliver.

*“Whose Preferences Should We Use?”* - David Schkade

Dr. Schkade is Associate Dean of the Rady School of Management at the University of California at San Diego, and Jerome S. Katzin Endowed Chair and Professor of Management. He discussed questions surrounding which preferences should be used to evaluate outcomes in policy analysis and program evaluation. Preferences vary across “three selves”: the wanting self (affected by choice, forecasting, and anticipation) before the experience; the experiencing self (affected by sensation, emotion, and reaction) during the experience; and the remembering self (affected by memory, regret, and interpretation) after the experience. Research suggests that how outcomes are evaluated differs significantly depending on these temporal perspectives. The hedonic response to a stable feature of life diminishes over time, so that after “changes” become “states,” they lose impact. Individuals frequently do not recognize the speed and degree of this adaptation. A related problem is whether preferences should be measured using the general population or only the affected populations (or observers vs. participants). Individuals who have experienced the state are better able to predict adaptation, understanding that the experience of becoming “X” is different from being “X.” These findings suggest that different perspectives will be appropriate for different applications.

*Audience Comments and Discussion*

Issues raised in the discussion included: (1) determining how to define normative preferences and how to address calm vs. emotional states; (2) considering the multiple selves that result as individuals change over time; (3) extending the behavioral framework to collective as well as private decisionmaking; (4) defining the baseline in happiness research; (5) determining what values to use for compensation in litigation and for regulatory analysis given state-dependent



changes in preferences; and (6) using self-control and planning to manipulate the desire to engage in undesirable behavior.

### **Panel 8 – Concluding Roundtable: The Future of Regulatory Oversight**

This concluding session invited former OIRA and government agency officials and leading scholars to reflect on the results of the conference, discuss the implications of the presentations, and identify the key issues to be addressed in the future. (Jonathan Wiener, Duke University, Moderator)

*John Graham*, Dean of the School of Public and Environmental Affairs at Indiana University and former OIRA Administrator, indicated that its not clear that Executive Order 12866 is in need of revision. However, there are three areas where change may be desirable, as discussed in his 2008 *University of Pennsylvania Law Review* article, “Saving Lives through Administrative Law and Economics.” First, equity tests should be incorporated into these analyses to provide additional information for decisionmaking and encourage consideration of whether corrective measures are appropriate. Second, more international collaboration on regulatory development is needed, particularly in the formative phases. Third, OMB should increase its involvement in financial regulation and reform rather than deferring to the Federal Reserve Board. Since Presidents are ultimately accountable politically for the economic performance of the country, they should have the powerful oversee powerful economic regulatory agencies.

*Michael Livermore*, Executive Director of the Institute for Policy Integrity at New York University, noted the need to build a larger political constituency to support expanding and improving benefit-cost analysis. Its constituency is now often those who are skeptical about regulation, but it may have a latent constituency among those on the other side of the spectrum who support protective regulation and a pragmatic approach to improving governance. An example of this problem is the lack of consideration of the results of economic analysis in the debate over how to design a cap and trade system in the climate change legislation now before Congress.

*Rena Steinzor*, Professor at the University of Maryland Law School and President of the Center for Progressive Reform, indicated that she is a critic of benefit-cost analysis. However, if it is to be used, it should be applied to deregulation as well as regulation. Several issues need more attention. First, the environmental, health and safety agencies need increased resources, better management structures, and more expertise. Second, large gaps in the available science on health risks need to be filled. Finally, she noted the need to better address the intergenerational effects of current decisions.

*Richard Morgenstern*, Senior Fellow at Resources for the Future and former EPA policy official, discussed the conclusions of the recent book, *Reforming Regulatory Impact Analysis*, edited by Winston Harrington, Lisa Heinzerling, and Richard Morgenstern. Based on the views of proponents and critics of benefit-cost analysis, the editors developed 14 pragmatic recommendations. Several address technical issues, such as the need to assess more than one regulatory option and to use baselines that reveal true trade-offs. Other recommendations address improving the relevance of the analysis to decisionmaking; for example, by thinking more strategically about how to allocate effort to different components of the analysis and by providing results earlier in the regulatory development process.



