

Risk and Regulatory Policy

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Risk

- “Risk” = combination of probability and impact: $p(I)$
- No such thing as “zero risk.” We are mortal.
- Human capacity to assess and manage risks
 - Essential to survival (Peter Bernstein)
 - Unique ability to envision future scenarios and plan ahead (Dan Gilbert)
- We face many risks, e.g.:
 - Accidents
 - Air pollution
 - Chemicals
 - Climate change
 - Disease
 - Disasters
 - Food
 - Finance
 - Tsunamis
 - Terrorism

Declining risks, but rising concern?

- The world appears to be getting generally safer over centuries
 - Rising human longevity (life expectancy)
- Why?
 - Increasing wealth = demand for safety (e.g. EKC)
 - Advancing science = better detection of risk
 - Better regulation = reduce risks
- But: public concern about risks continues to grow
 - Especially longer-term, lower-probability risks
- Why?
 - Increasing wealth
 - Advancing science
 - Greater awareness – news, internet, “availability”
 - Greater safety and longevity itself, so rare risks become more salient
 - Emerging risks

Why should governments care about risk?

- Public well-being: goal to increase net benefits to society
 - Market failures: externalities, public goods (“tragedy of the commons”)
 - Government failures: costs, new risks created, hasty response to crisis
 - Responsibility to think through decisions
 - Thinking ahead -- crucial for prosperity, survival
- Political accountability: governments held responsible for:
 - Costs of regulation to prevent risks
 - Burden on businesses, consumers, innovation, competitiveness
 - Costs of failure to prevent risks
 - Terrorist attacks, e.g. Madrid train bombings
 - Natural disasters, e.g. Haiti earthquake, Hurricane Katrina
 - Systemic failures, e.g. 2008 Financial crisis
 - Diseases, e.g. H1N1, HIV/AIDS, BSE (Mad cow)
- Legal accountability: civil or criminal liability

