SciOPS

Science and Technology 2021 Priorities: Perspectives of US based scientists

SciOPS Project Team

As we transition to the Biden's administration first term, what should be the science and technology policy priorities? And, looking back at the last year of the Trump administration, what do scientists think about recent progress in science and technology policy?

The last year has seen an enormous effort by the science community to respond to the COVID-19 pandemic, and substantial investments in research and development by the US federal government (Andrijevic et al. 2020; UNCTAD, 2020). We now have the very real promise of receiving a highly effective vaccine in the next few months. But at the same time, the Trump administration has accelerated science denial and skepticism through anti-science policies, rejection of science-based evidence, inaction and rhetoric (Offit 2017; Levitan 2017; Goodell 2020). While journalists frequently cover these topics, we rarely learn what the preponderance of scientists in the US think about future science policy priorities and past progress.

In November 2020, we asked a nationally representative sample of academic scientists their opinions about what the science and technology priorities should be for the next 12 months and what the progress has been made over the last 12 months.

Science priorities for the next 12 months

Scientists' top two priorities for 2021 are *"enhancing public trust in science"* (ranked 1st) and *improving the use of science to inform public policy"* (ranked 2nd). Overall, eight of the 10 top priorities are related to public policy, education, communication with the public, and diversity in the scientific workforce. In addition, two of the top ten issues are topic based – advancing "*climate change policy"* (ranked 3rd) and "*expediting COVID-19 research"* (ranked 7th). More detail from this survey is available here.

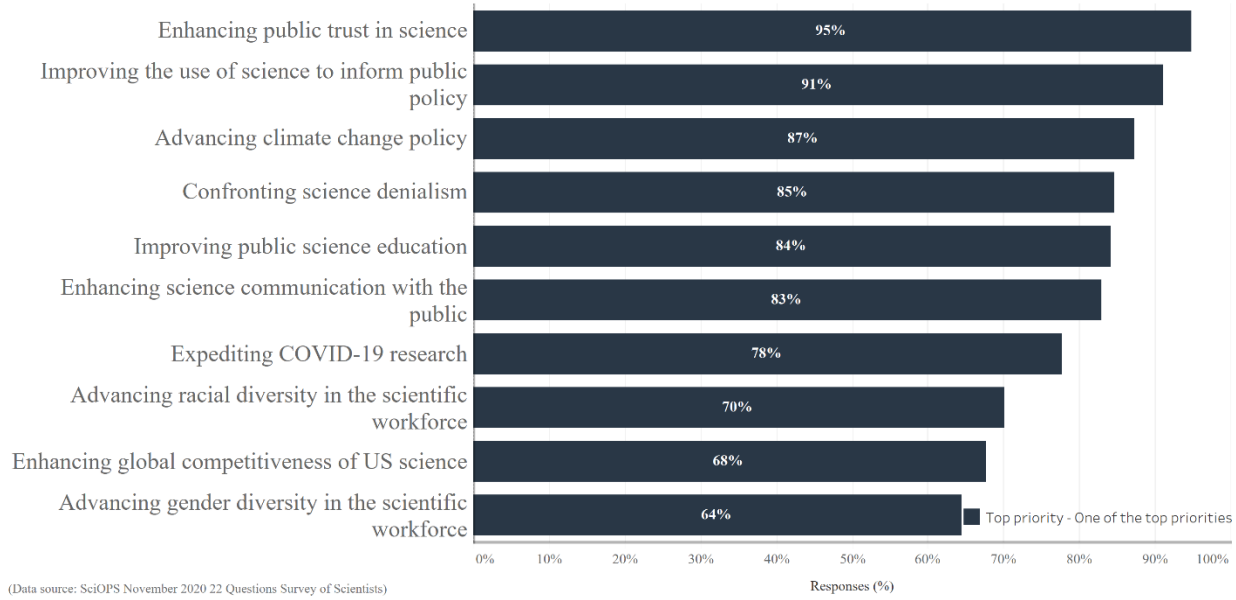

Fig. 1. Top 10 priorities for 2021 according to scientists themselves. (Exact question wording: "How much of a priority should each of the following science and technology topics be for the U.S. over the next 12 months?").

We also asked scientists to suggest other important science and technology topics the US should prioritize. Individual responses including topics artificial intelligence applications, climate change, biosecurity,

cybersecurity, clean energy development, built environment, blue-sky research, early science education (K-12), jobs for minority scientists, and improving transparency and ethical oversight of technology/science companies. Other respondents offered ideas to better engage the public including funding projects to involve citizen scientists in on-going monitoring; fostering public panels to bring scientists, students, volunteers and the public together to combine talents; reducing the cost of higher education; and improving public perception of scientists and researchers.

