

## **Forests, Tornadoes, and Abortion: Thinking about Science, Politics, and Policy**

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Observers of science in policy and politics are of different minds about the potential of science to foster improved decision making. Forest policy is no different. On the one hand, optimists suggest that the mechanisms of science offer the potential for reducing political conflict:

If scientists and forest managers can channel the shared interests of timber companies, woodland owners, and environmental groups in improved scientific understanding of forests into joint exercises in data collection, model building, and environmental monitoring, those joint assessment exercises can build trust and facilitate understanding among those with initially opposing views. In the best of circumstances (which, admittedly, are difficult to create), the focus of such efforts on "the science" rather than "the politics" can foster mutual understanding and even grudging respect, which in turn, can be the foundation for subsequent consensus building on larger issues. (Mitchell et al., this volume)

Such optimists find that the Northwest Forest Plan (NWFP) exemplifies many of the qualities of adaptive ecosystem management, and see potential for "continuing progress in incorporating

improved science regarding what makes a 'healthy' forest into improved practices that actually make our forests healthier" (Mitchell et al., this volume).

This view stands in stark contrast to that of Rohlf (this volume), who asserts that:

many authors have pointed to the NWFP as a prime example of how modern "ecosystem management" can solve highly contentious environmental controversies. . . . Reality is something altogether different, however. Far from a biological tour de force, the NWFP actually incorporates a last-minute political compromise sold to the public as science.

Far from seeing science as a means to reduce political conflict, Rohlf sees science as just another battlefield for politics as usual: "Agencies and interest groups that justify their actions and goals by invoking science are often simply expressing a policy preference masked as science." Not only do the perspectives of the authors differ on the NWFP, they also represent profoundly contrasting views of science, politics, and policy.

In order to judge whether or not science offers a remedy for the pitfalls of politics, or whether science is just politics by another name, conceptual clarity would seem to offer an advantage. This chapter seeks such clarity through an extended "thought experiment"—an exercise in the imagination. Thought experiments allow the thinker to create carefully constructed scenarios in order to highlight aspects of the real world that are typically difficult to see or are somehow obscured. Politics and policy are concepts that are often conflated and hard to distinguish, making it difficult to understand the role of science in decision making. The thought experiment introduced in this chapter uses two scenarios to highlight the importance of the context of decision making as a critical factor that shapes the interconnections of science, politics, and policy.

It may be useful to begin with a few simple definitions of terms commonly used in this chapter. *Science* refers to the systematic pursuit of knowledge. *Policy* is synonymous with decision, and refers to a commitment to a particular course of action. *Politics* refers to the process of bargaining, negotiation, and compromise in pursuit

of a desired goal. Distinguishing policy from politics is one objective of introducing the following "thought experiment."

Imagine that you are in an auditorium with about fifty other people. Perhaps you've gone to hear a lecture, or you are at a neighborhood meeting. As you entered the auditorium you noticed a thunderstorm approaching, but you paid it little attention. Suddenly, someone bursts into the room and exclaims that a tornado is fast approaching, and everyone must quickly proceed to the basement. Whatever formal event was going on is quickly transformed into several dozen hurried conversations, some expressing doubt, and the excited packing of purses and briefcases. As the milling about continues, someone shouts loudly to all in the room, "We must decide what to do!"

How might such a decision be made? For the purposes of this thought experiment, it is not unreasonable to assume that the people threatened by the tornado have a shared common interest in preserving their own lives.<sup>1</sup> Thus, to reach a consensus to commit to a course of action—say, stay in the auditorium and continue the meeting or go down to the basement—they would need to know if the tornado is indeed quickly coming this way. To collect this knowledge they might turn on the radio, hoping to hear a weather report, or just look out the window. If the tornado is indeed approaching the building, then it is easy to imagine that the group would quickly decide to move to the basement. The essential point of this example is that for the group in the auditorium, under these circumstances a commitment to a specific course of action can be resolved primarily through the systematic pursuit of knowledge, that is, science.

