DEMOS

A CLIMATE OF RESISTANCE

TACKLING THE CHALLENGES OF PUBLIC TRUST IN SCIENTIFIC EXPERTISE AND SCIENCE-BASED POLICYMAKING

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Dr. Elizabeth Seger

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ABOUT THIS REPORT

This paper is a contribution to Demos' research and policy programme on *Epistemic Security*. 'Episteme' means 'knowledge', and accordingly 'epistemic security' is about keeping knowledge safe. More specifically, it is about building and preserving healthy information environments that are robust to adverse influence.

At Demos we see epistemic security as a critical component to the well-functioning of democratic societies. The ability of citizens to access, consume, and appraise trustworthy information for trustworthy sources is essential to informed decision making, to productive civic discourse, and to coordinating societal responses to crises and complex challenges like pandemics and climate change.

This paper turns to an issue at the root of epistemic security concerning early stages of knowledge production and application. It is about public trust in science, scientists and science-based policymaking.

Science is under pressure, and with it the science-based policy making we need to help tackle society's most complex and pressing problems. Vaccine hesitancy is growing, and with it measles is making a comeback. The Trump administration is defunding climate research and rewriting climate reports while global climate commitments threaten to waver.

Meanwhile there was a pandemic; political leaders announced nightly that they were "following the science" with new lockdown restrictions and vaccination programs. But when effects weren't quite what was hoped, there were quick reminders that science is uncertain. Now, at the time of this paper's release, the UK Covid-19 Inquiry is publishing its second installment, an 800 page report detailing how UK politicians grappled with scientific advice and competing priorities in navigating the pandemic response. Some things went well, but some mistakes were made with detrimental impacts on public health, well-being, and trust in expertise and government.

This paper analyses the dynamics at play where science and politics collide. It concludes with advice on how scientists, policymakers, and media can all play a role in honestly communicating and utilising scientific findings to preserve a future for trusted and trustworthy science-based policy.

This work sits within Demos's pillar on ***Resilient Information Ecosystems***, working to support robust and healthy democratic discourse, deliberation and civic participation.

INTRODUCTION

Science-based climate policy is under attack, and the United States is leading the charge. Cuts to agencies like the National Weather Service, efforts to commission "independent" reports to challenge mainstream climate assessments, and even updating past climate research reports are direct efforts to sabotage the climate science that underpins evidence-based policy making.[1,2]

Meanwhile, whispers about cracks in the UK's own Net Zero commitments are raising concerns on this side of the pond.[3,4] Are we falling prey to the Trump administration's crackdown on climate science? One response is that the UK's climate commitment troubles aren't so much about the science as it is about economics; Net Zero is costly, and in a world where major players like the US hesitate or defect, others start asking why they should pay the price of a transition that won't solve the problem alone. The tragedy of the commons plays out in real time.

But beneath the politics, the question persists: what do the experts say? Some argue we must "listen to the science" and press on with green technologies, electric vehicle investment, and rapid decarbonisation. Others push back: there is no single, unified "science." Experts often disagree, findings flip, and industry influence and scientific capture are real. Critics point to inconvenient examples: doctors once endorsed cigarettes, industry buried evidence, and in the 1970s a vocal minority of climate scientists warned about a coming ice age.

Today the scientific consensus on climate change is stronger than ever, but the public is less sure,[5] and climate policy is being abandoned even as we watch the effects manifest in fires and floods. But it's not just climate. Vaccine hesitancy is also growing and with it measles is making a comeback.[6] And people are increasingly happy to take medical advice from TikTok personalities.[7]

This paper digs into what's happening to scientific expertise and science-based policymaking. Is trust in science crumbling, or is something more complicated going on? And most importantly: what should scientists and policymakers be doing about it?

1 Noor, D., Milman, O. (2025). Scientists slam Trump administration climate report as a 'farce' full of misinformation. The Guardian. https://www.theguardian.com/us-news/2025/aug/01/trump-epa-climate-change-report
2 Milman, O. (2024). Scientists decry Trump energy chief's plan to 'update' climate reports: 'Exactly what Stalin did'. The Guardian. https://www.theguardian.com/us-news/2025/aug/07/climate-assessments-chris-wright-trump
3 Poynting, M. (2025). What is net zero and is the UK on track to achieve it? BBC News. https://www.bbc.co.uk/news/articles/cx238yyr40qo
4 Crerar & Elgot (2025). Downing Street forces Tony Blair to row back from net zero strategy criticism. The Guardian. https://www.theguardian.com/environment/2025/apr/30/downing-street-forces-tony-blair-to-row-back-from-net-zero-strategy-criticism
5 Between October 2022 and October 2025 the number of adults reporting climate change as an important issue steadily decreased from 66% to 51%. https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/bulletins/publicopinionsandsocialtrendsgreatbritain/october2025
6 UKSHA. (2025). Measles. https://ukhsa-dashboard.data.gov.uk/vaccine-preventable-diseases/measles
7 Kirkpatrick C. E,& Lawrie L. L. (2024). TikTok as a Source of Health Information and Misinformation for Young Women in the United States: Survey Study. JMIR Infodemiology. doi: 10.2196/54663.

1. DO PEOPLE TRUST SCIENCE?

Is there a crisis of public trust in expertise? It sure can feel like it. But research shows otherwise. In the largest post-pandemic study, run in 68 countries between November 2022 and August 2023, 75% of respondents said they trust scientists.[8] The finding is corroborated by another survey conducted between July and September 2023 in which 71% of respondents report trusting science in cases of crisis,[9] as well as the annual Edelman Trust Barometer 2024 in which 74% of respondents surveyed across 29 countries say they trust scientists to tell the truth about new innovations and technologies. The Edelman Barometer reports that the public believe scientists (77%) and technical experts (74%) should play a big role in managing the implementation of new innovations in society.[10]

But if the public generally does have high trust in experts, or so they say, then what's going on? Why do only 11% of the UK public report making substantial lifestyle changes to help address climate change despite ample evidence of potentially catastrophic global warming trends?[11] And why are childhood vaccination rates in decline if the safety and efficacy of vaccines eradicating diseases like smallpox and (nearly) polio are well proven?[12] Only 5% of people do not trust scientists to conduct high-quality research[13] and measles needs 95% population immunisation for herd immunity.[14] Yet 2023-2024 shows that only 84.5% of children were receiving both doses of the MMR (measles, mumps and rubella) vaccine.[15] If people generally have high trust in scientists, then why don't they listen to scientific advice?

