

Strengthening scientific integrity

A robust democracy requires a common well-spring of reliable information. During his first days in office, US President Biden affirmed that evidence-based decision-making—informed by vigorous science and unimpeded by political interference—would be a pillar of his administration. He directed ambitious actions to implement that goal, including the creation of an interagency Scientific Integrity Task Force, which has just released the first-ever, comprehensive assessment of scientific integrity policy and practices in the US government.

The task force included 48 scientists, statisticians, engineers, lawyers, and policy-makers with a diversity of experiences from 29 federal agencies, and it received input from hundreds of outside experts from academia, the nonprofit sector, industry, and the public. The group found that although federal agency science is generally sound—that is, reported violations of scientific integrity policies are small in number compared to the magnitude of the federal scientific enterprise—there have been lapses that could undermine public trust in science and jeopardize federal scientists' and technologists' morale and motivation to innovate.

For example, during Hurricane Dorian's approach in 2019, then US President Trump tweeted information contradicting the official forecast of scientists at the National Oceanic and Atmospheric Administration (NOAA). Senior political leadership then directed NOAA to issue a press release supporting the president's inaccurate forecast, in effect manipulating scientific information, jeopardizing public safety, and undermining public confidence in government. In another instance, the Trump administration added a citizenship question to the 2020 census, overruling Census Bureau scientists who cited clear evidence that doing so would depress the response rate and could jeopardize census quality.

These and other violations informed the task force's recommendations, including the importance of best practices that continually reinforce a culture of integrity across the government. The report recommends the creation of a permanent interagency Scientific Integrity Council to facilitate dissemination and uptake of best practices, and communication training for scientists so that they can be more effective in explaining results to their policy superiors, to the media, and to the public.

It also emphasizes the importance of meaningful and appropriate consequences for violations.

In 2009, under US President Obama, the Office of Science and Technology Policy (OSTP) identified six principles of scientific integrity: science and technology positions in the executive branch should be filled by candidates with appropriate experience; agencies should have rules to ensure the integrity of their scientific process; research that informs agency decisions should be subject to peer review; barring restrictions, scientific or technological findings that inform policy decisions should be available to the public; agencies should address instances in which the integrity of scientific and technological processes and information may be compromised; and agencies should adopt procedures that ensure the integrity of scientific and technological processes and information used to inform decision-making.

Drawing on the 2021 task force report, the OSTP now proposes five additional principles. Because science benefits from dissent within the scientific community to sharpen ideas and thinking, scientists' ability to freely voice legitimate disagreement should not be constrained. Another principle is that scientific integrity policies should apply to all federal agencies and departments engaged in the production, analysis, use, and communication of evidence, science, and technology. Moreover, these policies must apply to political appointees, career employees,

and contractors. A further principle is grounded in the knowledge that science needs to be understood and actively considered during decision-making. Therefore, scientists should routinely participate actively in policy-making. Also, to promote accountability to the American public, federal scientists should be able to speak freely about their unclassified research, including to the press. And, accountability must be upheld. Violations of scientific integrity policies should be taken seriously and considered comparable to violations of government ethics rules.

In phase two, OSTP will work to implement these best practices and make the new principles operational. Every day, federal scientists and technologists help to tackle the greatest challenges that society faces. Let's make sure that this crucial work is supported and protected.

—Alondra Nelson and Jane Lubchenco

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