



Devaluing Science

Jonathan H. Adler

In 2001, Cambridge University Press published a book-length examination of environmental trends and other indicia of sustainability by a theretofore unknown Danish statistician. Bjørn Lomborg was a self-proclaimed environmentalist who had begun to doubt the litany of eco-pessimism. His book, *The Skeptical Environmentalist: Measuring the Real State of the World*, ignited a firestorm of controversy on both sides of the Atlantic. Lomborg's supporters celebrated him for elucidating global environmental trends; his critics charged him with outright falsehoods and misrepresentation but failed to identify significant factual flaws in his book. The attacks on Lomborg's presentation of environmental data supplanted a serious policy debate on the wisdom (or lack thereof) of Lomborg's premises and prescriptions. His opponents attacked his political and ideological arguments using the language of science, just as Lomborg himself purported to engage in a value-neutral examination of environmental trends.

In his new book, *The Honest Broker*, University of Colorado political

scientist Roger A. Pielke, Jr. worries that the debate over *The Skeptical Environmentalist* is emblematic of a "pathological" politicization of science in public policy today. What was framed as a debate over "sound science" was really a proxy battle over environmental policy, with most participants "focused on the advantages

or disadvantages the book putatively lent to opposing political perspectives." For example, *Scientific American* published a series of broadsides

against Lomborg under the heading "Science Defends Itself from *The Skeptical Environmentalist*"; that title would have been more accurate, Pielke observes, had it read "Our political perspective defends itself against the political agenda of *The Skeptical Environmentalist*"—but then "it would have carried with it far less authority than masking politics with the cloth of science."

Pielke fears that when scientists and policymakers claim "science" supports a particular policy agenda, they diminish science's ability to inform policy development. Those who purport to make policy recommendations based on "sound science"

The Honest Broker: Making Sense of Science in Policy and Politics

By Roger A. Pielke, Jr.
Cambridge ~ 2007 ~ 188 pp.
\$29.99 (cloth)

or “objective information” are often engaged in issue advocacy from a certain point of view. Typically, it is policy advocates, ideologues, and flacks, not scientists, who politicize science in this way. In the debate over *The Skeptical Environmentalist*, however, scientists actively entered the fray, the direction of their arguments determined by ideology and political considerations rather than scientific examination. The end result was a political conflict, but one conducted in the language of science. Pielke worries it won’t be the last.

Today’s politicization of science is due in part, Pielke argues, to the “scientization” of public policy— attempts to resolve policy disputes through technical expertise rather than politics. Such efforts tend to be futile because policy differences are generally not the result of a dearth of scientific information or a lack of independent analysis; they are usually rooted in disagreements about fundamental values. “When advocacy is couched in the purity of science,” Pielke warns, “problems are created for both science and policy.”

Pielke spells out the choices scientists must make if they wish “to play a positive role in policy and politics and contribute to the sustainability of the scientific process.” He lists four “idealized roles” scientists can adopt, each of which reflects assumptions about the nature of science and democratic policymaking. The first,

the *pure scientist*, is concerned with science for its own sake and seeks only to uncover scientific truths, regardless of their policy implications. Such a scientist has no direct connection with the policymaking process; he is content to remain cloistered in his lab while others hash out policy.

The second idealized role for scientists in policymaking is less detached: the *science arbiter* is a bit more engaged with the practical world, providing answers to policymakers’ scientific questions. He wants to ensure that science is relevant to policymaking, but in a disinterested way. He does not wish to influence the direction of policy; it is enough to know that policymakers will make decisions informed by accurate scientific assessments.

The third role in Pielke’s typology is the *issue advocate*, who pays more direct attention to policy, using science as a tool to move it in the direction he prefers. He may work for an overt advocacy organization, such as a think tank, trade association, or environmental activist group, or his advocacy may be more covert. In either case, he seeks to marshal scientific evidence and arguments in support of a specific cause.