In short, the issue is that the question, "do people trust scientists?", is actually quite complicated. If we instead ask, " what do people trust scientists to do?" – then it starts to make sense. 75% of people believe the scientific method is the best process for learning whether something is true or false, and 78% believe scientists are qualified to conduct high-impact research using the scientific method.[16] However, only 57% believe scientists are honest, only

8 Cologna, V. et al. (2025). Trust in scientists and their role in society across 68 countries. Nature Human Behaviour. https://www.nature.com/articles/s41562-024-02090-5
9 Global Listening Project. (2023). Societal Preparedness Insights. https://global-listening.org/societal-preparedness-insights/
10 Edelman Trust Institute. (2024). 2024 Edelman Trust Barometer: Innovation in Peril. https://www.edelman.com/trust/2024/trust-barometer
11 Office for National Statistics (2025). Public opinions and social trends, Great Britain: October 2025. https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/bulletins/publicopinionsandsocialtrendsgreatbritain/october2025
12 House of Commons Library. (2025). Childhood immunisation statistics. https://commonslibrary.parliament.uk/research-briefings/cbp-8556/
13 Cologna, V. et al. (2025). Trust in scientists and their role in society across 68 countries. Nature Human Behaviour. https://www.nature.com/articles/s41562-024-02090-5
14 Danechi, S. (2025). Child Immunisation Statistics. House of Commons Library. https://researchbriefings.files.parliament.uk/documents/CBP-8556/CBP-8556.pdf
15 Ibid.
16 Cologna, V. et al. (2025). Trust in scientists and their role in society across 68 countries. Nature Human Behaviour. https://www.nature.com/articles/s41562-024-02090-5

56% believe scientists care about people's well-being, and only 42% feel scientists will pay attention to others' views.[17]

In other words, a person might trust scientists to do science, but balk when scientific findings are translated to scientific advice for lifestyle, social policy, or government priority.[18] Where does this disconnect come from, and what does it mean for the future of science-based policy making?

In the sections that follow we will pick apart the very rational ways in which trust in science can fail to materialise as trust in scientific advice. We will look at where people turn for guidance instead, and what happens when science and politics collide. The paper concludes with advice on how scientists, policymakers, and media can all play a role in honestly communicating and utilising scientific findings to preserve a future for trusted and trustworthy science-based policy.

17 Ibid.

18 The point is also succinctly explained and evidenced in, Larson, J. H. & Bersoff, D. M. (2025). Science's big problem is a loss of influence, not a loss of trust. Nature. Doi: 10.1038/d41586-025-01068-1

2. VALUES IN SCIENCE

In school we are taught that science is an objective process. A more precise characterisation is that science tries to be as objective as possible, but that subjective value judgments are necessarily scattered throughout the scientific process. Where human values enter science, there is opportunity for values to conflict, and this is where trust wavers.

2.1 DECIDING WHAT TO STUDY

The first place values come into play is with the initial choice of what topics science should attend to. Before any research begins, scientists must first decide what to study. This choice is guided by intellectual interest, societal priorities, and public needs. But above all, which scientific pursuits go forward are ultimately determined by funding. Science is expensive, raking in costs for researcher and support staff salaries, materials, specialised equipment, and institutional overheads.

At a very high level, the scientific pursuits that attract adequate funding do roughly track what might be considered more valuable to society. It's why, for example, there is more funding available for scientists to research cancer treatment than toenail growth rate.

However, at a more granular level, the priorities and incentives of different funding bodies have heavy influence over which specific research agendas are pursued and to what end. There are three categories of science funders - philanthropic donors, private corporate investors, and public funding bodies - each with their own goals and priorities.

2.1.1 Philanthropic Funding

Philanthropic donors tend to support particular cause areas. These cause areas might align with an area of particular interest for a key donor, perhaps because of personal experience or an experience suffered by a family member or community close to home. Philanthropy might also commit funds to the pursuit of some high level goals, for example, to eradicate certain diseases, or to support research to meet global decarbonisation goals.

Philanthropic giving has traditionally played an important role strategically filling gaps in the public and private funding landscape, but philanthropy also comes with its pitfalls.[19] For example, philanthropic funders tend to focus locally and often build long-term, repeat grant-

19 Falk, A. (2025). Science philanthropy faces a new reality. Science, (389)6757, 219. https://www.science.org/doi/10.1126/science.aea4929

giving relationships with recipients.[20] This indicates that factors besides research excellence guide the granting decision. Philanthropy is also an undemocratic system for distributing funds, and some raise the concern that with increasing global concentration of wealth, philanthropic giving will increasingly serve as a mechanism wealthy individuals employ in pursuit of their own idiosyncratic vision of the future.[21]

2.1.2 Private corporate funding

Meanwhile, corporate private funders are primarily driven by financial interest, funding research for the development and testing of new products to take to market. This research will track value to society in so far as the most lucrative products of scientific investigation will tend to be those that can be sold to help the greatest number of people with their problems. For example, if billions of people suffer from acne, then the pharmaceutical company that discovers the most effective, side-effect free topical treatment will realise a substantial financial reward for millions of treatments sold.

However, there are a couple downsides to relying on capitalist incentives to determine research direction. First, problems that affect only a small portion of the market or that primarily burden populations with limited purchasing power tend to attract less private investment because they are not financially lucrative.[22] For example, the WHO highlights how neglected tropical diseases, largely concentrated in low-income countries, require public investment because private markets do not adequately support the needed research and implementation.[23]

Second, there have been a rash of unfortunate examples where private funding is used to influence research agendas and suppress scientific findings that could undermine the company's financial interests. The tobacco industry's manipulation of research regarding the health effects of first- and second-hand smoke is a prime example.[24] In the 1950's through to the1990's tobacco industry sponsorship dominated the health research scene in a multipronged strategy to direct research agendas, and disseminate favorable findings, suppress unfavorable findings, and sow doubt. The tobacco industry would, for instance, fund research on the health effects of smoking and selectively withhold studies from publication that ran counter to their interest. They would also fund research to distract from the health effects of smoking, for example, by highlighting the efficacy of indoor filtration systems for eliminating pollutants.[25] In hindsight, legal investigations have uncovered that the tobacco industry was well aware of the catastrophic health effects of smoking from early days, but went to extremes to conceal its knowledge, for example using code work 'zephyr' for 'cancer' in internal memos to obscure evidence. In more recent years, the tobacco industry's playbook for manipulating research has been copy and pasted by the fossil fuel industry.[26] Climate science research is dominated by major players such as ExxonMobil, BP, and Shell, and while the debate on climate science findings rages on, unearthed research documents show that the fossil fuel industry has been very clearly aware of the climate change danger since the 1950s.[27]

