

FORUM

Science Policy: Using Your Voice to Inform and Inspire

In recent decades, scientific research that addresses complex and critical global issues, such as climate change, has become increasingly politicized, leaving many scientists feeling as though they cannot directly engage decision makers and simultaneously preserve the integrity of their work. Now at a time when policy makers and the public struggle to understand the technical nature of these issues, scientists who want to communicate their findings clearly and effectively can turn to science policy to better understand how to engage in this process.

What Is Science Policy?

Science policy is a subset of public policy that deals primarily with the scientific enterprise and its relationship to governance, from funding priorities and innovative practices to the ethical conduct of research and oversight [Neal *et al.*, 2008]. It embodies a set of procedures, rules, methods, and practices that guide scientific processes. At its foundation, science policy espouses a collaborative effort among government officials, members of academia, independent review boards, and scientists to create policies that govern scientific practices and, alternatively, to develop science that can shape sound policies.

Emerging science and technology innovations often compel society to adapt in ways that are not clearly understood. This has been the case in regenerative medicine, which has often led to ethical issues that policy makers need to consider. People turn to scientists and health experts to better understand how emerging technologies might shape medical practices or affect larger sociopolitical conversations about international human rights. While this

intermingling of science and politics is an inevitable part of the democratic process, it raises concerns about the politicization of science—when science is pressured to conform to politics or when politics masquerades as science.

The politicization of scientific research has waxed and waned throughout U.S. history, driven to some extent by global conflicts such as World War II [Conant, 2002; Baldwin, 1999], the Cold War, and the Vietnam War. Over the past 50 years, the scientific community has worked hard to improve its image, which has been battered in part by a deep polarization within the scientific community itself, the anti-science sentiments from segments of the public, and the voices of young anti-Vietnam War activists who blamed the scientific community for developing and perfecting technology used to perpetrate violence overseas [Moore, 1999]. After several decades, scientists today have largely recovered their favorable post-World War II reputation. In fact, a 2010 poll in *Scientific American* found that respondents reported scientists are the most trusted source of scientific information, followed by family and friends, and non-governmental organizations. One of the least trusted groups is elected officials, which reaches the core of science policy [*Scientific American*, 2010].

Scientists in the 21st century find themselves faced with new challenges in natural resources, energy, and climate and are moved to navigate a volatile political landscape that is strongly divided across party lines. This is occurring in the face of dwindling funding, as budgets have been decreased even as problems that demand technoscientific solutions have increased.

Moving forward, how can scientists continue to participate in democracy without sullying their reputations or risking the integrity of their work?

How Might Scientists Get Involved and Learn From Science Policy?

The authors of this Forum met while attending the annual American Meteorological Society (AMS) Policy Colloquium, a 10-day workshop that enables scientists to become more effective in the policy world. As we have continued our doctoral studies, we have tried to focus on different aspects of science policy, with the common goal of increasing communication transparency across different disciplines.

One of us, a climatologist, is planning workshops aimed at increasing collaboration on campus among a diverse network of individuals that includes community members, scientists, and centers aimed at increasing campus sustainability. Another, a social scientist, is collaborating with operational meteorologists at the National Weather Service to understand different public responses to tornado warnings. The third, a meteorologist, is a severe weather course developer at the National Disaster Preparedness Training Center, tasked to deliver training courses for the Federal Emergency Management Agency. We believe that programs such as the AMS Policy Colloquium are essential to understanding the complexities of connecting the weather and climate enterprise with policy. We wish there were more opportunities like this for scientists to practice policy.

It seems that the increasing politicization of scientific research has made many scientists wary of getting involved with science policy. Yet, in spite of this growing dissonance between the political world and the

sciences, we three graduate students feel optimistic and confident about our respective roles in a process that can help solve some of the most significant problems we face as a society. As recent controversies attest, both scientists and policy makers will continue to face critical decisions about climate change, geoengineering, clean energy, and sustainability issues that will require a collaborative vision and mutual understanding. As Roger Pielke Jr., author of *The Honest Broker*, noted in a recent conversation with us, all scientists engage in politics at some level—even by simply performing research that receives public funding [Pielke, 2007]. Thus, by being aware of the range of possible ways one might participate in the dialogue, we can be more effective in presenting our work.

Several themes continually resonate with us. Foremost among them is that the political world needs an infusion of scientific voices and that, in general, policy makers welcome our involvement at all levels of governance. There are still hurdles to overcome and our political system is not perfect, but if we approach it effectively and with a clear vision, we can help create a more dynamic science policy future.

Scientists often wonder what might invigorate the next scientific and technological movement in the United States, as space exploration did back in the 1960s, sparking scientific interest in the political arena. The problem with this approach is that the scientific community cannot afford to wait for others to decide what is or is not important for the future direction of scientific advancement. Scientists need to actively shape a public vision of science that showcases the diverse and important contributions it makes to policy discourse, including a robust understanding of how to enhance the general health, education, and energy

policies important to us all. After all, scientific impacts go well beyond national security and defense.

We believe that the role of a scientist in policy can be as simple as picking up the phone and getting to know a local or federal political appointee or offering a decision maker information about the options that science provides on a particular issue. What is important is that we not wait for the perfect moment to participate. Young scientists today are uniquely positioned to enhance the perception of science for their generation and to ensure that science is well represented, especially at a time when it is often absent from meetings where decisions are made.

We have embraced the value of engaging with policy issues directly and recognize that the problems we face must be tackled across disciplinary lines. Furthermore, we realize that to increase our ability to effectively engage with public officials, we need to encourage others to join this collective of unique voices in sharing our understanding of the world. William Hooke, AMS senior policy fellow and director of the AMS policy program, has written about the purpose of the AMS Policy Colloquium as an example of how scientists might contribute to the science policy discourse. He notes that it is crucial to help “future leaders find their footing, find each other, [and] find their purpose.” Yet he sees his role in this process as that of providing not instruction but inspiration: “We need to inspire each other to think and to play off and build upon each others’ thoughts.” (W. Hooke, The AMS

Summer Policy Colloquium will (help) save civilization, 2011, available at <http://www.livingontherealworld.org/?p=303.0>).

Inspiration is born of our collective efforts to engage with one other, the public, and the issues. Only then can science inspire. Only then can our voice be heard.

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