Let's call the process of bargaining, negotiation, and compromise in such situations tornado politics. Information plays such a critical role in tornado politics because participants in the decision-making process share a common objective—in this case, the goal of preserving one's life—and the scope of choice is highly restricted—stay or go. We will return to tornado politics shortly; but first, consider a very different sort of politics.

Imagine that you are in the same auditorium with the same group of fifty people; but in this case, instead of deciding whether or not to evacuate, the group is discussing whether or

not to allow abortion to be practiced in the community. For simplicity's sake, let's just consider abortion generally, yes or no, and not in cases of medical necessity, or other special circumstances.<sup>2</sup> One person recognized to speak stands up and exclaims, "The practice of abortion violates my religious beliefs and therefore must be banned in our community!" The next speaker states with equal passion, "The community has no right to dictate what can or cannot occur inside a woman's body. The practice of abortion must remain legal!" As a murmur of dozens of conversations grows louder, someone shouts loudly to all in the room, "We must decide what to do!"

How might such a decision be made? For the group in the auditorium to commit to a course of action—to ban or allow abortion in the community—they might follow some sort of established procedure, such as a vote. They might form two groups (pro-life and pro-choice) and assign representatives to negotiate an outcome. If negotiations turn bad, they might even take up arms against one another to settle the matter by force, or they may even cease attempts to live together as one community. There are clearly many ways that such a decision might be made. However, one strategy that is extremely unlikely to lead to a resolution on this issue is to systematically pursue knowledge about abortion in the same manner that was proposed in the case of the approaching tornado. Why? On this issue among the group, there is no shared commitment to a specific goal; to the contrary, there are conflicting commitments based on differing values. And while information matters in this situation, arguably no amount or type of *scientific* information about abortion can reconcile those different values. Even so, perhaps the community's commitment to live under shared governance might lead to a desire to work together to achieve a legitimate outcome where all agree to live under the decision, once made. In such situations, let's call the process of bargaining, negotiation, and compromise "abortion politics."

The idealized examples of tornado politics or abortion politics help create a language that will allow us to investigate the complexities and the challenges of making decisions with and about science.

The following lists contrast the different roles and characteristics of information in decision making in tornado and abortion politics.

**Tornado Politics**

Evaluation  
Used to help assess  
Decision alternatives  
Comprehensive  
Rational  
Logical  
Enlightenment  
Technocracy

**Abortion Politics**

Rationalization  
Used to help justify decision  
Commitments  
Selective  
Emotional  
Narrative  
Power  
Pluralism

On the one hand, in tornado politics, scientific information is critical for decision makers to evaluate and compare decision alternatives. The information that is needed to make an effective decision lies outside of the room, hence the methods and perspectives of science are strengths in obtaining useful knowledge. This is very much the logic that underlies calls for scientific assessments designed to provide information to policy makers. A fundamental assumption in such cases is that once everyone obtains a shared level of understanding, a preferred course of action will become obvious and noncontroversial. In the case of a rapidly approaching tornado, this is undoubtedly true.

On the other hand, in abortion politics information certainly plays a role; but the relevant information is not scientific information about abortion. Information that might be shared in this case might be experiential in the form of narratives or anecdotes, or even information about how others view the issue. Information matters in this scenario, but plays a very different role in decision making than in the case of tornado politics. A decision in this case will result from the exercise of power in a decision-making system, and information will be used in an attempt to convince those sharing in the exercise of power to align with particular perspectives.

The roles and characteristics in the *Tornado Politics* column are similar to how we might describe scientific information,

whereas those in the *Abortion Politics* column are quite contrary to conventional descriptions of scientific information. Because our society highly values scientific information, its characteristics are often portrayed in a positive light, and information with nonscientific characteristics is portrayed in a corresponding negative light. For example, no scientist wants to see his or her work described as "emotional" or "selective." But, comprehensive, logical, and rational are positive attributes, whether the information being described is scientific or not. This is one reason why advocates of different political views agree on the need for policy to be based on "sound science."

