ORANGE COUNTY
REGISTER

Scott Pruitt's science legacy

Patrick J. Michaels and Terence Kealey

May 7, 2018

While Scott Pruitt's tenure as EPA administrator is uncertain, no matter what is ultimately resolved, he will leave a giant legacy with regard to EPA science.

Pruitt has introduced three major new guidelines. The first, from last October, is to rid the Agency's Science Advisory Boards of conflicts of interest. The second, from last month, is — when basing regulations on science — to use only science that allows access to its underlying data and methods. The third, and most recent, is to use only science that can be replicated and that is based upon realistic model design.

The conflict of interest dictum has provoked a kerfluffle that is clearly overblown. If a researcher is funded by EPA to study putatitive harm from, say, airborne fine particulate matter, it stands to reason that, if asked, such a researcher will say that it should be a high priority for EPA to fund more research in this area. Contrary to the assertion, in Sciencemagazine, that this will "significantly and adversely affect the quality of the scientific advice" the EPA receives, Pruitt's guideline applies only to recipients of EPA funds. A number of federal agencies, like the National Oceanic and Atmospheric Administration, or the National Science Foundation, fund research in environmental science, and EPA will have no problem with such funded individuals advising it.

Writing in Grist, Eric Holthaus thought Pruitt's ban on EPA-funded scientists would result in more representation from industry-based scientists. If it did, what's wrong with that? Industry scientists are often necessary discriminators of scientific validity, when they develop technologies following on from scientific discovery. In the words of University of Arizona's David Sarewitz, "technology keeps science honest." Having industry people with practical expertise advising the agency seems rather a good idea.

And what is the problem with allowing other researchers access to data and methods? More and more scientific journals now require this as a condition of publication, because science that can't be checked isn't science at all.

Then there is the question of replication. Brian Nosek of University of Virginia found that nearly two-thirds of a sample of 100 papers in experimental psychology could not be replicated. Without skepticism about reproducibility, it is easy to see how bad science can become institutionalized. Paul Smaldino and Richard McElreath demonstrated as much in the

journal Royal Society Open Science in an article titled “The Natural Selection of Bad Science.” They cite the pressure to publish supercedes concerns over scientific rigor — specifically, that researchers increasingly select “methods of analysis … to further publication rather than discovery.”

If “bad science” is now a product of selective pressures, then it’s not much of a leap to “bad policy” based on that type of science. This is precisely what Pruitt sees at the EPA and wants to stop.

For example, consider EPA concerns about so-called fine-scale particulates smaller than 2.5 micrometers in size, first specifically regulated in 1997. A major basis for regulation was the so-called Harvard “Six Cities Study,” in which thousands of people from six different locations were tracked long-term for health, mortality and exposure to what’s called “pm2.5.”

It was the study itself that inspired ensuing regulations. EPA, which would logically low-ball estimates (the more expensive the regulation, the less political support it enjoys), put the price tag to remove the particulates from coal-fired power generation at $6 to $8 billion. It’s not surprising that industry groups like the National Association of Manufacturers wanted to have a look at the data used for EPA’s regulations. Harvard refused, citing confidentiality agreements with the thousands of participants.

That claim seems weak. It is not difficult to code data in such a manner that individual identities are obscured. Distrust and mistrust are the natural children of embargoed data.

Under Pruitt’s second and third guidelines, on data availability and replicable science, there must be free exchange of data. He has now forbidden EPA from making regulations based upon science that does not allow access to the underlying data, or science that cannot be replicated.

Scott Pruitt’s tenure at EPA may be short or it may be long — but what he has begun is now in the federal rulemaking process. His science policy will survive long after he is gone, and even with a very short term, Mr. Pruitt will have left quite a legacy at EPA.

Patrick J. Michaels is the director of the Center for the Study of Science at the Cato Institute, where Terence Kealey is a visiting senior fellow.