

ONE

Four idealized roles of science in policy and politics

Imagine that a visitor has come to town to see you, and wants to find some place in town to eat dinner. Being a local, you have expertise that may be useful in helping the visitor make a decision about where to dine. How might you provide information relevant to the decision on where to eat?

This chapter uses this story, with you as the central character, to illustrate four different ways in which you might interact with your guest. These four modes of interaction are very much ideal types; the real world rarely conforms to such distinctions. But the four different roles in fact do reflect practical differences in how scientists (and other experts) relate to policy and politics. Behavior by scientists providing counsel to decision-makers does necessarily approximate one ideal type more or less than another. Thus, these four different roles, while idealized, do reflect that scientists face practically meaningful choices in how they act in the context of policy and politics.

One choice that you might make in providing advice to your visitor is to serve as a *Pure Scientist*. You may decide that you really have no interest in the visitor's decision-making process and simply want to share some fundamental information about factors involved with nutrition. So you might provide your guest with a copy of the

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US government's official report, *Dietary Guidelines for Americans*, which describes the characteristics of a healthy diet. What the visitor does with that information you feel is his or her responsibility.

A second role that you might decide to play is that of the *Science Arbiter* who serves as a resource for the visitor, much like a hotel concierge. The visitor could ask you a question, such as "How far is it to the closest Thai restaurants?" or "Where can I find a steakhouse with the lowest prices?" The Science Arbiter serves as a resource for the decision-maker, standing ready to answer factual questions that the decision-maker thinks are relevant. The Science Arbiter does not tell the decision-maker what he or she ought to prefer.

A third role is that of the *Issue Advocate*. That is, you might try to convince the visitor to eat at a particular restaurant. There are many reasons why you might try to limit the visitor's scope of choice, e.g., perhaps you think that the restaurant is really good, or perhaps you think that you understand the visitor's interests well enough to act in his or her stead, or perhaps your cousin works at the restaurant. Such issue advocacy could be very strong if you are focused on advocating a single restaurant, or more relaxed, if you were directing the visitor to some limited set of restaurants, say those with Italian food. The Issue Advocate does venture into telling the visitor what he or she ought to prefer by making the case for one alternative over others.

A fourth and final role is the *Honest Broker of Policy Alternatives* who provides the visitor with information on all restaurants in the city, basic information on each (cost, menu, location, etc.) and then lets the visitor face the challenge of reducing the scope of choice (i.e., making a decision). Such "honest brokering" could also be comprehensive (e.g., a comprehensive guide to all restaurants in the city) or more limited (e.g., a guide to all those within a five-minute walk). The defining characteristic of the honest broker of policy alternatives is an effort to expand (or at least clarify) the scope of choice for decision-making in a way that allows for the decision-maker to reduce

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choice based on his or her own preferences and values. Because honest brokering of policy alternatives is often best achieved through a collection of experts working together with a range of views, experiences, and knowledge, a good example for restaurants might be a travel guide, such as those published by Fodors or Lonely Planet.

A characteristic fundamental to both Honest Brokers of Policy Alternatives and Issue Advocates is an explicit engagement of decision alternatives (i.e., choices, policy options, forks in the road, etc.). In contrast, the Pure Scientist and Science Arbiter are not concerned with a specific decision, but instead serve as information resources. Ostensibly, the Pure Scientist and Science Arbiter do not seek to compel a particular decision outcome, but in practice often slip into “stealth issue advocacy.” The Issue Advocate seeks to compel a particular decision, while an Honest Broker of Policy Alternatives seeks to enable the freedom of choice by a decision-maker. It should also be obvious that as an expert one cannot simultaneously act as an Issue Advocate and an Honest Broker of Policy Alternatives at exactly the same time.¹ That is to say, one cannot work to both reduce and expand choice at the same time. As ideal types these categories are obviously not black and white, but a continuum from strictly reducing choice to expansively presenting options.

Let’s follow the analogy a bit further to illustrate some of the complexities involved in trying to serve as a Pure Scientist or Science Arbiter in the context of decision-making. Let’s say that you wish to serve as a Pure Scientist in your interactions with the visitor looking for a restaurant, and so you decide to hand the visitor the US government’s report on nutrition. In the United States the federal government has come up with something called the “food guide pyramid” which seeks to provide guidelines on what constitutes a healthy diet. The pyramid does not purport to tell you what restaurant to eat at, only the scientific basis for what constitutes a healthy diet (USDA National Agricultural Library 2006). At first consideration, the food guide pyramid might seem to offer the prospects of

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providing objective science to inform decision-making that is separate from the process of actually making a decision about where to eat. But things are just not so simple, for two reasons.

