

Science as a Domain of Strategic Competition: The Security Costs of Research Cuts

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The United States has withdrawn funding and formally left key institutions of scientific cooperation. Nations that underinvest in science risk far more than academic decline. They compromise economic resilience, public health, and geopolitical power. As the United States retreats, China is expanding its presence. With research funding lagging, Germany and the EU must act decisively or risk losing international influence and becoming dependent on external actors for critical data, expertise, and strategic insight.

THE SHIFT

UNITED STATES PULLS BACK AS EUROPE LAGS AND CHINA SURGES IN SCIENCE

Science and technological progress underpin economic resilience, public health, and, increasingly, geopolitical influence. The United States has turned its back on research and evidence-based policy. From public health to economic and migration policy and climate science, facts and peer-reviewed data are no longer part of governmental decision-making. In an era marked by pandemics, the climate crisis, and the rapid and sometimes disruptive dynamics of innovation, this is a risky bet: Nations that underinvest in science risk far more than academic decline. They compromise economic resilience, public health, and geopolitical power. We witness divergent trends in the United States, Europe, and China.

In the United States, deep ideological funding cuts, loss of international talent, and shrinking scholarship and exchange programs go hand in hand with the country's withdrawal from multilateral institutions of scientific cooperation as announced in January 2026. These included the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). The United States had already withdrawn from the World Health Organization (WHO) and the Paris Agreement and announced it would leave the UN Framework Convention on Climate Change (UNFCCC). The proposed funding cuts totaling USD 32–43 billion and the dismantling of US institutions have gutted climate science in particular, but also other fields such as health and social science research linked to topics like diversity and inclusion (DEI). Congress has introduced bills rejecting the administration's proposed cuts, but

according to the [American Association for the Advancement of Science \(AAAS\)](#), non-defense spending would still fall by three to seven percent. The response of President Donald Trump's administration to this is also unclear, as it has stopped congressionally approved funding for DEI and green tech in the past and has displayed a general disregard for the separation of powers.

While in Germany the cuts have not been as severe, they are still significant and weakening the country's soft power. The Federal Ministry of Research, Technology and Space has seen its percentage of the overall [budget steadily decline since 2023](#), including for 2026. Programs such as [13 scholarship tracks of the German Academic Exchange Service \(DAAD\) are being discontinued](#), affecting roughly 2,500 scholarships annually. In contrast, China is scaling up its research and development (R&D) capacity.

Neglecting and underinvesting in science presents economic, environmental, health, and geopolitical risks. We reflect on these by looking at the cuts to climate science funding which create multiple interlocking risks.

THE IMPLICATIONS

UNDERINVESTING IN SCIENCE UNDERMINES THE ECONOMY, SECURITY AND GLOBAL INFLUENCE

Weakened Influence Amid Systemic Rivalry

Scientific leadership translates into soft power and strategic leverage. Countries with good science infrastructure and resources are better placed to shape rules and set agendas, offer scientific and data support, lead multilateral efforts, and broker partnerships. Although science has for the most part been a field of international cooperation, it may increasingly become an arena in which the systemic rivalry between liberal democracies and China plays out. In 2024, China's R&D spending rose to 2.68 percent of its GDP, surpassing the EU's 2.2 percent. While its relative spending is still lower than that of Germany or the United States at 3.11 and 3.45 percent, respectively, China's GDP growth and rising research budget could soon outpace other scientific

powers in multiple domains (Figure 1). This dynamic is, for example, evidenced in China's knowledge production on climate change and El Niño (Figures 2 and 3). El Niño is among the most significant inter-annual climate phenomena affecting global weather patterns, such as floods, droughts, and storm activity. Climate change may be altering the occurrence of extreme El Niño events. A failure to keep up climate predictions and projections leaves Europe vulnerable to an overreliance on external scientific infrastructure and data.