The Traditional Challenge of Risk Policy

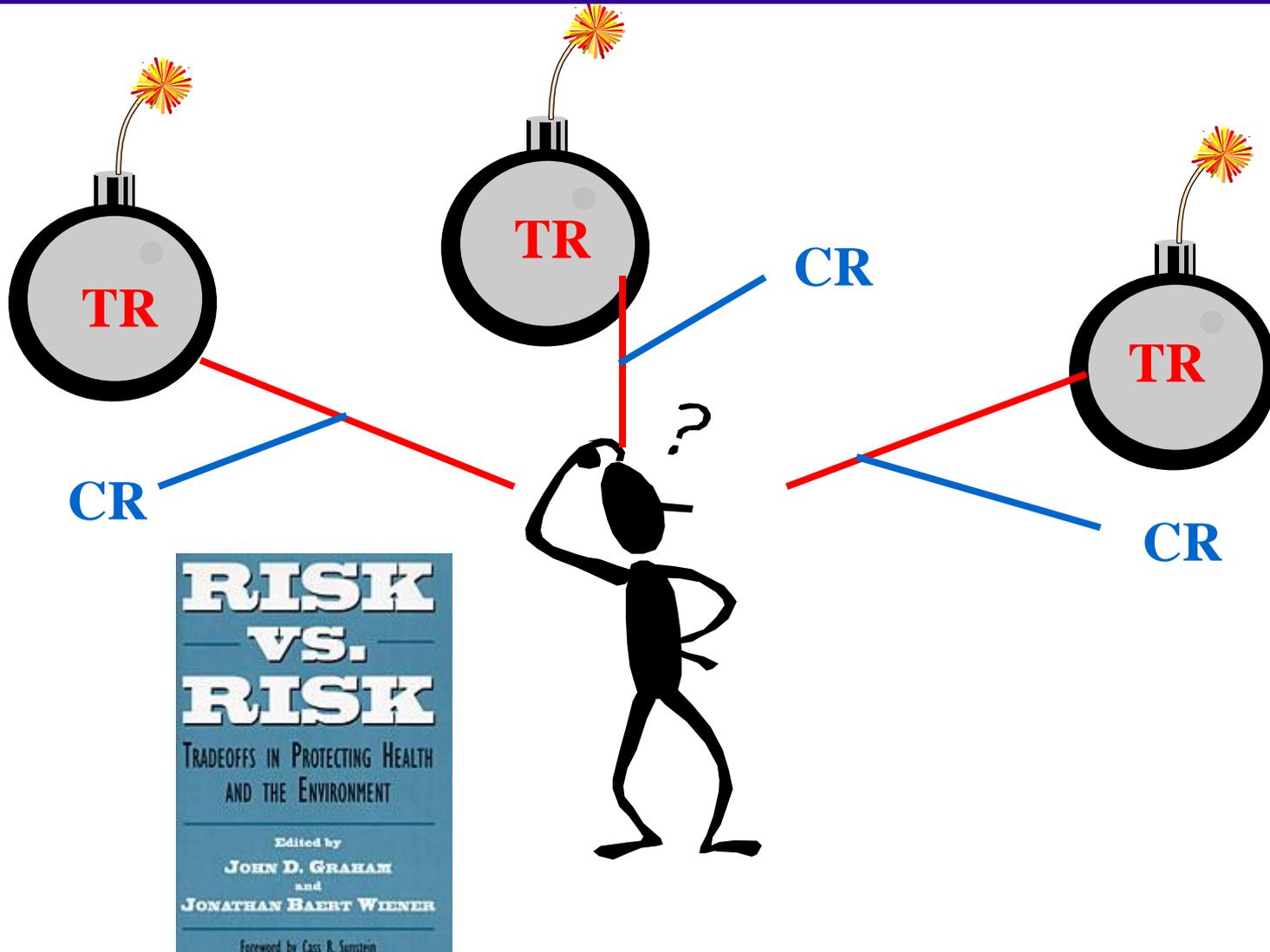


Challenges for Risk Policy

- Triage: selecting risks to address – setting priorities
- Risk assessment
 - Science: biology, chemistry, climate, engineering
 - Social science: economics, psychology, decision science
 - Uncertainty
 - Latency
 - Errors – false negatives, false positives
 - Joint effects: the joint effect of multiple simultaneous risks may not be simply the sum of the individual risks
- Risk management
 - Precaution
 - Impact Assessment
 - Costs
 - Benefits
 - Dynamic effects on innovation, technology

The “New” Reality: Multiple, Interconnected Risks

(TR = target risk, CR = countervailing risk)



Challenges for Risk Policy in an Interconnected World

- Spread: risks move rapidly across networks and borders
 - Pollution
 - Disease
 - Terrorism
 - Financial crisis
- Risk-risk tradeoffs: policies also face interconnectedness
 - Confront the tradeoff
 - Weigh the tradeoff
 - See “risk-superior” policy options that reduce multiple risks in concert
- Learning: borrowing and testing ideas
 - Over time: *ex post* impact assessment
 - Across countries: “hybridization”
 - Toward a global policy laboratory

**Comparing,
and
learning.**

THE REALITY OF PRECAUTION

*Comparing Risk Regulation
in the United States and Europe*



Edited by

Jonathan B. Wiener, Michael D. Rogers,
James K. Hammitt, and Peter H. Sand

**(RFF Press /
Earthscan,
November
2010)**

The Reality of Precaution

*Edited by J.B.Wiener, M.D.Rogers, J.K.Hammitt, P.H.Sand
(RFF Press / Earthscan, 2010)*

I. Introduction

The Rhetoric of Precaution – Wiener

II. Case Studies of Specific Risks

Genetically Modified Foods – Lex & Cantley

Beef Hormones and BSE – Gray et al.

Smoking Tobacco – Blanke

Nuclear Power – Ahearne & Birkhofer

Automobile Emissions – Walsh

Climate and Strat. Ozone – Hammitt

Biodiversity – Saterson

Marine Environment – Freestone

Chemicals – Renn & Elliott

Medical Errors, new drug approval and patient safety – Miller

Terrorism and WMD – Stern & Wiener

III. Information Systems

Information Disclosure – Sand

Risk Analysis Methods – Rogers & Charnley

IV. Quantitative Empirical Analysis of Comparative US and EU Precaution – Swedlow, Hammitt, Wiener, Kall & Zhou

V. Explanations?

Political Systems – Majone

Legal Systems – Bergkamp & Smith

Perceptions and Culture – Weber & Ancker

Perceptions and Selection – Sunstein

VI. Conclusions

The Real Pattern of Precaution – Wiener

Parity and Particularity in Precaution

EU



1970s – 80s:

- Marine environment
- Guns

1990s - present:

- Hormones in Beef, rBST
- GM foods / crops
- Climate
- Toxic Chemicals

US



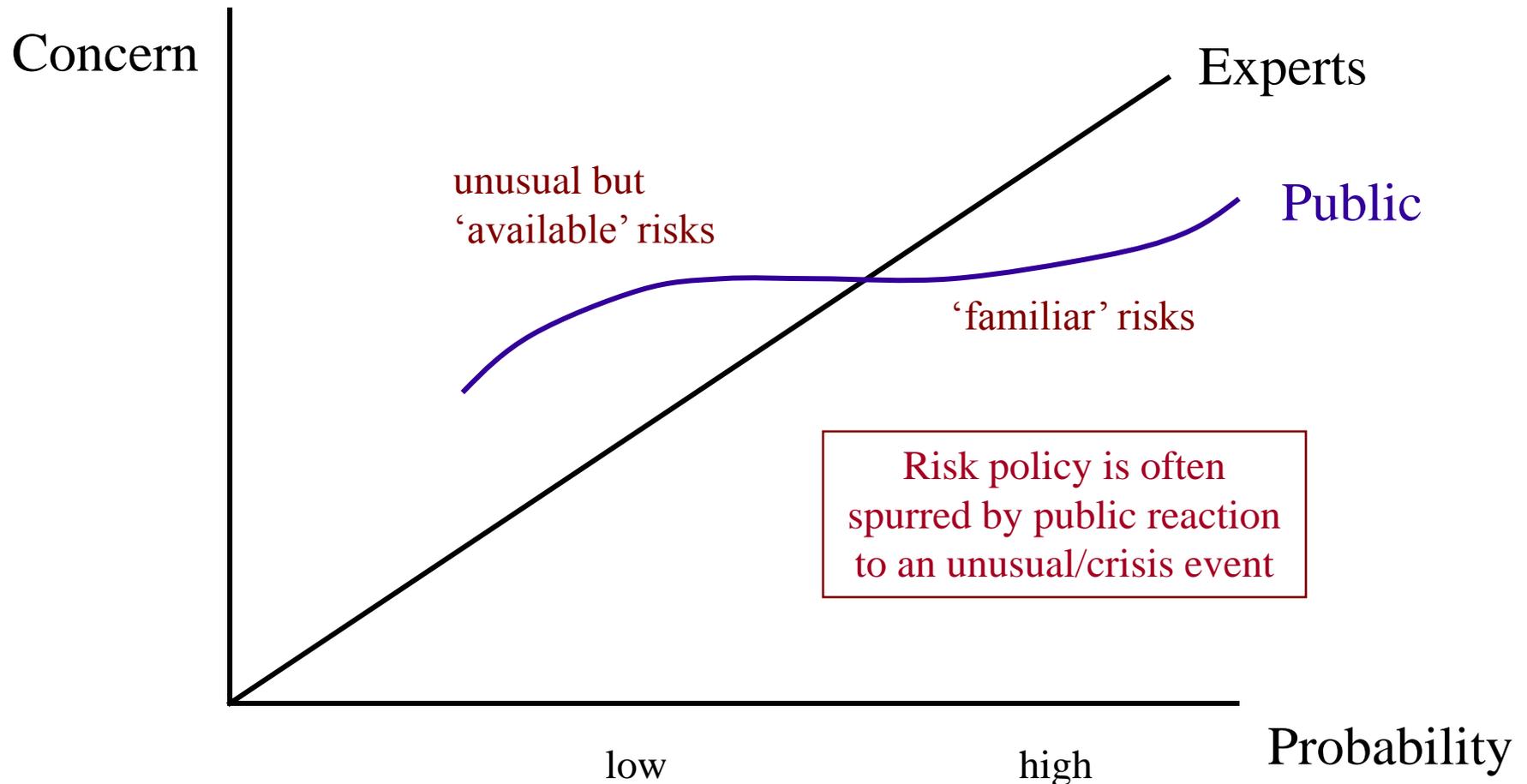
1970s – 80s:

- New drug approval
- Strat. Ozone (CFCs)
- Nuclear power
- Endangered species
- Lead (Pb) in gas/petrol

1990s - present:

- BSE/vCJD in Beef, Blood
- Smoking tobacco
- Particulate Matter (PM)
air pollution
- Terrorism