First, it turns out that the food guide pyramid is reflective of political debates that manifest themselves within the food science community. In other words, rather than representing pure science, the food pyramid actually serves to support issue advocacy. Marion Nestle (2002), who is Professor and Chair of the Department of Nutrition and Food Studies at New York University, has written a book called *Food Politics* that documents the battle of interests that takes place through the guise of food science (e.g., the interests of different food companies, the interests of the food industry as a whole). Professor Nestle served on the federal committee that developed the food guide pyramid and commented in the *Los Angeles Times* that, “Creating the [food pyramid] guidelines is still political – from start to finish. It’s science politics. It’s politics politics. It’s corporate politics” (Mestel 2004). The food guide pyramid does not tell you exactly where to eat, but for those who look to the pyramid to inform their decisions, the food guide pyramid suggests that some choices are more desirable and others less so. Because the guidelines reflect a political process, the pyramid has great potential to serve as a front for “stealth issue advocacy.”² This is why battles over science take on such importance across a wide range of areas. People can debate policy options through science without ever making their value commitments explicit. They can hide them behind science.

No one should be surprised by this, as scholars have demonstrated in great depth the degree to which considerations of politics and values shape the work of experts seeking to provide guidance to decision-makers. As Sheila Jasanoff, a leading scholar of science and society, has written:

Although pleas for maintaining a strict separation between science and politics continue to run like a leitmotif through the policy literature, the artificiality of this position can no longer be doubted. Studies

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of scientific advising leave in tatters the notion that it is possible, in practice, to restrict the advisory practice to technical issues or that the subjective values of scientists are irrelevant to decision-making . . .

The notion that scientific advisors can or do limit themselves to addressing purely scientific issues, in particular, seems fundamentally misconceived . . . the advisory process seems increasingly important as a locus for negotiating scientific differences that have political weight. (Jasanoff 1990: 249)

But in spite of such findings, a powerful current runs through the scientific enterprise that suggests that science somehow should be kept separate from considerations of policy and politics, even as science is asked to be relevant to decision-making. Policy makers looking to use science to advance their own agendas often reinforce the possibility of a separation between science and politics. The notion of science being at once apart from but a part of politics and policy presents a paradox that will be taken up in some detail later in the book.

A second complexity arises when we realize that there are alternative food pyramids available, such as the “vegetarian food pyramid” (VegSource 2006a), the “vegan food pyramid” (VegSource 2006b), and the “Atkins food pyramid” (Everything Atkins 2002), among many others. The degree to which one of these is “better” than another depends upon the criteria one employs to evaluate them. If one values not eating meat, then the vegetarian food pyramid may be favored over the US government food pyramid. Alternatively, one’s food pyramid preference will be influenced if one values the advertised waist-slimming effects of the Atkins diet over concerns about its health effects. The point here is that the expertise relevant to a particular decision – where to eat dinner – will necessarily be a function of what the decision-maker actually values. Absent knowing such values, any food pyramid will reflect either the values of those putting the pyramid together, or the experts’ interpretation/expectation of what decision-makers ought to value. Consequently, it is very easy for the food science expert to act as an

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Issue Advocate (e.g., should meat be part of the pyramid?) rather than as a Pure Scientist, favoring one set of choices over others based on trans-scientific considerations. In the end, no food pyramid alone can tell the hungry traveler where to eat.

So are there any circumstances in which experts can provide “objective” guidance that is independent of the choices to be made? The answer is yes and no. Perhaps ironically, objectivity is more possible in cases where the decision context is highly specified or constrained. If you have narrowed down your restaurant choices to, say, three restaurants, then you could ask your Science Arbiter to comment on the cost or healthiness of each, according to criteria that you would like to see applied. In circumstances where the scope of choice is fixed and the decision-maker has a clearly defined technical question, then the expert has a very important role to play in serving as an arbiter of science, focused on specific *positive* questions. But in situations where the scope of choice is open, decision-makers do not have a consensus on the values to be served by the decision, much less a fix on the technical questions derived from value commitments. There is very little room for arbitrating science in the process of decision-making and even good faith efforts to provide such a perspective can easily turn into a political battleground where political debate is couched in the guise of a debate over science (and the expert may not even be aware of his/her arguing politics through science).³

Daniel Sarewitz, one of the most thoughtful observers of science in society, characterizes the resulting circumstances:

In areas as diverse as climate change, nuclear waste disposal, endangered species and biodiversity, forest management, air and water pollution, and agricultural biotechnology, the growth of considerable bodies of scientific knowledge, created especially to resolve political dispute and enable effective decision-making, has often been accompanied instead by growing political controversy and gridlock. Science typically lies at the center of the debate, where those who advocate some line of action are likely to claim a scientific justification for their position, while those opposing the action will either

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invoke scientific uncertainty or competing scientific results to support their opposition . . . nature itself – the reality out there – is sufficiently rich and complex to support a science enterprise of enormous methodological, disciplinary, and institutional diversity. I will argue that science, in doing its job well, presents this richness, through a proliferation of facts assembled via a variety of disciplinary lenses, in ways that can legitimately support, and are causally indistinguishable from, a range of competing, value-based political positions. (Sarewitz 2004: 386)