Economic Risks

Inadequate data hampers planning and preparation for climate-related events, damages, and losses. Without refined local and seasonal forecasts, governments, businesses, and insurers cannot calibrate risks properly, increasing the likelihood of uninsured or under-insured losses. Assets such as real estate, critical infrastructure and energy systems are particularly vulnerable. Extreme weather events can disrupt supply chains, potentially halting production, delaying logistics, and raising prices. Reactive and expensive responses replace proactive resilience investments, despite evidence showing that every dollar invested in preparedness saves several times the amount in avoided losses.

Underinvestment weakens technological leadership. In clean tech, the EU

has already lost market share to China because of subsidies and oversupply, but also due to Chinese innovation. China, for example, dominates high-quality patents in batteries and solar technology. Germany's chances of securing a significant share of this growing market are slipping away.

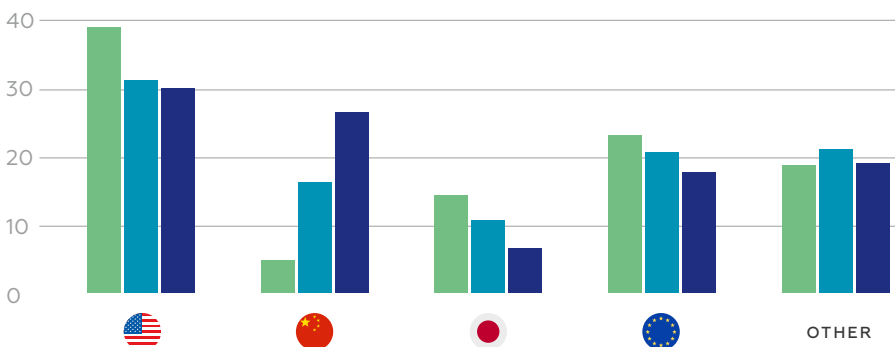
Risks of Disinformation and Political Polarization

Underinvestment in science opens space for disinformation. Because of weakened monitoring, data collection, and science communication, disinformation can thrive, allowing governments or commercial actors to exploit ambiguities. Climate-science denial, manipulated statistics, and selective reporting flourish in the absence of credible, independent science. With less domestic capacity to validate claims, nations become vulnerable to strategic manipulation and foreign narratives. Already, Russia has used social media to spread divisive disinformation on topics such as renewable energy technologies, in order to polarize democratic countries and support extremist parties such as Germany's AfD.

Environmental and Health Risks

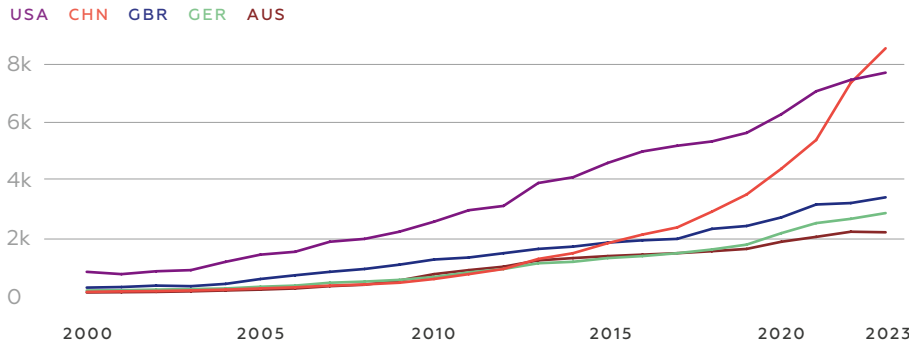
In the absence of reliable local datasets tracking climate-sensitive diseases, extreme heat mortality, or vector-borne illnesses following flooding, health services cannot prepare effectively. Health systems unprepared for climate-amplified emergencies risk higher mortality, morbidity, and mental health impacts. And a changing climate raises the risk of future pandemics and infectious diseases. Science is key to early detection, mitigation, and understanding of climate change-health risk interactions. Limited data and constrained resources may weaken agricultural forecasts vital for addressing food insecurity and malnutrition and undermine the monitoring of ecosystems, air and water quality, biodiversity, and land-use change. This translates into higher costs and the loss of healthy life years.