*Richard Zerbe*, Associate Dean for Academics and Daniel J. Evans Professor of Public Affairs at the University of Washington, commented on several issues. For example, who bears the costs may differ from who receives the benefits, and their preferences should be addressed. More emphasis is needed on equity, which should be treated as an economic good for which individuals are willing to pay. Paternalism should be avoided, since we may not really know what is best for others. In addition, most benefit-cost analyses now focus on a particular jurisdiction, but a national perspective may be more appropriate.

#### *Audience Comments and Discussion*

Issues raised in the discussion included: (1) using benefit-cost analysis to prompt new regulations as well as to assess proposed regulations; (2) providing an outline of the data, methods, and models to be used in the analysis for comment early in the process; (3) recognizing that decisions about the content of the regulatory analysis are political, not simply technical decisions made by analysts; (4) considering whether it makes sense to discount impacts that occur far into the future; (5) increasing the use of expert panels to develop best practices for each agency and for OIRA; (6) debating the extent to which regulatory analyses are used to inform decisions, to justify them after they are made, and to explain them to the public and the courts; (7) considering the value of regulatory analyses as a process that provides information and as a required output that influences the regulatory development process; (8) involving OIRA, and using benefit-cost analysis, to help address the development of financial regulations; (8) gaining support for benefit-cost analysis among non-economists and explaining discounting; and (9) distinguishing benefit-cost analyses' role in providing information rather than in determining decisions.



## **APPENDIX A: DETAILED AGENDA**

### **Monday, June 22, 2009**

8:30-9:00     ***Registration and Continental Breakfast***

9:00-9:15     ***Welcome and Overview***

Mark Cohen, Resources for the Future  
Jonathan Wiener, Society for Risk Analysis  
Lisa Robinson, Conference Chair

9:15-10:45   ***Panel 1 - OIRA Domestically: Towards Better Regulation***

Arthur Fraas, Resources for the Future (Moderator)

“Analysis on the 17 Most Political Acres on Earth”  
Donald Arbuckle, University of Texas

“OIRA: What's It Good For?”  
Donald Elliott, Yale University, Willkie, Farr, and Gallagher LLP

“Using Regulatory Impact Analyses to Inform Regulatory Decisions”  
Richard Williams, George Mason University

“Defragmenting the Regulatory Process”  
Stuart Shapiro, Rutgers University

10:45-11:00   ***Break***

11:00-12:30   ***Panel 2 - OIRA Internationally: Towards Global Cooperation***

Dominic Mancini, U.S. Office of Management and Budget (Moderator)

“Better Regulation in the EU: Learning by Doing”  
Marianne Klingbeil, European Commission

“Transatlantic Regulatory Impact Assessment: Tomorrow's Dream or Realization”  
Alberto Alemanno, HEC Paris

“Fostering Quality Regulation for the 21st Century”  
Stephane Jacobzone, Organization for Economic Co-operation and Development

“Toward a Global Policy Laboratory”  
Jonathan Wiener, Duke University



**Monday, June 22, 2009 (continued)**

12:30-2:00 ***Lunch Speaker***

John Morrall, U.S. Office of Management and Budget (retired) (Moderator)

“Which Way the Political Winds Are Blowing”

Sally Katzen, Podesta Group

2:00-3:30 ***Panel 3 - Regulating Highly Uncertain and Potentially Catastrophic Risks***

Jennifer Baxter, Industrial Economics, Incorporated (Moderator)

“The Five Neglects: Risks Gone Amiss”

Richard Zeckhauser, Harvard University

“Duty to Inform When All Hell Could Break Loose”

Baruch Fischhoff, Carnegie Mellon University

“Considering Risk in Developing a Regulatory Response to Climate Change”

Mort Webster, Massachusetts Institute of Technology

“At War with the Weather and Other Extreme Events”

Howard Kunreuther, University of Pennsylvania

3:30-3:45 ***Break***

3:45-5:15 ***Panel 4 - Integrating Risk Assessment and Risk Management***

Kara Morgan, U.S. Food and Drug Administration (Moderator)

“Assessing and Managing Risk: First Things First”

Gail Charnley, HealthRisk Strategies

“Integration of Risk Assessment and Risk Management: The Need for Caution”

Bernard Goldstein, University of Pittsburgh

“Solution-Focused Risk Assessment: Reversing the ‘Red Book’ Relationship”

Adam Finkel, University of Pennsylvania

“Risk Assessment and the Behavioral Science of Economics”

