

September 2004

# Fellowship Focus

American Association for the Advancement of Science

• Vol.5, No.1

**Im** **Imagine...** You have the opportunity to expand your skills within your chosen field. You get to work with respected scientists and practitioners within that field. You can choose to experience a different approach to your area of research. You are well-compensated and expected to collaborate but allowed the independence to manage your own time and your own goals. This was my experience with the AAAS Risk Policy Fellowship.

As a health scientist working in the area of environmental policy, I studied the risk assessment process as a way to integrate human health data into environmental decision-making. I was interested in work on cumulative risk assessment. The U.S. Environmental Protection Agency (EPA) defines cumulative risk assessment in its recent "Framework for Cumulative Risk Assessment" as "an analysis, characterization, and possible quantification of the combined risks to health or the environment from multiple agents or stressors." The concept behind cumulative risk assessment is obvious (but revolutionary within the current environmental regulatory system); we and our environment are simultaneously exposed to multiple chemicals and other stressors. Cumulative risk assessment is still a concept in search of methods for most areas of environmental health policy except for pesticide exposure. My thesis research was a cumulative risk assessment for air pollutants. At the time I applied for the AAAS Fellowship, EPA was conducting its first cumulative risk assessment on pesticides in food. The U.S. Department of Agriculture (USDA) has a role in developing the pest/pesticide management policies EPA promulgates. And so I came to work in the USDA's Office of Risk Assessment and Cost-Benefit Analysis in collaboration with its sister agency, the Office of Pest Management Policy.

During my fellowship, I developed technical skills in probabilistic exposure modeling doing critical analysis of the pesticide cumulative risk assessment model. My colleague and I deconstructed the dietary exposure module of the cumulative model and ran sensitivity analyses on its components. We found, for example, that some of the basic procedures used to operate the model influenced the types of risky foods it identified. Subsequently, we devised an independent research project on different approaches to dietary exposure assessment that we continue to collaborate on.

I took from my fellowship the typical benefits such as a network of colleagues in multiple organizations, new skills, and research opportunities. My experience critically evaluating a complex risk model was directly transferable to my current position at the National Research Council.

*"Beyond any particular skill I acquired, I gained perspective on the uses of scientific data for policy-making."*

Beyond any particular skill I acquired, I gained perspective on the uses of scientific data for policy-making. For much of health and safety policy-making, the risk assessment IS the science-policy interface. I see risk assessment as a process for arranging available scientific information to answer specific policy questions. These are often questions the independent scientific facts cannot address. When assembled within a risk assessment there is substantial value added. However, the assumptions often needed to bind disparate scientific facts together create the opportunity for misuse in the service of a particular perspective or agenda. Scientists working in risk policy must be "stewards" of science. It is crucial that scientists understand risk assessment to ensure the appropriate use of available data and the proper interpretation of the risk assessment results. These scientists are also in the position to identify the data gaps and can promote and direct funding to needed research. Scientists within the government have a powerful role to play in the service of good public policy and effective research.

**By Mary Fox**

*Mary Fox served as a AAAS Risk Policy Fellow from 2001-03. She is currently a program officer for the Board on Environmental Studies and Toxicology at the National Research Council.*

## DIRECTOR'S CORNER

**It** **IT'S SOMEWHAT IRONIC THAT A ONCE-AVOWED "SCIENCE-phobe"** has become the new director of the AAAS Fellowship Programs. Happily, a love of the outdoors lured me into studying oceanography with the Sea Education Association. It was an adventure that convinced me not only of the importance of science, but also its valuable role in informing policy. That experience has led to a career supporting scientists and engineers to effectively apply and communicate their expertise to serve society. I'm thrilled to be at AAAS and look forward to collaborating with the Fellows and Fellowship Program partners to continue to provide scientific knowledge and problem-solving ability to help ensure well-informed public policy.

*Cynthia R. Robinson*

DIRECTOR, AAAS SCIENCE AND TECHNOLOGY POLICY FELLOWSHIP PROGRAMS

# Focus On

## AAAS Risk Policy Fellowships in Health, Safety and the Environment

The Risk Policy Fellowships offer assignments that involve a wide array of environmental and public health issues, including counter-terrorism, food safety concerns, environmental contaminants, water resources and invasive species. Fellows spend a year at the U.S. Department of Agriculture, the Food and Drug Administration or the Army Corps of Engineers' Institute for Water Resources, learning how risk analysis is used as an essential tool in legislative, regulatory and other policy deliberations of the federal government while contributing technical expertise to the process. They will work with policy-makers to solve complex issues relating to the protection and improvement of public health and the environment.

## AAAS Science & Technology Policy Fellowships

Help shape science and technology policy in Washington, DC. Contribute scientific and technical information and external perspectives to federal decision-making, while learning how government works. The AAAS fellowship programs provide a unique participatory public policy experience for scientists and engineers, through assignments involving domestic and international science policy issues. Stipends typically begin at \$62,000.

Fellows are placed in the Congress, the Department of Homeland Security, the National Science Foundation, the National Institutes of Health, the Department of State, the Department of Defense, the Agency for International Development, the Environmental Protection Agency, the Department of Agriculture, the Food and Drug Administration and other federal offices.

Faculty and post-docs are eligible. Applicants must have a PhD or an equivalent doctoral-level degree from any physical, biological or social science, any field of engineering or any relevant interdisciplinary field by the application deadline (**January 10, 2005**). Individuals with a master's degree in engineering and at least three years of post-degree professional experience also may apply. U.S. citizenship is required. Federal employees are not eligible. Approximately 60 fellowships are awarded each year in 10 different programs.

The 2005-06 fellowship year begins September 1, 2005. Fellows attend a two-week orientation before beginning their assignments and participate in a year-long seminar series on topics relevant to science, technology and public policy.

For application instructions and further information **202.326.6700** or **[www.fellowships.aaas.org](http://www.fellowships.aaas.org)**.

AAAS is a non-profit, non-partisan organization. Since it was founded in 1848, AAAS has been dedicated to the advancement of scientific knowledge for the good of society as a whole.

**Advancing science • Serving society**

*Address Service Requested*

AAAS Science and Technology Policy Fellowship Programs  
1200 New York Avenue, NW  
Washington, DC 20005

ADVANCING SCIENCE. SERVING SOCIETY.



Non-Profit Org.  
U.S. Postage  
PAID  
Permit No. 6514