Science progress over the past 12 months

Unsurprisingly, scientists believe the most progress in 2020 was on "*expediting COVID-19 research*", with 55% of respondents reporting our progress has been excellent or very good in this area. Their views of progress on other top priorities are far less optimistic. Only 3% of scientists think we are making excellent or very good progress on "*confronting science denialism*" and 3.5% see excellent or very good progress related to "*advancing climate change policy*". More than 70% of respondents report US progress on the following priorities has been poor or not very good: improving the use of science to inform public policy (84%); enhancing public trust in science (86%); advancing climate change policy (87%); confronting science denialism (86%); improving public science education (70%); enhancing global competitiveness of US science (75%). More detail from this survey is available here.

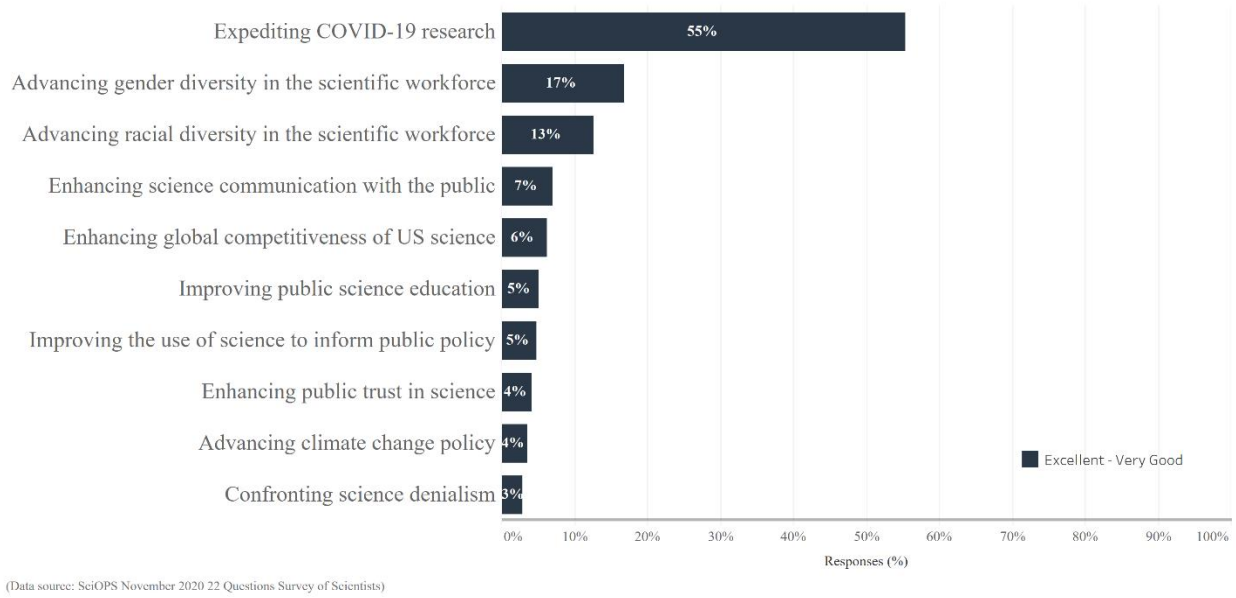

Fig. 2. Comparing Priorities and Progress. (Exact question: "How would you rate the progress that has been made within the U.S. in addressing each of the following science and technology topics over the past 12 months?"

When asked to name other important science and technology topics for which the US has made progress, scientists volunteered the following areas of recent progress: artificial intelligence, military engineering, oil and gas technology, multidisciplinary research, space exploration, and developments in surveillance technology, such as facial recognition. Though many scientists indicated frustration about science progress noting:

> "I think we have largely gone backwards over the last 4 years." – *Biologist*

"I see progress being made by individuals, not institutions of government." – *Scientist in geography and urban studies*

"Besides Covid-related research, I think the US has gone backwards on most things in the past 12 months, instead of making progress." – *Faculty in microbiology and plant biology department*

Next steps in leadership, policy and practice

Our survey results show the ways in which science and technology progress and priorities depend on more than just scientific expertise and investment. U.S. scientists are in overwhelming agreement that their priorities are interrelated with and dependent on education, public policy, community activism, political leadership, media and public trust. Science denialism goes beyond the Trump presidency and has a deep hold on American society.

The new Biden administration will face numerous challenges beyond simply appointing scientific expertise to leadership positions. There is a need for attention and commitment to combating science denialism, improving scientific communication and education, enhancing public trust in science, as well as the effective use science to inform public policy.

About SciOPS

The Scientist Opinion Panel Survey (SciOPS) is a new type of science communication platform, developed at Arizona State University that provides aggregated, unfiltered, diverse expert opinions on timely, important science and technology issues to promote deeper understanding and connections to science in society. To learn more about the SciOPS team and data visit https://www.sci-ops.org/.

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