Sandra Hoffmann, Resources for the Future

5:15-6:30 ***Reception***



**Tuesday, June 23, 2009**

8:30-9:00     ***Registration and Continental Breakfast***

9:00-9:15     ***Welcome and Overview***

Jonathan Wiener, Society for Risk Analysis  
Alan Krupnick, Resources for the Future  
Lisa Robinson, Conference Chair

9:15-10:45   ***Panel 5 - What does Benefit-Cost Analysis Tell Us? Positive and Normative Justifications***

Joseph Cordes, George Washington University (Moderator)

“Positive and Normative Justifications for Benefit-Cost Analysis”  
James Hammitt, Harvard University

“Prospects for Utilitarian Decision Analysis”  
Jonathan Baron, University of Pennsylvania

“Self-Selection in Cost-Effectiveness Analysis”  
David Meltzer, University of Chicago

“What Does Benefit-Cost Analysis Tell Us? What are the Alternatives to benefit-cost analysis?”  
Maureen Cropper, Resources for the Future

10:45-11:00   ***Break***

11:00-12:30   ***Panel 6 - Beyond Efficiency: Incorporating Equity in Regulatory Analysis***

Kelly Maguire, U.S. Environmental Protection Agency (Moderator)

“Six Pathways for Distributional Effects of Environmental Policy”  
Don Fullerton, University of Illinois

“Incorporating Equity Metrics into Regulatory Review”  
Matthew Adler, University of Pennsylvania

“Avoiding the Normatively Ideal with the Positively Good”  
Scott Farrow, University of Maryland, Baltimore County

“Whose Injustice? Relevant Inequalities and How We Should Address Them”  
Wilhelmine Miller, George Washington University



**Tuesday, June 23, 2009 (continued)**

12:30-2:00 ***Lunch Speaker***

Alan Krupnick, Resources for the Future (Moderator)

“Benefit-Cost Analysis and Common Sense: Friends or Foes?”

Paul Portney, University of Arizona

2:00-3:30 ***Panel 7 - Do We Know What We Prefer? Implications of Behavioral Economics for Research on Preferences***

James Hammitt, Harvard University (Moderator)

“The Implications of Behavioral Economics for Stated Preference Research”

Alan Krupnick, Resources for the Future

“How are Preferences Revealed?”

David Laibson, Harvard University

“Six Nagging Questions in Preference Elicitation”

Jason Shogren, University of Wyoming

“Whose Preferences Should We Use?”

David Schkade, University of California, San Diego

3:30-3:45 ***Break***

3:45-5:15 ***Panel 8 – Concluding Roundtable: The Future of Regulatory Oversight***

Jonathan Wiener, Duke University (Moderator)

John Graham, Indiana University

Michael Livermore, New York University

Richard Morgenstern, Resources for the Future

Rena Steinzor, University of Maryland

Richard Zerbe, University of Washington

5:15 ***Adjourn***



## APPENDIX B: LIST OF PANELISTS

**Matthew Adler** (University of Pennsylvania):

<http://www.law.upenn.edu/cf/faculty/madler/>

**Alberto Alemanno** (HEC Paris):

<http://www.hec.fr/Professeurs/Liste-alphabetique/Alemanno>

**Donald Arbuckle** (University of Texas):

<http://www.utdallas.edu/~donald.arbuckle>

**Jennifer Baxter** (Industrial Economics, Incorporated):

[http://www.indecon.com/iec\\_Web/mainmenu/profile.asp#baxter](http://www.indecon.com/iec_Web/mainmenu/profile.asp#baxter)

**Jonathan Baron** (University of Pennsylvania):

<http://www.sas.upenn.edu/~baron/>

**Gail Charnley** (HealthRisk Strategies):

<http://www.healthriskstrategies.com/>

**Mark Cohen** (Resources for the Future):

<http://www.rff.org/Researchers/Pages/ResearchersBio.aspx?ResearcherID=1596>

**Joseph Cordes** (George Washington University):

<http://www.gwu.edu/~tspppa/faculty/cordes.cfm>

**Maureen Cropper** (Resources for the Future):

<http://www.rff.org/Researchers/Pages/ResearchersBio.aspx?ResearcherID=1626>

**Donald Elliott** (Yale Law School, Willkie, Farr, and Gallagher LLP):

<http://www.policyintegrity.org/about/AdvisoryBoard.html>

**Scott Farrow** (University of Maryland, Baltimore County):

[http://www.umbc.edu/economics/faculty\\_cv/SFumbcCV.pdf](http://www.umbc.edu/economics/faculty_cv/SFumbcCV.pdf)