Figure 1: Share of Global Domestic Expenditures on R&D by Regions or Countries, 2000, 2010, 2022, in %



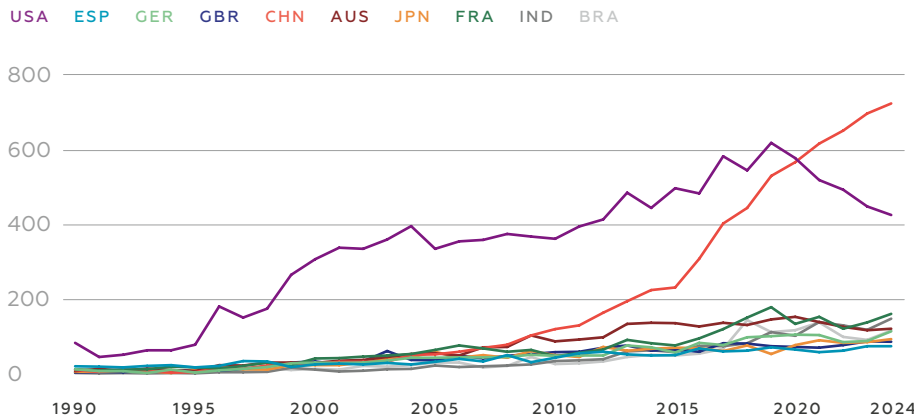
Source: Own illustration, based on data from the National Science Board, National Science Foundation, 2025.

Figure 2: English-Language Publications on Climate Change for the Leading Five Countries



Source: Budian & Baark, 2025.

Figure 3: Number of Academic Documents Mentioning El Niño, 10 Leading Countries



Source: Own illustration, based on a Scopus search. Using the Scopus database, we conducted a search for publications that mention "El Niño" in their title, abstract, or keywords. Searches for "El Niño" or "ENSO" produced similar results, albeit fewer in the case of the latter. The search results were then sorted, using Scopus's filter, based on country or territory of affiliation. The figure above illustrates El-Niño-related publications by the top ten contributing countries from 1990 to 2024.

THE RESPONSE

BOOST RESEARCH FUNDING, KEEP POLICY GROUNDED IN SCIENCE

To mitigate these risks, deploy assistance, shape narratives, and build alliances, Germany and the EU should increase investments in R&D, especially in areas where the United States is cutting.

Germany and the EU should work to reach their overdue goals of spending 3.5 and 3 percent, respectively, of GDP on R&D. In Germany, the Special Fund for Infrastructure and Climate Neutrality and the increased defense budget should target high-impact research, such as risks of climate change and biodiversity loss to national security, public health, and infrastructure. Integrated security requires directing

funds to non-traditional areas. Importantly, public funding should encourage private spending in R&D using steering, incentives, and levers.

Science and technology cooperation should be a significant part of bilateral partnerships, including deepening the existing cooperation with 48 partners, such as the long-standing Cooperation in Scientific Research and Technological Development signed with India in 1974. Forging new partnerships would yield significant advantages. Germany and the EU should attract and retain talent, including those affected by US funding cuts and immigration restrictions. Academic exchange programs like DAAD influence economic, social, and diplomatic domains. Science diplomacy, beyond scientific collaboration, can serve as a form of soft power and strategic influence. Economically, it drives innovation. Socially, it strengthens mutual understanding and people-to-people ties.

Germany must also strengthen its scientific backbone of strategic foresight and crisis prevention. The National Security Council must have access to state-of-the-art science which bears implications for Germany's territorial security and broad threats to economic and energy security, public health, and extreme environmental risks – like pandemics and climate change. Existing advisory boards to the government, such as the German Council on Global Change, the Advisory Board for Civilian Crisis Prevention and Peacebuilding or the German Advisory Council on Global Change should hold regular briefings to foster a consolidated understanding of these developments.

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