20 Shekhtman, L. M., Gates, A. J. & Barabási, A. L. (2024). Mapping philanthropic support of science. Sci Rep 14, 9397. https://doi.org/10.1038/s41598-024-58367-2
21 Reich, R. (2018). Just Giving: Why Philanthropy Is Failing Democracy and How It Can Do Better. Princeton University press. Print.
22 Mueller-Langer, F. (2013). Neglected infectious diseases: are push and pull incentive mechanisms suitable for promoting drug development research? Health Econ Policy Law, 8(2):185-208. doi: 10.1017/S1744133112000321.
23 World Health Organization (2015). Investing to overcome the global impact of neglected tropical diseases: third WHO report on neglected tropical diseases. https://www.who.int/publications/i/item/9789241564861
24 Bero, L .A. (2005). Tobacco Industry Manipulation of Research. Public Health Chronicles. 120(2):200-208. doi:10.1177/003335490512000215
25 Leavell, N. R. et. al. (2006). Blowing smoke: British American Tobacco's air filtration scheme. BMJ. https://doi.org/10.1136/bmj.332.7535.227
26 Oreskes, N. (2011). Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Climate Change. Bloomsbury. Print.
27 Milman, O. (2024). 'Smoking gun proof': fossil fuel industry knew of climate danger as early as 1954, documents show. The Guardian. https://www.theguardian.com/us-news/2024/jan/30/fossil-fuel-industry-air-pollution-fund-research-caltech-climate-change-denial

Both of these cases - big tobacco funding of health research and fossil fuel funding of climate science - have had an extremely damaging effect. They have essentially demonstrated to the public you can only trust science outputs insofar as you can trust the people funding the science. So we can start to see why the adage "just listen to the science" is not actually as straight forward as it might seem.

2.1.3 Government public funding

Finally, the third pool of funding comes from government. Government funding typically aims to fund scientific research that is expected to yield public benefits where it is not yet adequately supported by philanthropic giving or private investment.[28] The challenge with public funding, however, is that like with private corporate funding, the directions and goals of publicly funded science - including how "public benefit" is defined - are also subject to changing political directions and priorities. Just as corporate funding can be deployed to overshadow or silence certain research, so too can government funding. This is being so keenly demonstrated in the US where nearly $4billion in funding cuts to the National Science Foundation (NSF) and National Institute of Health (NIH) have primarily targeted research areas that the government sees as supporting 'woke' ideologies such as research focusing on transgender healthcare, health disparities in minority groups, and climate change[29] (NSF grants have been terminated for more than 100 projects related to climate change, for example).[30] The effects of these funding cuts are also being felt internationally where they impact research collaborations.[31]

This section has demonstrated that while scientific funding is technically a precursor to scientific investigation, funding distribution is a heavily value-laden decision process with profound impact on directions of scientific pursuit and on if and how those findings are communicated. Consequently, "trusting science" has an implicit requirement of also trusting those who financially back the science to be backing the right thing.

2.2 NAVIGATING UNCERTAINTY IN THE SCIENTIFIC PROCESS

But let's move forward. Assume a research team has acquired funding and are ready to start their work. Their chosen topic may or may not be the most important to society, but the team is resolved that the research they do undertake will be rigorous and robust. They will set falsifiable hypotheses, follow the scientific method, and submit their methodology and findings for peer review before publication in open access journals for all to read.

This section illustrates how even if the scientific method is followed perfectly, uncertainties still arise throughout the scientific process that need to be navigated. Navigating these uncertainties requires value judgement, and how uncertainties in science are then communicated to the public can influence public trust in science more broadly.

In a cornerstone paper of the academic field of philosophy of science, Professor Heather Douglas describes how value-laden judgments occur not only in the "external stages of science" (the processes of choosing research directions, allocating funding, and giving advice based on scientific findings), but throughout the "internal stages of science" (conducting

28 Some publicly funded research will aim to serve immediate needs, like with medical research and weather forecasting. Other publicly funded research agendas do not have clear immediate public benefits, but aim to support foundational research upon which new discoveries of great public importance may one day emerge. Such is the case, for example, with astrophysics and early space exploration. What started largely as pursuits of intellectual curiosity (which some people call "pure science"), paved the way to today's critical satellite comms infrastructure which, now profitable, is largely driven by private industry investment.

29 Nienaber, V., Leeming, J. (2025). What research might be lost after the NIH's cuts? Nature trained a bot to find out. Nature. https://www.nature.com/articles/d41586-025-02748-8

30 Temple, J. (2025). The Trump Administration Shut down more than 100 climate studies. MIT Technology Review. https://www.technologyreview.com/2025/06/02/1117653/the-trump-administration-has-shut-down-more-than-100-climate-studies/

31 Gibney, E. (2025). How Trump's budget cuts could derail global science collaborations. Nature. https://www.nature.com/articles/d41586-025-01764-y

experiments, testing hypotheses, gathering and interpreting data) as well.[32] Unless dealing in the development of mathematical proofs for physical law, the scientific process involves testing hypotheses through repeated experimentation, collecting and analysing data to look for evidence that opposes or supports the hypothesis. Because the world we study is complicated and messy, influenced by a multitude of interacting factors that we do not fully understand, so too is the data we collect. Scientists therefore look for "statistically significant signals" in their data in order to cut through noise and outliers to find evidence supporting or opposing a hypothesis. Here enters a key point of uncertainty - what constitutes a statistically significant result? And, what threshold of evidence must be met for a hypothesis to be accepted or rejected?

There are, of course, well established standards for dealing with statistical uncertainty. It is not laissez faire – not simply up to the individual scientist to determine what is a statistically significant finding. Scientific research will be rejected from peer review and academic publication if well-established data analysis standards are not followed. However, that some degree of uncertainty is inherent to the internal processes of science provides a foothold for scepticism, doubt, and distrust in science when poorly communicated.

Climate science has been a particularly badly abused victim of scientific uncertainty and the poor communication thereof. By its nature, climate science deals in predictive futures. Scientists take past data on a wide variety of factors that influence global climate (atmosphere temperature, sea temperature, deforestation, atmospheric CO_2, polar ice melt etc.) and attempt to build models that can be used to extrapolate that data to future climate predictions. The challenge, however, is that each of these factors is uncertain (usually expressed as a probability range) and uncertainty compounds on uncertainty. This was the case persuasively communicated by the academic statistician, Bjorn Lomborg, in his popular 2001 book, *The Skeptical Environmentalist.* Lomborg pointed out that the Intergovernmental Panel on Climate Change's (IPCC's) global temperature projections are based on uncertain projections of future net greenhouse gas emissions.[33] These are in turn based on imperfect projections of human population growth rate, technological advances, agricultural practices, deforestation, and so on. Lomborg continued, if climate projections already suffer from such compounded uncertainty, then the additional predicted effect of human behavior on altering the trajectory of climate change is even more so. It was Lomborg's conclusion, therefore, that disastrous consequences of climate change being proffered by climate scientists are likely overstated and, due to the uncertainty of the projections, do not justify drawing resources away from more clear cut and pressing causes like economic decline from deindustrialization, critical health interventions, and providing clean water to the developing world.