So when a scientist claims to focus “only on the science,” in many cases the scientist risks serving instead as a Stealth Issue Advocate. For some scientists stealth issue advocacy is politically desirable because it allows for a simultaneous claim of being above the fray, invoking the historical authority of science, while working to restrict the scope of choice. The Stealth Issue Advocate seeks to “swim without getting wet.”⁴ Other scientists may be wholly unaware of how their attempts to focus only on science contribute to a conflation of scientific and political debates. One way for scientists to avoid such conflation, argued throughout this book, is to openly associate science with possible courses of action – that is, to serve as Honest Brokers of Policy Alternatives.⁵

For scientists seeking to play a positive role in policy and politics and contribute to the sustainability of the scientific enterprise there is good news – scientists have choices in what roles they play. *Pure Scientist*, *Science Arbiter*, *Issue Advocate*, or *Honest Broker of Policy Alternatives*? All four roles are critically important and necessary in a functioning democracy. But scientists do have to choose. Whether a scientist admits, accepts, or is aware of it, a choice must be made on how he or she relates to the decision-making process. This book is about understanding this choice, what considerations may be important to think about when deciding, and the consequences of such choices for the individual scientist and the broader scientific enterprise.

TWO

The big picture, science, and democracy

Our time is characterized by new demands upon scientists in policy and politics. But experience and research show us that science is well suited to contribute directly to the resolution of political conflicts only in the most simple of decision contexts. In more complicated contexts, looking to science to enable a political consensus may in fact compromise both the odds for consensus and the valuable role that science can provide to policy-making. In the light of these findings, which some scientists may admittedly find uncomfortable, this book considers options available for scientists in policy and politics.

The arguments presented in this book have benefited from, and indeed are derived from, a large literature on Science, Technology, and Society (STS) and Science and Technology Policy (STP).¹ For many scholars of STS or STP the arguments presented in this book may be quite familiar, even old news. But my experiences over the past decade and a half working on a day-to-day basis with many scientists suggest that, with some notable exceptions, most scientists, including social scientists, are simply unaware of the understandings of the scholarly community who study science in society. Hence, it is appropriate to view this work as an attempt to connect scholarly understandings of science in society with the practical world of

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scientists who increasingly face everyday decisions about how to position their careers and research in the context of policy and politics. Rather than prescribing what course of action each individual scientist ought to take, the aim here is to identify a range of options for individual scientists to consider in making their own judgments on how they would like to position themselves in relation to policy and politics.

Even with a commitment to present a perspective on the scope of choice available to scientists in policy and politics, a central argument throughout this book is that as science has become used increasingly as a tool of *politics*, its role in *policy* has arguably been overshadowed. To use the concepts introduced in Chapter 1, the scientific enterprise has a notable shortage of Honest Brokers of Policy Alternatives, with many scientists instead choosing to engage policy and politics as Issue Advocates, or more troubling for the sustainability of the scientific enterprise, as Stealth Issue Advocates. Honest Brokers of Policy Alternatives matter because a powerful role for science in society is to facilitate the creation of new and innovative policy alternatives. Such alternatives have the potential to reshape political dynamics and, in some cases, enable action. By understanding the different roles that science plays in both policy and politics we may enhance the benefits to society related to the public's substantial investments in generating new knowledge.

Without a doubt science has demonstrated its enormous value to society and continues to have great potential to contribute significantly to further improving societal and environmental conditions. However, for that potential to be more fully realized, we must adopt a perspective on science that allows room for a close engagement with policy. If scientists ever had the choice to remain above the fray, they no longer have this luxury. It has become widely accepted by the public and policy-makers (and most scientists as well) that science shows relevance to a wide range of societal problems. Consequently, we should not view science as an activity to be kept

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separate from policy and politics but, instead, as a key resource for facilitating complicated decisions that involve competing interests in society. We want science to be connected to society. But how we make this connection is not always easy or obvious. This book seeks to provide some conceptual clarity about the choices scientists face in connecting their work to policy and politics. The choices matter, not just for science and science in policy, but more broadly for how we think about the role of expertise in democracy.

Chapter 1 argued that scientists, and other experts have choices in how they relate their work to policy and politics. Understanding such choices is important if science is to contribute to common interests. Science in the service of common interests is threatened as scientists and policy-makers have come to see science mainly as a servant of interest group politics. That is to say, increasingly, science has come to be viewed as simply a resource for enhancing the ability of groups in society to bargain, negotiate, and compromise in pursuit of their special interests. As a consequence, groups with otherwise conflicting interests each look to science to enhance their political standing. The result is that political battles are played out in the language of science, often resulting in policy gridlock and the diminishment of science as a resource for policy-making.

Two Congressional hearings in the summer of 2006 dramatically illustrated these dynamics. The hearings were putatively about studies of the global temperature record over the past several thousand years and efforts to clarify scientific understandings about this history. In reality the hearings were about something else altogether, as described by a member of Congress to a scientific witness who had chaired a report suggesting that earlier studies of the paleo-climate record had some flaws and limitations.²

I want you to make sure you understand the reality of this situation. I've given you all the sincerity that I could give to you. But the reason you are here is not why you think you are here, OK? The reason you are here is to try to win a debate with some industries in this country