Finally, the *honest broker* is attentive to policy alternatives but seeks to inform policy, not direct it. “The defining characteristic of the honest broker of policy alternatives,” Pielke explains, “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 choice based on his or her own preferences and values.” The honest broker’s aim is not to dictate policy outcomes but to ensure that policy choices are made with an understanding of the likely consequences and relevant tradeoffs. Like the issue advocate, the honest broker explicitly engages in the decision-making process, but unlike the issue advocate, the honest broker has no stake or stated interest in the outcome.

Although Pielke claims that all four of these roles “are critically important and necessary in a functioning democracy,” he stresses that honest brokers are especially needed. One purpose of Pielke’s book is to encourage more scientists to take up the honest broker role—for, unfortunately, they are in short supply: many scientists instead choose “to engage policy and politics as issue advocates, or more troubling for the sustainability of the scientific enterprise, as stealth issue advocates.” Pretending to speak for science, these “stealth issue advocates” ultimately weaken public confidence in scientific objectivity. If the public comes to believe that scientific conclusions “are simply an extension of a scientist’s political beliefs, then scientific information will play an increasingly diminishing role in policymaking.”

So what is the proper role for science in policymaking? Science

can be decisive in certain rare cases: When there are a limited number of policy options and a general consensus about underlying values, science can sometimes identify the best policy option. In those cases, the so-called “linear model” prevails. As Pielke puts it, the linear model posits that “achieving agreement on scientific knowledge is a prerequisite for a political consensus to be reached and then policy action to occur.” In other words, “specific knowledge or facts compel certain policy responses.”

But the linear model breaks down as soon as there is a diversity of values and a clash of basic political views. In a pluralistic society, science can still inform policy judgments, but it cannot resolve what are, at their core, disputes about subjective values or preferences. The political debate over abortion is a perfect example of a contentious issue for which science is relevant but not dispositive. Scientific information about fetal development and the relative safety for the mother of various abortion procedures may inform the abortion debate, yet no amount of research will resolve the fundamental political and moral differences. However relevant medical and scientific expertise may be to understanding the intricacies of abortion policy options, the debate is ultimately one of values.

By dressing arguments in the clothing of science, stealth issue advocates try to move the focus from disputed to widely-shared values. So, for

example, researchers who work with embryonic stem cells tend to emphasize the potential medical advances their work might someday make possible. Opponents of such research often stress the potential of adult and alternative stem cells—that is, of stem cells not obtained by destroying embryos. Both sides marshal scientific arguments for their respective positions, but the debate over the science is a façade: the ultimate divide is over the moral status of the embryo, a normative question that cannot be resolved exclusively by appeals to scientific authority. According to Pielke, efforts to resolve the embryonic stem cell debate through appeals to science “have arguably done more than just failed to secure federal research funding, they have given a black eye to the broader scientific enterprise.” Dragooning scientific authorities into warring political camps warps science into a political weapon instead of a neutral source of knowledge. The result is bad science and, ultimately, bad policy.

In some cases, science can facilitate a political solution by eclipsing the practical difficulties behind a values conflict. For instance, insofar as scientific researchers are able to identify methods of obtaining pluripotent stem cells without destroying human embryos, science may make the political debate over stem cell funding disappear. In other cases, scientific research may simply reduce uncertainties or clarify trade-offs,

making it easier to define and assess the policy options on the table, and perhaps even to suggest alternative policy formulations. What science cannot do is establish whether a given set of values, and consequent policy preferences, ought to be preferred over another.

Stealth issue advocacy is endemic in environmental policy, particularly in the area of climate change. “The political debate over climate change,” Pielke observes, “takes place in the language of science” even though the debate is truly about the wisdom of various policy approaches.

