THE GEORGE WASHINGTON UNIVERSITY

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Improving Science-Based Regulation

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Workshop Highlights

Susan Dudley, Director, GW Regulatory Studies Center

Science-based regulations suffer both from "politicized science" and "scientized policy." Institutional change to clarify the basis for policy decisions would improve scientific analysis, regulatory analysis, and the policies themselves. That was a broad theme of a workshop on *Improving Science-Based Regulation* hosted by the George Washington University Regulatory Studies Center and Center for Risk Science and Public Health on January 13, 2012. The workshop brought together participants with a wide range of experience and expertise to examine the relationship between science and policy as they are used in developing regulations. Four working papers, authored by experts in risk assessment, regulatory economics, medicine, and biotechnology, helped shape the discussion. We present highlights of the papers and discussions here.

Art Fraas and **Randall Lutter**, visiting scholars at Resources for the Future and the GW Regulatory Studies Center, applied quantitative uncertainty analysis to estimate the benefits of reducing fine particulate matter concentrations. Using probabilistic methods in a manner consistent with recommendations by the National Academies of Science in 2002, Fraas and Lutter found that benefit estimates are very sensitive to certain assumptions (including the value of mortality risk reduction, the relative toxicity of particular constituents of fine particles, and the nature of any concentration-response relationship at low concentrations), such that plausible alternative values lowers expected benefits by over an order of magnitude. Participants discussed the merits of alternative assumptions and agreed on the importance of identifying the most influential uncertainties and making more transparent to policy makers the full range of possible outcomes; EPA does not take such steps now.

George Gray, Director of the Center for Risk Science & Public Health, examined differences in acceptable daily levels of exposure to pesticides set by the US EPA and the World Health Organization (WHO). Both organizations rely on the same scientific data to set allowable levels, but have different views on science policy – how to use the science in deriving risk estimates. There were clear differences in the numbers from each organization and, in general, EPA's reference values are more stringent than WHO's. These results generated a wide-ranging discussion of what factors might be influencing the different judgments and how to make more transparent the judgments that are not purely scientific.

Adam Finkel, Senior Fellow and Executive Director of the Penn Program on Regulation at the University of Pennsylvania Law School, proposed a hierarchy of decision criteria, with each level requiring additional information and analysis with which to examine consequences. His paper argued that if policy makers asked better questions, they would get more robust and useful information from analysts regarding the distribution of risks, benefits, and costs of alternative actions. Participants agreed that more rigorous decision criteria and a better understanding of probability distributions would aid decision makers. They explored why policy makers often rely on simplified criteria (lower on Finkel's ladder) when more comprehensive criteria would lead to better policy.

Henry Miller, Robert Wesson Fellow in Scientific Philosophy & Public Policy at the Hoover Institution, focused on the consequences of the unscientific approach to agricultural biotechnology regulation. Despite widespread agreement that the risk posed by an organism is primarily a function of the characteristics of the product itself, and not the method by which it is produced, U.S. regulation often applies more stringent regulation to products simply because they were produced by genetic engineering. Miller made the case that biotechnology could have made far greater contributions to the production of food and fiber in the U.S. and world-wide if not for scientifically-unjustified regulation. Participants discussed the incentives behind the increased scrutiny of products of biotechnology – is the difference driven by consumer fears, industry rent-seeking, misrepresentation of advocates, weak leadership of some regulatory agencies, or other factors?

We expect this project to produce further research, discussion, and recommendations for reform. Here are an agenda and list of participants. Let us know if you are interested in this research area.