The Politics of Risk Policy – and Public vs. Expert risk perceptions



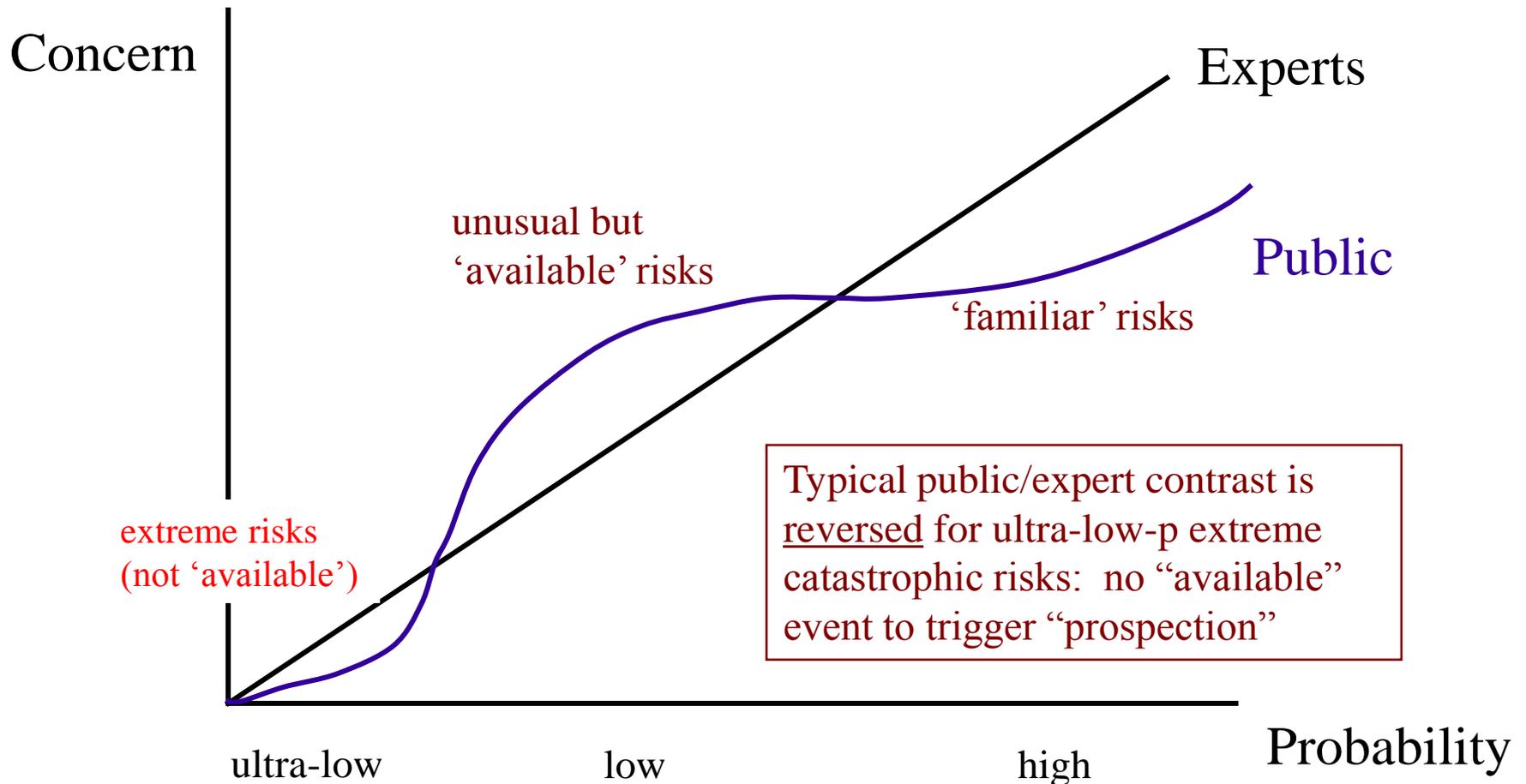
The “Tragedy of the Uncommons”

- As society gets safer and more prosperous, rare extreme (“tail”) risks become relatively more important
- But public perception may not spur policy to address rare extreme tail risks
 - Ultra-low-probability (but catastrophic): may be a one-time event. Thus, psychologically “unavailable”: no crisis/warning event to trigger public “prospection” and political response (Slovic & Weber 2002; Gilbert & Wilson 2007)
 - Overwhelming: “mass numbing” (Slovic 2007)
 - Short-termism: lack of near-term financial or political rewards
 - Underdeterrence: bailouts yield moral hazard; or, institutions may be wiped out
- Still, cannot become obsessed/paralyzed by uncommons risks.
 - Priorities: as the cognizable ‘p’ declines, the scenarios proliferate
 - Risk-risk tradeoffs: catastrophe-catastrophe ...