While some stealth issue advocates exaggerate scientific certainty and consensus, others overemphasize the existence of scientific uncertainty. In this regard, the invocation of uncertainty is a proxy for an underlying policy position about the wisdom of adopting costly measures to reduce future environmental threats. Opponents of policies like the Kyoto Protocol may emphasize the uncertainty of climate forecasts, but in reality, Pielke rightly argues, “the basis for opposition for most of these folks has nothing to do with scientific uncertainty and everything to do with their valuation of the costs and benefits of taking action.” Advocates of emission reductions repeatedly claim the scientific debate over climate change is “settled,” yet there will *always* be uncertainties about the precise nature and extent of the

human impact on the climate system. Uncertainty is a fixture in complex environmental systems.

Those who push for more aggressive climate policies are often afraid to acknowledge gaps in scientific understanding. But, Pielke counsels, “scientific uncertainty need not stand in the way of action.” Like many questions of environmental policy, climate change presents a risk-management problem—one for which the precise magnitude and probability are unknown, even unknowable. The uncertainty inherent in such risk-management problems need not prevent assertive policy steps, if such steps are truly worth taking. But the decision has to be made on the political playing field.

The case for or against emission reductions ultimately rests on certain assumptions about the value of preventive action. Those who accept the “precautionary principle” believe that preventive action is essential. Contrary to the claims of some of its advocates, the precautionary principle is not a “science-based” approach to policy; it is a policy strategy for addressing risks when the magnitude and likelihood of dangers are uncertain. Scientific research can inform judgments about the relative merits of different degrees of precaution, but cannot justify precaution on its own.

Pielke draws a provocative and somewhat persuasive parallel between the reliance upon the precautionary principle in environmental policy

and the doctrine of preemption in foreign policy, as advocated by the Bush administration with regard to Iraq. In each case, uncertainty itself is not a reason for inaction. To the contrary, uncertainty can be a reason *for* action—it was the *possibility* that Saddam Hussein had weapons of mass destruction that justified preemptive action, just as it is the *possibility* that anthropogenic emissions might cause tremendous environmental harm that justifies precautionary climate policies. Preemption and precaution are policy responses to uncertainty, but when the potential costs of such actions are high—as with the Iraq war or global climate change policy—the argument for preemption or precaution may be difficult to make, so policymakers attempt to shift the debate to safer terrain.

Framing these policy debates as questions of science or intelligence can create incentives for the misuse of information. In the case of Iraq, “the quest for certainty required by a commitment to preemption elevated the role of politics in policy and diminished the actual role of information and intelligence,” Pielke argues. “It transformed intelligence into a form of advocacy.” Much the same phenomenon occurs in the debate over global warming. In each case, the expert information has been oversold and the underlying value judgments upon which the policy decisions rest are obscured. In this context, information becomes “an

asset to be used to achieve victory in the debate over values, rather than a source of enlightenment.”

When scientific or technical information is presented in order to advance a predetermined political agenda, it can undermine the credibility of those who provide the information, as well as those who rely upon it. The overselling of pre-war intelligence about Iraq damaged the credibility of both the Bush administration and U.S. intelligence agencies, and handicapped the administration’s “subsequent ability to make similar decisions by discrediting its own intelligence agencies,” Pielke observes. In much the same way, overselling scientific evidence in support of dramatic climate policies risks undermining the credibility of both the policy advocates and the science agencies, such as NASA, that produce or support the underlying research.

There are many reasons why policymakers acquiesce to scientific authority, even when science cannot provide answers. Often, politicians appeal to science to avoid accountability for difficult and potentially unpopular policy decisions. Rather than defend their own policy preferences as such, they often prefer to hide behind science as a “neutral” authority:

Policymakers typically transfer responsibility to scientists (or others who collect information,

such as intelligence agencies) via a large government program for research designed to provide “answers.” For if the scientists can promise “answers,” then the politician can avoid making the difficult decision, or at least put it off until someone else holds the policymaker’s position.

Pielke often writes as if the scientization of policy and the politicization of science result primarily from choices scientists themselves make. What he overlooks is that this approach is built into many regulatory systems and programs, effectively mandating that science supplant politics in the determination of policy outcomes—and that this, in turn, results in ever greater politicization of science.