Lomborg's book was slammed by the scientific community for being misleading, cherry picking data, and relying heavily on secondary sources instead of looking at primary research results.[34,35,36] Yet its publication and reception illustrated a few important points about communicating scientific uncertainties with implications for public trust in science and expertise:

The first point is the difficulty of communicating uncertainty in science and how uncertainty can be manipulated to sow doubt. Science communicators face a tricky challenge in public presentation of scientific findings. On the one hand, discussing the uncertainties upfront risks misinterpretation or intentional narrative manipulation. On the other hand, glossing over uncertainty to encourage deference to the scientific authority on an issue (e.g. to encourage

32 Douglas, H. (2000). Inductive Risk and Values in Science. Philosophy of Science. https://doi.org/10.1086/392855
33 Lomborg, B. (2001). The Skeptical Environmentalist: Measuring the Real State of the World.
34 van den Bergh, J. C. J. M. (2010). An assessment of Lomborg's The Skeptical Environmentalist and the ensuing debate. Journal of Integrative Environmental Sciences, 7(1), 23–52. https://doi.org/10.1080/19438150903533730
35 Revkin, A. C. (2003). Environment And Science: Danes Rebuke A 'Skeptic'. https://www.nytimes.com/2003/01/08/world/environment-and-science-danes-rebuke-a-skeptic.html
36 Rennie, J. (2002). Misleading Math about the Earth: Science defends itself against 'The Skeptical Environmentalist'. Scientific American, (281)1, 61. https://www.scientificamerican.com/article/misleading-math-about-the/

childhood vaccination) could backfire if that uncertainty is later uncovered and comes as a surprise, potentially leading to a coverup conspiracy (see discussion in section 3.3.3 on the University of East Anglia 'Climategate' email leak). A key part of the solution here needs to be better public education on scientific process and publication method, so that there is widespread foundational understanding of the uncertainties inherent to the internal processes of science and how they are managed through strict and well-established standards for statistical analysis and presentation. This way uncertainty does not come as a surprise and is understood to be compatible with the validity of scientific findings.

The second learning is about the difference between believing science and accepting scientific advice. Lomborg's ultimate goal was to make an argument about resource management, specifically to argue not to direct limited resources toward climate mitigation. To make this case Lomborg did not need to convince his readers that climate science findings were outright false, but only needed to sow enough doubt about scientific uncertainty to justify his recommendations for different priorities. In other words, Lomborg left room for readers to both respect the science and agree with his policy conclusions. The complexities of making this translation from science finding to science advice is the subject of the next section.

2.3 TRUSTING THE SCIENCE BUT STRUGGLING WITH THE SCIENTIST'S ADVICE

The public may generally trust scientists to do science well (see section 1), however, there is a big step between trusting scientists to do science, and trusting a scientist's recommendations.[37] This is because values always play a direct role in deciding how to act, but scientist and citizen priorities do not always align.

Consider, for example, the parent who takes their child to a GP. The physician recommends the child receive a vaccination, stating that research shows no serious adverse side-effects in 99.9% of cases. The parent could fully believe the GP's statement "the vaccine is 99.9% safe" but still disagree with the recommendation to vaccinate because they feel that a one in a thousand chance of adverse effect for their child is still too high. In this way, it can be perfectly reasonable for a well-informed person to defer to scientists on the science but nonetheless disagree with their recommended course of action.

The key to grounding public trust in scientific advice is therefore to give people reason to believe that the values informing expert advice does in fact align with their own values. For example, this would be for the physician to show the parent that they care about the individual child's health. The challenge, however, is that the focus and aims of scientific investigation often do not align well with the focus and aims of individuals.

First, science studies data sets to identify statistically significant trends, while people tend to prioritise individual cases, anecdotal evidence, and lived experience. For example, an epidemiologist studies the effect of vaccines on slowing the spread of Covid through a population. Accordingly, their evaluation of vaccine efficacy and their corresponding advice for vaccine rollout will be based on implications for population level impacts, not the experiences of individual citizens. However, members of the public are primarily concerned with how a vaccine will immediately impact themselves and their families. Their belief in whether a vaccine 'works' or is 'safe' will be heavily influenced by individual cases and relatable stories - for example, friends who were vaccinated but still got sick, or that neighbour who seemed to fall sick because of the vaccine. So when the scientist's advice is for everyone to receive a vaccination despite the testing timelines having been rapidly condensed to respond to a pandemic, it is easy to see how a person might grant that the vaccine is important for population health, but still reject the scientists advice that they, as an individual, should agree to vaccination.

37 See also Bennett (2020). Trusting experts takes more than belief. CRASSH Blog. https://www.crassh.cam.ac.uk/blog/trusting-the-experts-takes-more-than-belief/?category=962

This leads to the second point. Science often deals with long timelines and uncertain futures while the public is busy grappling with the tangible, immediate problems affecting their daily lives. Climate policy highlights this disconnect. In his book, *Why We Disagree about Climate Change*, Mike Hulme describes climate change as an unwieldy "un-situated" risk.[38] Unlike "situated" risks, which have identifiable causes and local consequences that individuals can influence, climate change is diffuse and abstract. Its drivers are global, its impacts are delayed, and no single person's actions can decisively alter its course. This makes it hard to 'situate' in the context of everyday life and decision-making. Climate scientists may warn about the catastrophic impacts of rising temperatures and sea levels, but especially for denizens of more temperate climates such as the UK, the urgency is difficult to translate; the evidence of change – a warmer summer, a heavy storm – does not feel pressing, especially compared to urgent daily struggles. Meanwhile, the interventions required to address climate change – changes to energy use, diet, or travel – are highly visible, costly, and disruptive. So when climate scientists expound on the extreme consequences of climate change and call for immediate action that will impact all citizens lives, it is easy to see how these calls might feel out of touch with citizen interests. The exact timelines and consequences of climate change can't be pinpointed, yet citizens are asked to make significant lifestyle changes sometimes at notable expense, all while grappling with other very tangible and immediate problems knocking at their doors.

The point here is not that climate science and associated policy advice should be abandoned. Rather, the aim is to illustrate the importance of attending to how science advice is communicated. Trust in science advice is heavily rooted in whether people trust that advice givers have individual interests at heart. Even if a person is convinced that scientific findings are sound (which is not always the case, see section 2.1 and 2.2), advice based on the science will not find traction if it is not formulated and communicated in a way that is sensitive to the values of those whom the advice targets.

WHY DO PEOPLE TRUST NON-SCIENTISTS ABOUT SCIENCE?

Why might someone ignore their doctor but take health advice from a TikTok personality? The key is that the influencer isn't 'some random person'. Rather, they are seen as relatable figures who share life experiences, values, or priorities that resonate with their audience. When people feel that an online personality understands their worldview—whether through political views, family life, or cultural references—they are more inclined to assume that any advice given is offered with their best interests in mind. In an era of overwhelming information, these perceived communities of trust serve as filters, helping individuals decide which claims feel relevant and aligned with their goals. This alignment of values, rather than expertise, often underpins why non-scientists are trusted to speak on scientific matters.

