

## EPA Administrator Stephen Johnson Calls for “Holistic Approach” to Environmental Challenges

Stephen L. Johnson, U.S. Environmental Protection Agency (EPA) Administrator, shared his perspective on the state of the environment at a Policy Leadership Forum at RFF in April. Johnson is the first career employee to assume the top position at EPA.

During his talk, Johnson highlighted progress the United States has made on environmental protection in recent years, remarking that “our air, our water, and our land are cleaner today than they were a generation ago.” He noted, however, that there is work still to be done.

“I believe America is moving into a new phase of environmental protection,” he said, “evolving from pollution control to pollution prevention to sustainability.”

Johnson laid out challenges facing the United States and the greater global community as they move forward.

Among them, he listed ensuring a safe, clean, and sustainable water supply, greater energy security, and preserving biodiversity.

He also noted that these challenges are different from those the world faced a generation ago and likewise must be approached differently.



STEPHEN L. JOHNSON

“Addressing the multidimensional environmental challenges of the 21<sup>st</sup> century requires a more holistic mindset, one that looks beyond today and toward achieving a truly sustainable solution for tomorrow.”

The public remarks were Johnson’s first since the Supreme Court ruled that EPA has

the authority to regulate greenhouse gas emissions from automobiles. When asked what the response to the ruling would be, Johnson replied “We are actively reviewing the Supreme Court decision . . . and considering our options. Stay tuned.” ■

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## The Frontiers of Environmental Economics

Extending its role as a proponent of leading-edge thinking on environmental policy, RFF, with the support of the U.S. Environmental Protection Agency’s National Center for Environmental Economics, convened a conference in February to explore the frontiers of environmental economics.

The conference was structured around nine papers—on topics ranging from applying virtual experiments to policymaking to integrating economics and biology to inform fisheries management—that were selected out of more than 175 submissions. These papers advance theoretical and empirical methods in environmental and resource economics and illustrate how expanding the research frontier can inform the design and evaluation of environmental policy in the future.

Provocative presentations and intense discussion gave rise to several common themes and concerns during the two-day conference. Much of the work presented was multidisciplinary, drawing from economics as well as biology, computer science, ecology, neuroscience, physics, and psychology.

As an example, work on models of interactions between natural resources and population growth and production brought together researchers from the departments of economics and physics at Ohio State University. Presenter Elena Irwin noted that models of

resource growth and use can be quite misleading for informing policy if they don't account for the feedbacks between economic and ecological components, especially as different people respond in different ways to the interactive effects of slow-changing human migration and fast-changing factors, such as pollution.

Discussant Amy Ando, University of Illinois, remarked, "Economic models simplify to clarify, but have we simplified too much? In many cases, yes."

Participants voiced concern, however, over how to communicate the results of increasingly sophisticated research. Co-organizer Alan Krupnick, RFF senior fellow, suggested that the communication of complexity to decisionmakers is another frontier. "If this work is going to go into the service of policy, it has to be presented in a way that keeps its power but is still communicable. How are we going to do that?"

"Doing math is like making salami," Simon Levin of Princeton University said in response. "It's something you don't do in public." He and Amy Ando raised up Al Gore as an example of a powerful communicator, while Glenn Harrison, University of Central Florida, pointed to the recently released *Stern Review: The Economics of Climate Change*.

Other papers addressed the implications of neuroeconomics, behavioral economics, experimental economics, and virtual reality for environmental economics. For example, work by cognitive and computer scientists and economists at University of Central Florida harnessed tools from experimental economics, virtual reality, and psychology to develop a viable tool for land-use planning and risk management, which allows decisionmakers to see the (virtual) results of their policies.

"The part of virtual reality that sur-

prised me," said presenter Glenn Harrison, "was the 'R' part, the 'reality' part." While virtual reality often evokes images of "a gothic second world... a lot of the guts of VR is writing out a real, plausible model of the physics, of the biology, and of the ecology that drives the rendering," he said.

Commenting on the work, John Graham, RAND Graduate School, suggested that it could be extended beyond environmental applications, to



help policymakers understand the results of complex models and inform voters about ballot propositions provided by advocates or by the government.

Douglas Bernheim, Stanford University, and Antonio Rangel, California Institute of Technology, proposed a new behavioral framework for welfare analysis to be applied when the assumptions of standard welfare economics do not hold.

"Economics assumes individuals always have well-defined preferences and make choices to maximize them, but this is a fallacy," Rangel said. Instead, a growing body of evidence shows that people's choices change in the face of shifting ancillary conditions, such as the time or order in which the decision

is made. Their behavioral approach can account for these ancillary conditions, which frequently frame and influence choices, especially those affecting the environment.

While the approach departs from standard welfare economics in some ways, Rangel emphasized that it holds true to a basic principle of standard welfare economics: that of libertarianism. "Standard welfare economics as defined in neoclassical theory is about

choice... and it is based on a single principle, the libertarian principle: the government, when making policies or policy choices, should choose as the individual would choose for himself," he said. "All of the welfare analysis that [I've done] satisfies this principle."

But Carnegie Mellon Professor Dennis Epple warned, "If people make mistakes—which they are more prone to do in voting booths—there is little reason to think that decisionmakers are people who you want to make choices for you. Can a 'rational planner' really exist?"

RFF has published the papers as part of its Discussion Paper Series, and the video, audio, and PowerPoint presentations from the conference are available online at [www.rff.org/frontiers](http://www.rff.org/frontiers) conference. ■