But a fundamental lesson of the thought experiments is that neither tornado politics nor abortion politics presents a "better" means of decision making, simply that the different types of politics arise from the context of decision making. Similarly, the role of information in one scenario versus another cannot be judged to be a "better" strategy, because each is appropriate for the context. This perspective is well understood by many advocates whose job it is to promote a particular political position. For example, in March 2003 the *New York Times* reported on a memo prepared by a Republican Party strategist discussing the party's approach to the environment (Lee 2003). The memo offered the following advice, as presented in the article:

- The term "climate change" should be used instead of "global warming" because "while global warming has catastrophic connotations attached to it, climate change sounds more controllable and less emotional challenge."
- "Conservationist" conveys a "moderate, reasoned, common sense position" while "environmentalist" has the "connotation of extremism."
- "Be even more active in recruiting experts who are sympathetic to your view and much more active in making them part of your message" because "people are more willing to trust scientists than politicians."

Kim Haddow of the Sierra Club, a group with positions usually at odds with the Republican Party, said that the memo's "advice

is right. It's very smart—confounding, troubling, but smart." It is "smart" because the guidance in the memo for the presentation of environmental information is appropriate for the context—in this case, abortion politics.

A real-world example of a situation that evolved from tornado politics to abortion politics is the contested 2000 U.S. presidential election (see Sarewitz 2000). Selection of the president on Election Day is typically a very straightforward process: Vote. Count the votes. The candidate with the most electoral votes wins the election. This is clearly a case of tornado politics, where the relevant information is the number of votes cast for each candidate, collected comprehensively and rationally. But in 2000, with the electoral votes just about equal in forty-nine states, in Florida the election was so close that it was unclear who had received more votes. Whoever won Florida would win the presidency. The candidates quickly proposed alternative means for resolving the uncertainty. Count only these votes. No, count these. Finish by Friday. Take as long as is needed. Count the hanging chads. Revote. The systematic pursuit of information mattered less and less. Ultimately the election was decided by the Supreme Court.

Sarewitz (2000) asks, "Suppose we had asked a team of scientists—rather than the U.S. Supreme Court—to determine the winner of the Florida presidential election. . . . Could such an approach have worked?" His answer is no,

because uncertainty does not cause conflicting values. As a political matter, the direction of causation is quite the opposite: uncertainties emerge because the value conflict—an election, an environmental controversy—remains politically unresolved. Conversely, once a value conflict is settled through political means, the underlying uncertainties effectively disappear. The Supreme Court is a legitimate means for achieving this end; a team of scientists is not.

In the case of the 2000 election, thank goodness for abortion politics; not because of the outcome, but because there was a legitimate outcome at all. An approach based on tornado politics (i.e., trying to precisely count the votes) may have led to greater uncertainties



in who received more votes (e.g., what counts as a vote anyway?), proving incapable (just as in the case of abortion) in resolving a dispute over values. Often, wars and conflict result where the mechanisms of abortion politics are not considered as legitimate as decisions rendered by the U.S. Supreme Court.

Now let's take the thought experiment a step further. Imagine if, in the tornado example, the group decided to adopt abortion politics as the means for making a decision. That is, instead of seeking to assess the location and path of the tornado, they instead decided not to gather information and instead held a vote. This is almost so absurd as to be nonsensical. To disconnect the decision from the circumstances of the tornado is to invite a tragic outcome, or at best a good outcome determined only by chance.