38 Hulme, M. (2009) Why We Disagree about Climate Change: Understanding Controversy, Inaction, and Opportunity. Cambridge: Cambridge University Press.

3. SCIENCE AND POLITICS

So far we have been talking about where values enter the scientific process and how those values impact the receipt of scientific advice. These considerations are important for individual decision-making: Do I vaccinate my child? Do I take a long, uncomfortable, train journey instead of flying to reduce my carbon footprint? But we enter yet another layer of complication where science meets politics.

There is substantial debate about what the proper role of the scientist is for inputting to science-based policy-making and, inversely, how politics and politicians should interact with science. The interplay between science and politics has profound impacts on public perception on the trustworthiness of science and expertise.

3.1 THE ROLE OF SCIENCE IN DEMOCRACY

In the 1962 translation of his book, *Democratic Theory*, leading political scientist Giovanni Sartori explains the classic conception of democracy and the essential function expert advice plays in its delivery:[39]

Democracy, Saratory states, means "power to the people", but because full individual sovereignty is not a tenable form of government (indeed it would be anarchy), democratic government instead employs elections whereby people elect leaders who are tasked with governing (making decisions and implementing policy) to further the public interest.[40] Sartori notes that, on their own, politicians cannot responsibly enact policy that requires specific knowledge - "It is only true that a certain kind of politics can do without the expert: specifically, the 'small politics' whose primary concern is to guarantee man from despotic domination."[41] If political decision-making is to extend into realms beyond the basic competencies held by all persons - realms such as climate policy or pandemic response - then expert testimony is required. In other words, the input of science expertise is essential to the proper extension of democratic government into science policy.

39 Sartori, G. (1962). Democratic Theory. Detroit, MI: Wayne State University Press.
40 Sartori (1962) p.65-68.
41 Sartori (1964) p.403.

3.2 HOW SCIENTISTS INPUT TO POLICY

So politicians have a moral obligation to consult scientists. But what does this mean for the scientist when consulted? Imagine you are a climate scientist and you get a call from a politician asking whether she should support the termination of gas vehicle production in the UK. It's an exciting opportunity to influence policy in an area you care deeply about, but what should you do?

In another foundational text of philosophy of science, *The Honest Broker: Making Sense of Science in Policy and Politics*, Roger Pielke (2007) provides the most highly referenced taxonomy of the roles scientists might play in informing science based policy.[42] He articulates four roles:

1. **The pure scientist** who limits their input to summarising the state of knowledge in a particular field.
2. **The scientific arbiter** who, like the pure scientist, avoids entailment in normative debates, but who does provide detailed answers to a politician's specific policy questions in cases where scientific and political consensus exist.
3. **The issue advocate** who, in cases of political disagreement or scientific uncertainty, align themselves with a particular political agenda or interest group. They lend their expertise a resource for political debate.
4. **The honest broker** who seeks to clarify existing policy options and offer new ones. They employ their scientific expertise to evaluate various stakeholder concerns and policy ideas in order to paint a full picture of the policy option space and their implications.

Pielke does not advocate for scientists to take on any particular role. He even offers a modest defense of "the issue advocate" which many find to be the most problematic for unnecessarily mixing values and science. In Pielke's view if a scientist feels strongly about a particular policy position they should feel free to support it, but they must do so with open reference to the political and moral values driving their position. They must not engage in "stealth issue advocacy" by implying that their issue advocacy follows directly from their scientific claims. Stealth issue advocacy politicises science and can ultimately undermine the credibility of scientific advice in the public's eye. (See section 3.3 for more on the politicisation of science).

We are not going to settle here which of Pielke's four advisory roles is most appropriate for scientists to perform. It is an ongoing academic debate, and the answer will most likely shift with context—for example whether it is regarding a clear area of scientific consensus or one characterised by more uncertainty, or whether the policies being considered are politically neutral or already steeped in heated public debate. What we will discuss further is the harm caused when complex political decision-making pretends to be the direct and logical conclusion of scientific evidence.

3.2 POLITICIANS NEVER "JUST FOLLOW THE SCIENCE"

It is not solely the scientist's job to determine what role they will play in offering scientific advice to politicians. Politicians also have a responsibility in determining what scientific advice to seek, in how they use that advice to inform policy decisions on the behalf of their electorate, and in how they communicate their consideration of scientific evidence to the public.

42 Pielke, R. (2007). The Honest Broker : Making Sense of Science in Policy and Politics. Cambridge: Cambridge University Press.

Politicians are also tasked with navigating multifarious challenges with implications for economy, public welfare, and social policy, and they must consider both near-term implications and long-term impacts with respect to local politics and global geopolitics. To tackle these challenges politicians often must call on multiple different areas of expertise to inform their policy-development and decision-making, and they must navigate conflicts in expert priorities and advice where necessary. The idea that policy decisions can, or even should, follow directly from scientific insight is naive at best given a politician's broad responsibilities.

Even in cases where it seems like policy should directly follow from an understanding of the scientific facts, the picture is complicated. Consider, for example, the UK's Scientific Advisory Group for Emergencies (the SAGE committee) called on heavily during the Covid pandemic.[43] SAGE was established in 2009 with the remit of "ensuring that timely and coordinated scientific advice is made available to decision makers to support UK cross-government decisions in the Cabinet Office Briefing Room (COBR)". During the pandemic SAGE was composed of 11 working groups and drew on the insights of over 350 experts over the course of the pandemic to help guide government decision-making.[44] The chair of the SAGE committee, Sir Patrick Vallance, reported that 'heated and prolonged' discussions in committee meetings were commonplace, with experts debating the quality and implications of scientific evidence[45] - for example whether evidence on disease transmission was strong enough to justify mask wearing requirements, or whether the proper research methodologies were being employed. Some worried, for instance, about an over-reliance on pandemic modeling compared to public health insights from feet on the ground.[46]

Furthermore, SAGE was just one strand of evidence feeding into COBR's judgments. COBR also needed to consider the economic impacts of their decisions, as well as the safety and wellbeing of children and other vulnerable groups if being required to isolate. It was the politicians' job to weigh the risks and tradeoffs to determine a course of action. So in the end, what we have is clearly not an instance of politicians "just following the science", but a political judgement factoring in a smorgasbord of scientific advice which was only one category of input under consideration.

