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Hazy reasoning behind clean air

Science alone can't determine how regulations are written, argues **David Goldston**.

PARTY OF ONE

Last month, *The Washington Post* reported that President George W. Bush had personally intervened to weaken new regulations to control smog just as they were about to be announced by the Environmental Protection Agency (EPA). In response, advocates of tighter standards predictably charged that the president had overturned a scientific judgement. Carol Browner, who headed the EPA under President Bill Clinton, put the matter starkly, telling the *Post* that the Clean Air Act creates "a moral and ethical commitment that we're going to let the science tell us what to do".

But does it? This conceit that science alone should and can dictate clean-air standards is propagated by political figures of all stripes and often by scientists themselves. Politicians always want to argue that any regulatory measure they are supporti… by science because d… tion sound objectiv… fray. That's especially… environment, when… on your side may be … that can reach someo… ideological persuasio…

In reality, thoug… involve policy judg… tific determinations… uncertain. The Clear… decisions to the "jud… tor" of the EPA (a pre… is advised by, among… Contending that stan… science conflates poli… muddying the debat… needlessly in the line…

So what's really a… smog rules? The rul… sets what is known a… for allowable concer… ozone, the main con… the law, the seconda… to "protect the publi… damage to crops, nat… thing else other than… covered by the prima…

The EPA's 24-memb… weighed in on two crit… the secondary standa… should ozone be meas… permissible level of oz… may sound like a techn…

unanimously recommended a specific range of ozone standards, a number within that range can hardly be seen as the only justifiable standard under the law. Indeed, the EPA's own science staff had recommended a slightly different range. Critics are free to attack the number chosen by the president, which will keep some rural counties in compliance with clean-air rules. What they cannot legitimately argue is that the president's selection runs counter to the science. The debate is about what kinds of damage harm the public welfare and what kinds of uncertainty can be tolerated as a basis for decision-making.

The debate over the new ozone standards is just beginning, but the detrimental impact of confusing science with policy can be seen by looking back at what happened in 1997, when the EPA last changed the ozone rules. The fight then was over the primary ozone standard, the one designed to protect public health. The EPA proposed tightening the standard, and Browner (then EPA's chief) repeatedly argued that the decision was dictated by the science.

As a congressional staffer, I fought for the EPA proposal and I still support it. But what the sci-

areas turn out to violate the standard because ozone levels can vary significantly within a given day. For example, if being above the allowable

…ted was that for a given … a predictable number … sions from aggravated … t the time, there was lit… …caused chronic health … refore the policy issue … admissions are accept… …o politician was inter… …debate. The members … isory panel at the time … ndard to suggest, but … was a "policy call", not … science in no way told … do.

…ost in what became a … acrimonious debate … opponents of the new … accused the other of … is was bad for policy … f how to decide on an … ction never got raised. … And it was bad for … tions of poor science … e of political goals can … confusion about the …

…even more clearly than … of a policy debate mas… …bate. In such instances, … ripping off the policy… …ing them. ■

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Hazy reasoning behind clean air
David Goldston,
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'Science alone can't determine how regulations are written'

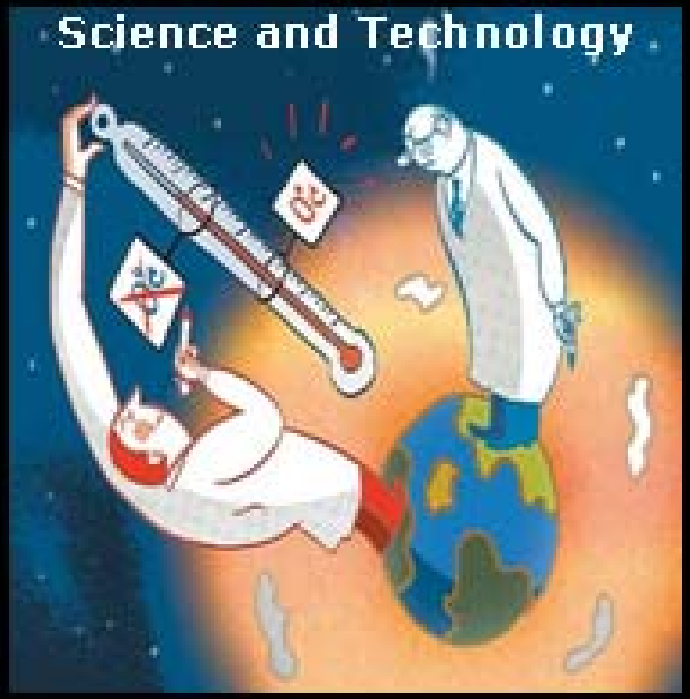
[…] EPA's science panel found that "quantitative evidence […] must … be characterized as having high uncertainties." What to do in the face of uncertainty is a policy question, not a scientific question. […] The debate is about […] what kinds of uncertainty can be tolerated as a basis for

Industry groups are fighting government regulation by ***fomenting scientific uncertainty***

DOUBT Is Their Product

By David Michaels
Photographs by Mindy Jones

Science American, June 2005, pp. 96



Climate change

Heat and light

"It is, nevertheless, doubtful that these papers will end the matter. Studying the climate is a hard problem for three reasons. The system itself is incredibly complex. There is only one such system, so comparative studies are impossible. And controlled experiments are equally impossible. So there will always be uncertainty and therefore room for dissent. How policymakers treat that dissent is a political question, not a scientific one."

The Economist August 13th 2005, pp. 64

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Weinberg A M. Science and trans-science. *Minerva* 10:209-22, 1972.
[Oak Ridge National Laboratory, TN]

Origins of Science and Trans-Science

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I c
time
becoming involved in the debate over nuclear power—in particular the debate over the hazard of low levels of radiation.

such Brooks suggested that an analysis of such situations was beyond the power of mathematics, and therefore, was trans-scientific.[2]

The term "trans-science" is used quite widely now. Perhaps most notable was W. Ruckelhaus's admission in 1985 that many of the EPA's regulations hang on the answers to questions that can be asked of science but cannot be answered by science—i.e., are trans-scientific.[3]

After the paper was published, Harvey Brooks added another dimension to "trans-science"—the evolution in time of systems governed by large classes of nonlinear equations.

mits of science. *Proceedings of the Symposium on Phenotypic*
ssment, December 7-10, 1986. Brookhaven National Laboratory.

Minerva 10:484-6, 1972.
Technol. I:19-38, 1985.
4. Wagner W G. Trans-science and torts. *Yale Law J.* 9:428-49, 1986.

RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT
Rio de Janeiro, 3-14 June 1992

Principle 15

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.