Some possible Tragedies of the Uncommons

- Global financial collapse
 - Neglect of tail risk
 - Moral hazard (anticipated bailouts; “too big to fail”)
 - Short-termism (bonuses paid before performance)
- Extreme climate change
 - “Tail” risks of emissions, concentrations, temperature, sea level, waves, winds, ... (e.g. Schneider 2009, Parry et al. 2009, Weitzman 2009, Borthwick 2009, Cooke & Kousky 2009, Bender et al. 2010)
- Global pandemic plague / bioterrorism
- Strangelet / black hole
- Asteroid collision
- “Back contamination” from outer space
 - NASA Apollo Project, 1960s
(Johnston et al. 1975; Robinson 1971, 2005)
 - Future space exploration

Public vs. Expert risk perceptions - of rare extreme catastrophic risks ?



“Mass numbing” (Slovic 2007)

Expected value:

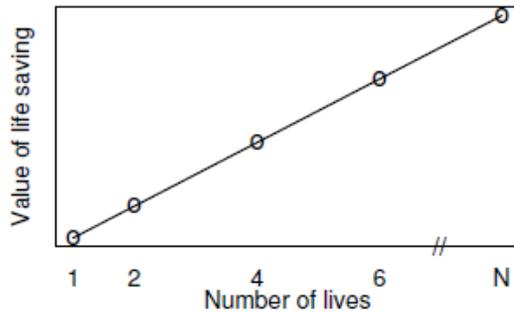


Figure 2: A normative model for valuing the saving of human lives. Every human life is of equal value.

Catastrophe premium:

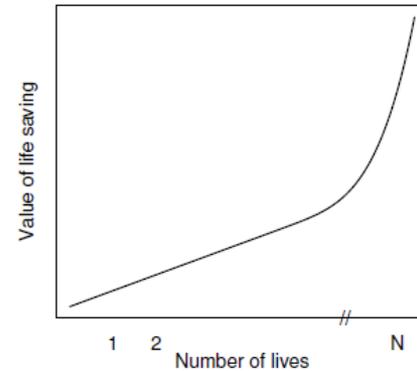


Figure 3: Another normative model: Large losses threaten the viability of the group or society (as with genocide).

Diminishing marginal concern:

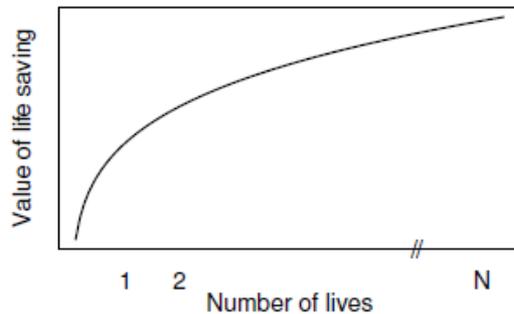


Figure 4: A psychophysical model describing how the saving of human lives may actually be valued.

Mass numbing:

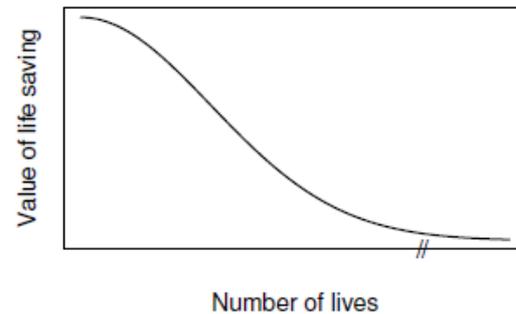


Figure 11: A model depicting psychic numbing — the collapse of compassion — when valuing the saving of lives.

Lessons for Risk Policy

- Crucial role for expertise in risk policy
 - Risk assessment
 - Risk management
 - Correcting market failures (“tragedies of the commons”)
 - Correcting the political failure to address “tragedies of the uncommons”
- Crucial role for center-of-government oversight bodies
 - e.g. U.S. OIRA, E.U. IAB
 - Impact Assessment of proposed policies (ex ante, and ex post)
 - Confront, weigh, and reconcile “Risk-risk tradeoffs,” especially across units
 - “Return” proposals that would not improve social well-being
 - “Prompt” actions to address uncommons risks – both research and policy.
- Crucial role for learning: exchange of ideas, experience
 - Toward a global policy laboratory



Society for Risk Analysis

Thank you.



www.law.duke.edu/fac/wiener

www.sra.org

ANNOUNCING THE WORLD CONGRESS ON RISK III
SYDNEY – AUSTRALIA – SUMMER 2012



Co-chairs:

Professor Alison Cullen – University of Washington
Professor Jonathan Wiener – Duke University
Dr Daniela Leonte – University of New South Wales

Contact the SRA Secretariat to join the
organizing effort: ddrupa@burkinc.com