Where frustration really grew was in how these political decisions were being communicated as "following the science" when this was clearly not the whole story.[47,48,49] During the pandemic UK Prime Minister Boris Johnson would hold his daily press briefings flanked on either side by Chris Whitty, the UK's Chief Medical Officer, and Sir Patrick Vallance, the Government Chief Scientific Advisor. The aim was clearly to invoke scientific authority as the clear foundation of policy announcements. However some of the scientists advising Johnson's government worried that they were being used as "human shields", absolving the government from responsibility in its decisions by invoking scientific determination, when in reality science is riddled with uncertainty and debate.[50]

43 Baker, H. (2020). The SAGE we knew and the SAGE 'everyone' now knows and wants to scrutinise. CRASSH Blog. https://www.crassh.cam.ac.uk/blog/the-sage-we-knew-and-the-sage-everyone-now-knows-and-wants-to-scrutinise/?category=962

44 UK Government Office of Science (2022). Transparency data: List of participants of SAGE and related sub-groups. https://www.gov.uk/government/publications/scientific-advisory-group-for-emergencies-sage-coronavirus-covid-19-response-membership/list-of-participants-of-sage-and-related-sub-groups

45 Donnelly, L. (2020). Government advisers divided on how to handle key aspects of coronavirus crisis, Sage chairman says. The Telegraph https://www.telegraph.co.uk/politics/2020/04/27/government-advisors-divided-handle-key-aspects-coronavirus-crisis/

46 McCoy, D. (2020). Faith in coronavirus modelling is no substitute for sound political judgment. The Guardian. https://www.theguardian.com/commentisfree/2020/apr/10/modelling-pandemic-politicians-decisions-science

47 Baker, S. (2020). Coronavirus shines spotlight on science advice system in UK. Times Higher Education. https://www.timeshighereducation.com/news/coronavirus-shines-spotlight-science-advice-system-inuk#survey-answer

48 Morales, A., & Ring, S. (2020). Johnson's Top Aide Pushed Scientists to Back U.K. Lockdown. Bloomberg UK. https://www.bloomberg.com/news/articles/2020-04-28/top-aide-to-u-k-s-johnson-pushed-scientists-to-back-lockdown

49 Carrell, S., Pegg, D., Lawrence, F., Lewis, P., Evans, R., Conn, D., Davies, H., & Proctor, K. (2020). Revealed: Cummings is on secret scientific advisory group for Covid-19. The Guardian. https://www.theguardian.com/world/2020/apr/24/revealed-dominic-cummings-on-secret-scientific-advisory-group-for-covid-19

50 Wickam, A., Baker, K. (2020). Scientists Advising The UK Government On The Coronavirus Fear Boris Johnson's Team Is Using Them As "Human Shields". Buzzfeed News. https://www.buzzfeed.com/alexwickham/coronavirus-uk-scientists-human-shields

Indeed politics has a nasty habit of hiding behind science, first by demanding full trust in science to justify policy decisions, and then by referencing the inherent uncertainty of science (or blaming citizens for their assumption of scientific certainty) when things don't go as planned. Such was the case, for instance, in the runup and aftermath of the deadly 2009 L'Aquila earthquake in central Italy.[51] Following a series of tremors a group of scientists were brought in to assess risks. The meeting did not result in government advice to evacuate. Less than a week later a 6.3 magnitude earthquake killed 300 people. At the time the advice was issued, citizens were told by government officials to follow scientific advice: keep calm and carry on. After the earthquake, the scientific advisors were charged with negligence and manslaughter. Their defense, and the government's, sat in large part on the inherent uncertainty of seismological earthquake prediction. Sociologist Federico Brandmayr notes, "the result of this oscillation is confusion and suspicion among the public, and a reinforcement of conspiratorial beliefs according to which scientists are hired guns of powerful interests and that science is merely a continuation of politics by other means."[52]

What is the lesson here? Politicians should be forthright about the role of science in policy-making and about how uncertainties in science are being navigated and balanced with other considerations. It is about illustrating, to the extent that is possible, where the science ends and the politics begins. For example, pre-pandemic SAGE advisor Sir Ian Boyd said in an interview with ITV that he "always told ministers it was very dangerous for them to say 'I will follow the science'…because essentially what that is doing is shifting the decision-making role from them to the scientific advisers, and it would be better if they said 'I will be strongly advised by the science' or something of that type."[53]

3.3 THE POLITICISATION OF SCIENCE

This final substantive section considers the effect on trust in science when science turns political.

Politicisation is the process by which a topic is transferred to the realm of politics and/or political debate.[54] A topic enters the realm of politics, or becomes a political issue, when it involves conflicts over values, interests, and power, and its resolution must be determined by debate and negotiation rather than a purely technical process such as further scientific investigation.

Science politicisation is not necessarily bad. Indeed it is obligatory where uncertainties exist and a course of action must balance potentially conflicting priorities in pursuit of public benefit. Such was the case for determining if and how to implement a household isolation mandate during the pandemic. What we do need to be concerned with, however, are instances of unnecessary or inappropriate science politicisation. These are cases where controversy is manufactured or overemphasised in order to sow confusion and throw science into the realm of political debate, or inversely, where science is invoked to support a position in a debate that can only settle by deliberating conflicting values.

Three actor groups typically drive the process of science politicisation: scientists, political actors, and media/journalists.[55] The roles of each are expanded upon below.

51 Brandmayr, F. (2020). Are the experts responsible for bad disaster response? CRASSH Blog. https://www.crassh.cam.ac.uk/blog/are-the-experts-responsible-for-bad-disaster-response/

52 Brandmayr, F. (2020). Are the experts responsible for bad disaster response? CRASSH Blog. https://www.crassh.cam.ac.uk/blog/are-the-experts-responsible-for-bad-disaster-response/

53 itvX. (2020). How does the Scientific Advisory Group for Emergencies work? https://www.itv.com/news/2020-04-16/how-does-the-scientific-advisory-group-for-emergencies-work

54 Wiesner, C. (2021). Politicisation, politics and democracy. In: Wiesner C, ed. Rethinking Politicisation in Politics, Sociology and International Relations. Palgrave Macmillan. p.19–42.

55 Schmid-Petri, H., Bienzeisler, N., Beseler, A. (2022). Effects of politicization on the practice of science. Progress in Molecular Biology and Translational Science. (188)1, 45-63. https://doi.org/10.1016/bs.pmbts.2021.11.005

3.3.1 Scientists

Scientists play an active role in the politicisation of science when they lend themselves or their research in direct support of policy positions or political actors. As introduced in 4.1, this is to be an "issue advocate" as defined by Pielke. Examples might include a climate scientist who links their research directly to energy policy considerations, or a Nobel laureate who lends their backing and credentials to boost the legitimacy of a position in political debate. Scientists might also collaborate with interest groups that align with political agendas or even directly endorse or condemn politicians. It is not necessarily inappropriate for scientists to engage with political debate; the challenge, Pielke notes, is when they do so without open communication for the values they are bringing to the table beyond scientific insight (e.g. the values determining how they navigate scientific uncertainty in choosing to support a policy position).