Conversely, imagine if in the abortion example that the group were to adopt tornado politics as the means for making a decision. Here as well, one's thought experiment capabilities are pushed to the limit by trying to imagine what scientific study could conceivably lend any useful information to this decision process.<sup>3</sup> But this dissonance illustrates a central point of the thought experiment: In the idealized tornado case, scientific information matters. In fact, in the very simple example presented here, the information determines the decision. In the abortion case, scientific information matters not at all, and its pursuit would represent a distraction from the task of reconciling different value commitments through bargaining, negotiation, and compromise. As Sarewitz (1999) writes, "not only is there nothing wrong with the consequent messiness [of democratic politics], but all historical indications suggest that there is no viable alternative in a society that values freedom and justice and seeks to balance individual rights with the collective good."

Since there are so very few real-world decision contexts that set themselves up nicely as carefully constructed thought experiments, a natural question raised by these examples is how these issues manifest themselves in the real world of decision making with and about science. In reality, decisions, particularly those involving environmental issues, take on characteristics of tornado and abortion politics simultaneously. In such situations the following circumstances often apply. Alternative courses of action materially affect outcomes. To some degree, scientific infor-



mation matters for understanding both the motivation for the decision and the consequences of alternative courses of action. At the same time, different perspectives and values shape commitments to alternative courses of action. There may be fundamental, irreducible uncertainty about the problem and policy options. Knowledge itself may be contested. And there may be lack of shared values on both ends and means. In such contexts it is important to accurately assess what science can and cannot do as a contribution to the democratic process.

So how might these thought experiments help us to reconcile the contrasting perspectives of Mitchell et al. (this volume) and Rohlf (this volume), introduced at the beginning of this chapter? One answer is that perhaps Mitchell et al. are largely viewing forest policy through a lens of tornado politics, while Rohlf views forest policy through a lens of abortion politics.

We see this in how each characterizes the other perspective. Mitchell et al. note the "deep conflict in the values, interests, and biases of loggers, environmentalists, and other audiences involved in the forest policy debate." Even so, they retain considerable optimism that scientific assessment "may help to reduce these conflicts." Such optimism is warranted only if one accepts certain assumptions about the role of information in forest policy. By contrast, Rohlf has a less sanguine view about the role of science: "policy makers must have information to assist them in understanding the on-the-ground consequences of their decisions, but science provides no automatic answers." Similarly, this warning about the limitations of science is also grounded in a particular view of the political context. Swanson (this volume) recognizes that forest policy encompasses both perspectives:

An abundance of science relevant to regional policy issues, a strong commitment to having science-based policy and management, and keen public attention to forestry issues are hallmarks of the Pacific Northwest in recent decades. However, the region has been unable to mesh this incredible human resource, scientific knowledge, with its more impressive natural resources to arrive at workable future policy. . . . Science can help to inform the trade-off considerations, but competing social world views of cut vs. no-cut have created stalemate.

From this perspective, it would appear that a critical question to ask in any specific decision context is, what constructive role—if any—might scientists (including social scientists, humanists, and others who systematically pursue knowledge) hope to contribute to forest policy and politics?

While this question is more suitable for an introduction than a conclusion, the thought experiments introduced in this chapter highlight the point that any answer lies in first understanding the context of decision making, including the perspectives of the various stakeholders in the decision process. In the language of this chapter, the role of science in decision making will vary considerably to the extent that a particular decision context exhibits characteristics of tornado politics and abortion politics. In many situations, and forest policy is no different, elements of tornado politics and abortion politics will occur simultaneously. A danger for both science and democracy occurs when roles are mixed and science becomes politicized in the context of abortion politics, or when politics becomes scientized in the context of tornado politics (Pielke 2002). In such complex political, social, and scientific situations it is critical to differentiate policy from politics and to ensure that the role of science is appropriate to the needs of both.

## Notes

1. By contrast, when a tornado appeared over Boulder, Colorado, in 1996 while I worked at the National Center for Atmospheric Research, most of my colleagues headed to the roof rather than the basement!
2. Also for the purposes of this thought experiment, please consider those individuals whose abortion views are a function of the viability of a fetus as accepting abortion under certain conditions.
3. Consider what scientific information would make you change your own views on abortion, whatever those views happen to be.