Under the Clean Air Act, for example, if the Environmental Protection Agency (EPA) concludes that a given air pollutant poses a risk to public health and safety, regulation is automatic. The law explicitly requires the EPA to adopt specific regulatory measures once such a finding is made, even if such measures are impractical, inefficient, or will do little to address the underlying environmental concern. In the 1970s, for instance, the EPA was forced to devote resources to developing regulations governing lead emissions from smelters and industrial sources, even though it was well understood that the greatest threat came from vehicular emissions. Under the Clean

Air Act, the EPA was not permitted to concentrate its efforts on phasing out lead from gasoline even if it could prove this would do more to safeguard public health. Once the threshold scientific finding about lead's risks was made, the EPA lost all choice in the matter. Similarly, the EPA is now likely to be forced to regulate greenhouse gas emissions under Clean Air Act provisions written to address urban air pollutants, even though such measures are a poor fit for climate policy. Soot and smog are localized pollutants, for which some of the act's localized emission-control strategies make sense. The same cannot be said for globally dispersed emissions that contribute to global changes in the atmosphere. In *Massachusetts v. EPA*, decided in April 2007, the Supreme Court dismissed the EPA's arguments that other climate policy strategies made more sense—but not because the EPA was wrong on the merits. Rather, the Court concluded, such considerations are simply irrelevant under the act. Once the EPA decides greenhouse gas emissions contribute to potentially harmful atmospheric pollution, regulatory measures *must* follow.

When laws are written so that certain scientific findings trigger mandatory regulatory responses, they encourage the politicization of scientific findings. Such provisions, which exist in many environmental laws, encourage competing interest groups to battle over the

science instead of their respective policy preferences, creating a significant incentive to manipulate or spin scientific data.

Some scientists and policymakers think the only way to depoliticize science is to insulate it from politics. Even if this were possible, it would be a mistake. Instead of separating science from politics, Pielke recommends viewing science as “a key resource for facilitating complicated decisions that involve competing interests in society.” He encourages greater candor about the limitations of science in policymaking.

Pielke rightly has little sympathy for those who complain that presidential administrations “stack” advisory panels with those who share the president's policy perspectives. Politics will always play a role in the composition of such panels, Pielke argues—and besides, the policy commitments of panel members should not color their assessment of the science itself. A greater acceptance of the role of politics in evaluating panelist policy preferences will, he argues, actually reduce the pressure to politicize scientific findings. When we recognize that science informs, and cannot determine, policy choices, there will be less need for advisory panels to tart up policy recommendations as scientific conclusions.

Alas, it seems there are few extant institutions capable of playing the role Pielke envisions. The greatest

potential for “honest brokering” by scientists, Pielke believes, is in the context of authoritative institutional bodies, such as the National Academies, in which a range of scientific (and political) perspectives are brought to bear on a given question. Honest brokering is more likely to result from “institutional commitments to expanding or clarifying the scope of choice available to decision-makers” rather than the choices of individual scientists or politicians.

At some level, the politicization of science “is unavoidable and in fact desirable,” Pielke argues. “It makes no sense to try to return to a bygone—and largely mythical—era when science was thought to be separate from politics.” Such an effort would be futile and counterproductive. “We want conflicts to be resolved through the political process, which is much

better than any of the alternatives,” he explains. In a pluralistic society, policy differences are inevitable, and the political process is the most effective (or least objectionable) means of reconciling competing views. Yet when the politicization of science becomes endemic, it not only fails to improve policymaking, it threatens the integrity of science itself. “Science, well used, holds great potential to improve life on earth. Science, poorly used, can lead to political gridlock, bad decisions, and threaten the sustainability of the scientific enterprise.” With more honest brokers, we can actually have sounder science, and make more honest policy choices.

Jonathan H. Adler is Professor of Law and Director of the Center for Business Law and Regulation at Case Western Reserve University School of Law.