The impact of scientists and scientific institutions involved in political debate on public trust are notable. For example, a study carried out in Germany showed that participants tend to trust scientists less who advocate for policies like closing schools during Covid compared to scientists who simply present the evidence for policymaker consideration.[56] In another poignant example, a study published in *Nature Human Behavior* showed that Trump supporters trusted the publication's scientific outputs less if they were told the Journal had endorsed Joe Biden's presidential candidacy.[57] Cases such as these had led Fiona Fox, CEO of the Science Media Centre in the UK, to express her concern about recent calls for the Royal Society (the UK's national academy of science) to revoke Elon Musk's fellowship.[58] The call is in response to Musk's attack on evidence-based policies, promotion of disinformation, personally abusive statements against scientists such and Anthony Fauci (former US Chief Medical Officer), and his role in cutting substantial scientific funding as the head of the Trump administration's Department for Government Efficiency (DOGE). Fox notes, however, that while Musk's anti-science activities are deeply troubling, a move by the Royal Society to revoke Musk's fellowship would be a political move by an otherwise independent scientific organization. Stepping into the deeply political discussion of Musk's behavior and role in DOGE could undermine public trust in institutions more broadly. Fox writes, "Arguably, a better use of the Royal Society's global influence and that of its fellows would be to explain exactly how the measures touted by the US government could damage public health and the environment for decades to come. Playing the ball, in other words, might be less immediately satisfying than playing the man. But it might do more good."[59]

3.3.2 Political actors

Political actors, by contrast, politicise science when they selectively use or manipulate science to support their established goals. This could take the form of cherrypicking scientific findings that support political goals and selectively appointing sympathetic experts to advisory boards or political positions (e.g. Trump's sacking of Dr. Susan Monaraz as the Director of the CDC for "not being aligned with the President's agenda" and replacing with silicon valley tech investor Jim O'Neil).[60] In a similar vein, political actors might strategically over-emphasise scientific uncertainty to slow down policy-making; the idea is to frame a scientific topic as far from settled in order to demand more research before any policy progress can be made. This strategy for

56 Zhang, F. J. (2023). Political endorsement by Nature and trust in scientific expertise during COVID-19. Nat Hum Behav 7, 696–706. https://doi.org/10.1038/s41562-023-01537-5
57 https://www.nature.com/articles/s41562-023-01537-5
58 Fox, F. (2025). If the Royal Society expels Musk, it could harm trust in science. Research Professional News. https://www.researchprofessionalnews.com/rr-news-uk-views-of-the-uk-2025-february-if-the-royal-society-expels-musk-it-could-harm-trust-in-science/
59 Fox, F. (2025). If the Royal Society expels Musk, it could harm trust in science. Research Professional News. https://www.researchprofessionalnews.com/rr-news-uk-views-of-the-uk-2025-february-if-the-royal-society-expels-musk-it-could-harm-trust-in-science/
60 Yousif, N., Bowes, P. (2025). White House names RFK Jr deputy as replacement CDC director. BBC. https://www.bbc.co.uk/news/articles/cwy3zjxy3dwo

delaying policy has been heavily employed by the climate change counter-movement across the US[61] and Europe.[62]

Politicians can also politicise science through their rhetoric, for example, framing certain political positions or entire political parties as "pro-science" and conflicting positions or parties and "anti-science". Doing so can be very damaging, fueling resentment and widening political divides instead of making any progress toward important policy action.

Finally, political actors have the opportunity to politicise science by directly manipulating science in service of political priorities. This can involve directing grants and research budgets toward politically favourable topics (e.g., renewable energy vs. fossil fuels), or by cutting or restricting funding for politically inconvenient research areas (e.g., climate science programs reduced under certain administrations). Doing so simultaneously provides the political actor with science backed ammunition to support their agenda (or precludes the production of science backed ammunition against it) and sows doubt about the trustworthiness and independence of science writ large.

It is a leaf out of the authoritarian government playbook. For example, in Soviet Czechoslovakia, a researcher's academic career prospects and access to research funding were closely tied to loyalty Communist Party, allowing the government to manipulate and deploy scientific research directions and findings to legitimise regime actions.[63] Correspondingly, research shows that supporters of populist parties in authoritarian regimes are more likely to hold reservations and pessimistic viewpoints about science.[64] Now in a similar move the Trump administration is rewriting climate science,[65] defunding universities and core scientific institutions, slashing grants[66] and dismissing scientific leaders[67] who don't align with the administration's political agenda.

3.3.3 Media & Journalist

Finally, media and journalists play a role in politicising science through their gatekeeping and narrative-building functions. At a most basic level, media outlets choose which scientific topics to cover heavily, thereby elevating those topics to public political discourse. Journalists will also select which experts to platform and thereby portray as credible. These are inherent byproducts of any science reporting and not necessarily problematic. However journalists must be aware of the role they play in science politicisation as the gatekeepers of science communication and respect the responsibility that comes with it. It is perhaps troubling, for instance, that news content on climate change has increasingly platformed political actor voices while the number of scientific voices platformed on the topic have been decreasing.[68] Journalistic norms of objectivity can also lead to disproportionate coverage of fringe positions in the name of "balance" while the effect is to unnecessarily politicise otherwise relatively settled scientific debate.

61 Brulle, R. J. (2014). Institutionalizing delay: Foundation funding and the creation of U.S. climate change counter-movement organizations. Clim Change. 122(4): 681–694. doi.org/10.1007/s10584-013-1018-7.
62 Almiron, N,, Boykoff, M,, Narberhaus, M., Heras, F. (2020). Dominant counter-frames in influential climate contrarian European think tanks. Clim Change. 162(4): 2003–2020. doi.org/10.1007/s10584-020-02820-4.
63 Linkova, M., Stockelova, T. (2012). Public accountability and the politicization of science: The peculiar journey of Czech research. Science and Public Policy, (39)5, 618–629. https://doi.org/10.1093/scipol/scs039
64 Cinar, K., Kose, T. (2025). Populism Versus Science in Competitive Authoritarian Regimes, International Journal of Public Opinion Research. (37)1. https://doi.org/10.1093/ijpor/edae063
65 Oliver, M. (2024). Scientists decry Trump energy chief's plan to 'update' climate reports: 'Exactly what Stalin did'. The Guardian. https://www.theguardian.com/us-news/2025/aug/07/climate-assessments-chris-wright-trump
66 Nienaber, V., Leeming, J. (2025). What research might be lost after the NIH's cuts? Nature trained a bot to find out. Nature. https://www.nature.com/articles/d41586-025-02748-8
67 Yousif, N., Bowes, P. (2025). White House names RFK Jr deputy as replacement CDC director. BBC. https://www.bbc.co.uk/news/articles/cwy3zjxy3dwo
68 Chinn. S., Hart, P. S., Soroka, S. (2020), Politicization and polarization in climate change news content, 1985–2017. Science Communication. 42(1):112–129. https://doi.org/10. 1177/1075547019900290.