**Adam Finkel** (University of Pennsylvania):

<http://www.law.upenn.edu/cf/faculty/afinkel/>

**Don Fullerton** (University of Illinois):

[http://works.bepress.com/don\\_fullerton/](http://works.bepress.com/don_fullerton/)

**Baruch Fischhoff** (Carnegie Mellon University):

<http://www.hss.cmu.edu/departments/sds/src/faculty/fischhoff.php>



**Arthur Fraas** (Resources for the Future):

<http://www.rff.org/Researchers/Pages/ResearchersBio.aspx?ResearcherID=1679>

**Bernard Goldstein** (University of Pittsburgh):

<http://www.pitt.edu/~bdgold/>

**John Graham** (Indiana University):

<http://www.indiana.edu/~spea/faculty/graham-johnd.shtml>

**James Hammitt** (Harvard University):

<http://www.hsph.harvard.edu/faculty/james-hammitt/>

**Sandra Hoffmann** (Resources for the Future):

<http://www.rff.org/Researchers/Pages/ResearchersBio.aspx?ResearcherID=36>

**Stephane Jacobzone** (Organization for Economic Co-operation and Development)

<http://www.oecd.org/regreform>

**Sally Katzen** (Podesta Group):

<http://www.podesta.com/biopages/SallyKatzen.htm>

**Marianne Klingbeil** (European Commission):

[http://ec.europa.eu/governance/better\\_regulation](http://ec.europa.eu/governance/better_regulation)

**Howard Kunreuther** (University of Pennsylvania):

<http://opimweb.wharton.upenn.edu/people/faculty.cfm?id=37>

**Alan Krupnick** (Resources for the Future):

<http://www.rff.org/Researchers/Pages/ResearchersBio.aspx?ResearcherID=39>

**David Laibson** (Harvard University):

<http://www.economics.harvard.edu/faculty/laibson>

**Michael Livermore** (New York University):

<http://www.policyintegrity.org/about/staff.html>

**Kelly Maguire** (U.S. Environmental Protection Agency):

<http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Staff.html>

**Dominic Mancini** (U.S. Office of Management and Budget)

**David Meltzer** (University of Chicago):

<http://harrisschool.uchicago.edu/faculty/web-pages/david-meltzer.asp>



**Wilhelmine Miller** (George Washington University):  
[http://www.gwumc.edu/sphhs/faculty/miller\\_wilhelmine.cfm](http://www.gwumc.edu/sphhs/faculty/miller_wilhelmine.cfm)

**Kara Morgan** (U.S. Food and Drug Administration)

**Richard Morgenstern** (Resources for the Future):  
<http://www.rff.org/Researchers/Pages/ResearchersBio.aspx?ResearcherID=47>

**John Morrall** (U.S. Office of Management and Budget, retired)

**Paul Portney** (University of Arizona):  
<http://econ.arizona.edu/faculty/portney.asp>

**Lisa Robinson** (Independent Consultant)  
<http://regulatory-analysis.com/>

**David Schkade** (University of California, San Diego):  
<http://management.ucsd.edu/faculty/directory/schkade/>

**Stuart Shapiro** (Rutgers University):  
<http://policy.rutgers.edu/faculty/shapiro/>

**Jason Shogren** (University of Wyoming):  
<http://uwacadweb.uwyo.edu/shogren/>

**Rena Steinzor** (University of Maryland):  
<http://www.law.umaryland.edu/faculty/profiles/faculty.html?facultynum=118>

**Mort Webster** (Massachusetts Institute of Technology):  
[http://esd.mit.edu/Faculty\\_Pages/webster/webster.htm](http://esd.mit.edu/Faculty_Pages/webster/webster.htm)

**Jonathan Wiener** (Duke University):  
<http://www.law.duke.edu/fac/wiener/>

**Richard Williams** (George Mason University):  
<http://mercatus.org/PeopleDetails.aspx?id=17136>

**Richard Zeckhauser** (Harvard University):  
<http://ksghome.harvard.edu/~rzeckhauser/>

**Richard Zerbe** (University of Washington):  
<http://evans.washington.edu/faculty-staff/bios/current-hz/zerbe>