Mainstream media can play a significant role in science politicisation by constructing politicised narratives about science. Disagreement and conflict have high news value. Therefore, highlighting extreme claims and disagreements between scientists is a surefire way to attract readership. In some cases the reporting of conflict may be justified and accurately reflect views in the scientific community but oftentimes the conflict is over-stated and conveys a sense of disagreement where none exists, or at least not to such an extreme. In addition to seeking out disagreements to report, media narrative-building can politicise science by creating heroes or villains out of scientists, as was the case with Dr. Anthony Fauci, the United States' former Chief Medical Officer, during the Covid pandemic.

Media platforms themselves are also often politicised. Politically aligned media outlets tend to select spokespersons and reporting angles that reinforce partisan framings of scientific debates. As the public, in turn, looks to the media outlets that they trust - those that they feel align with their values and interests - they consume a politicised view of science.

Finally, uncritical representation of science can also have a damaging effect, driving polarization on scientific debates unnecessarily. Such was the case for instance, with the widespread reporting of the 'Climategate' emails in 2009.[69] A hack to the Climate Research Unit (CRU) server at the University of East Anglia exposed over 1000 emails and 2000 research documents from which snippets of text were exposed out of context by climate change deniers to fuel conspiracy. One heavily referenced excerpt was from an email communication by Kevin Trenberth: "The fact is that we can't account for the lack of warming at the moment and it is a travesty that we can't". It was part of a discussion about the need for better energy flow monitoring to understand short-term climate variability, but was grossly mischaracterised by critics. The story of the leaks was picked up by mainstream media, much of which uncritically promoted the early allegations just as critical climate change mitigation negotiations were taking off in Copenhagen.[70,71] Later reporting did tend to be more critical of out of context manipulation of the scientist's words, and it recognised the leaks as a highly orchestrated controversy and smear campaign.[72] However much of the damage to climate negotiations and public trust in science was done. As journalist Sharon Begley wrote for Newsweek, "one of the strongest, most-repeated findings in the psychology of belief is that once people have been told X, especially if X is shocking, if they are later told, 'No, we were wrong about X,' most people still believe X."[73]

69 Closing the Climategate. (2010). Nature. 468, 345. https://doi.org/10.1038/468345a
70 Hickman, L., Randerson, J. (2009). Climate sceptics claim leaked emails are evidence of collusion among scientists. The Guardian. https://www.theguardian.com/environment/2009/nov/20/climate-sceptics-hackers-leaked-emails
71 Tierney, J. (2009). E-Mail Fracas Shows Peril of Trying to Spin Science. The New York Times. https://www.nytimes.com/2009/12/01/science/01tier.html?_r=3&n=Top/News/Science/Columns/Findings
72 A Climate Change Corrective. The New York Times. 7 November 2010. https://www.nytimes.com/2010/07/11/opinion/11sun2.html?_r=1
73 Begley, S. (2010). "Newspapers retract Climategate claims but damage still done". Newsweek. http://www.newsweek.com/blogs/the-gaggle/2010/06/25/newspapers-retract-climategate-claims-but-damage-still-done.html

4. RECOMMENDATIONS

Public trust in science and science advice is critical for navigating some of the world's most complex challenges from pandemics to climate change. The section compiles recommendations from the paper for scientists and science organisations, media organisations and journalists, and politicians and policymakers for preserving and reinforcing public trust in science and science-based policy.

4.1 FOR SCIENTISTS AND SCIENCE ORGS

- Try, as much as possible, to be the pure scientist, science arbiter or the honest broker.
- Where you are an issue advocate, openly lead with the values driving your position.
- Avoid directly politicising science by endorsing or denouncing specific politicians or political parties. Instead, where necessary, specifically speak out against particular things politicians or political parties are doing or saying.

4.2 FOR MEDIA

- Platform scientists who don't politicise science. These issue advocates will have their own platforms, and conveying the finding of the 'pure scientist' and 'scientific arbiter' (Pieke's classifications) will help reinforce scientific independence.
- Avoid uncritically reporting on science either by invoking authority of science where uncertainty exists, or overemphasizing uncertainty where there is significant community consensus.
- Avoid manufacturing disagreement by, for example, framing fringe findings as on equal epistemological footing as mainstream scientific consensus.
- Do highlight where disagreement in science policy debates are born from value disagreements (e.g competing priorities or political values) as opposed to scientific disagreement

4.3 FOR POLICYMAKERS

For science-based policymaking

- Be clear and transparent about how expert insight is factoring into your decisions. Politicians never "just follow the science".
- Don't hide behind science. Take responsibility for the normative and value-laden aspects of the decisions. Flip-flopping between demanding respect for authority of science and touting the uncertainty of science when things don't go as planned is damaging to trust in science.
- Prioritise working with scientists who are not also activists to reinforce the independence of the scientific advice you seek.

For promoting uptake of science-based government advice

- Engage with communities resistant to science-based government advice to understand the nature of their concern. Resistance is often not fully based in concerns about science, but in competing priorities. For example, someone might care about climate change and in theory like to buy an EV, but EV's are too expensive and there aren't enough charging stations for EV transportation to be a reasonable option for rural communities.
- Partner with spokespersons that have similar political orientation to your target audience (e.g. community leaders, religious leaders, online influencers[74]). The idea that the target community will be less likely to see the science advice as a threat to their interests if it is proffered by those they believe to have similar values.[75]

To support the public in interpretation of science

- Review science education curriculums to ensure inclusion of modules on scientific methodology and philosophy of science. These should discuss where uncertainty in science is introduced and how it is navigated and communicated.

74 For example, this MySociety seminar featuring Ana Arevadze from ForSet discusses opportunities for partnering with online influencers for public engagement. In this case the subject was an election education campaign, but the same method might be extended to environmental, health, or other science-based campaigns. https://www.mysociety.org/2025/09/24/beyond-websites-how-pro-democracy-projects-reach-their-audiences/

75 For example, The Obama Administration worked to establish links with faith leaders on climate change. Barranco, A. (2015). Champions of Change: People of faith working on climate change. https://obamawhitehouse.archives.gov/blog/2015/07/22/champions-change-people-faith-acting-climate

CONCLUSION

The stakes of public trust in science are clear: climate change, pandemics, and other global crises cannot be managed without it. Yet distrust rarely stems from blanket rejection of science, but from conflicts in values and interests that must be navigated in the face of uncertainty and science politicisation. Appeals to "just follow the science" overlook this complexity and risk further alienating the public. At the same time, we are entering an era where critical scientific institutions are being defunded or rewritten, making the need to preserve trust more urgent than ever. **To remain credible, scientists must be transparent about uncertainty and values, while policymakers and media must resist instrumentalising expertise. Building and safeguarding trust is demanding, but it is essential if science is to remain a foundation for effective, evidence-based policy.**

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