

Written Evidence Submitted by Professor Sir Peter Horby, Director of the Pandemic Sciences Institute, University of Oxford (SDY0041)

Introduction

This evidence focuses on the following aspects of the Inquiry's call for evidence:

- The extent to which the UK is considered a global superpower in science and technology, and the role this plays in its soft power on the global stage
- The impact of current geopolitics on the UK's science and technology agenda
- The effectiveness of the UK government's strategy in positioning the UK as a global leader in science and technology
- The importance of foreign aid and international collaborations for science and technology
- How international science and innovation projects support UK economic growth and bolster the UK's soft power, and how to increase the attractiveness of the UK for researchers and industry.

First, this evidence outlines our expertise and the value of UK science and technology for UK and global health security. Next, it focuses on evidence in response to the Inquiry's questions. Finally, it provides recommendations for the UK government to strengthen science diplomacy and support the UK government's growth missions, enhance the UK's international influence, and contribute to national security.

About us

The Pandemic Sciences Institute (PSI) at the University of Oxford is a multi-disciplinary centre of global research collaboration and excellence in pandemic sciences. Launched in 2022, our mission is to ensure that the world is better equipped to prepare for, identify and counter future pandemic threats. Our expertise includes infectious disease, vaccines, therapeutics, clinical trials, diagnostics, data analytics, epidemiology, ethics, social science and policy.

PSI's team played pivotal roles during the COVID-19 pandemic, including leading the development of the Oxford/AstraZeneca vaccine, pioneering the world's largest COVID-19 drug trial RECOVERY, providing epidemiological, mathematical and ethical evidence for the NHS COVID-19 contact tracing app, building a serology platform, and developing the COVID-19 Government Response Tracker to track and compare policy responses and interventions around the world. Since COVID-19, PSI has continued its research programmes in collaboration with multiple academic, industry and civil society partners globally, as it seeks to discover, create and enable practical solutions to infectious disease threats.

Professor Sir Peter Horby is Moh Family Foundation Professor of Emerging Infections and Global Health and Director of PSI. Over the last 20 years Professor Horby has led research on a wide range of emerging and epidemic infections, including SARS, avian influenza, Ebola, Lassa fever, plague and COVID-19. He has extensive experience working internationally, including nine years in Vietnam. Professor Horby co-leads the RECOVERY trial of treatments for COVID-19, influenza and community acquired pneumonia and is Executive Director of the International Severe Acute Respiratory and emerging Infection

Consortium (ISARIC) – a global federation of over 60 investigator-led clinical research networks. Professor Horby is a regular advisor to the UK government and the World Health Organization. These recommendations are based on Professor Horby's expertise of epidemic and pandemic preparedness and response.

Response to Inquiry questions

1. To what extent is the UK considered a global leader in science and innovation, and how does this contribute to its soft power on the global stage?

- 1.1 The UK is widely recognised as a global leader in science, particularly in infectious disease research. In my experience, the UK is often regarded by international partners as a more accessible and equitable scientific partner compared to other leading nations such as the United States. The UK invests significantly in international collaborative programmes; for example, the University of Oxford operates several major overseas programmes involving thousands of staff based outside the UK, with very long-standing partnerships with ministries of health, academic institutions and healthcare professionals internationally. These deep-rooted relationships, often overlooked, are a critical component of the UK's soft power, enabling it to build trust and foster enduring cooperation across multiple countries.
- 1.2 However, UK science expertise is not always fully utilised by diplomatic actors. An illustrative case is when the former Public Health England undertook missions to build international partnerships without understanding or coordinating with UK institutions that had been successfully operating in their target countries for decades.
- 1.3 The extensive and deeply embedded international partnerships of UK scientists are a national asset that could be better utilised for advancing UK life sciences leadership, enhancing global and UK health security, and as a vehicle for science diplomacy within broader foreign policy considerations.

2. How has this agenda been impacted by the current geopolitical environment, including the international activities of Russia and China? How does science and technology innovation contribute to the UK's national security?

- 2.1 The current geopolitical climate presents both challenges and opportunities for the UK. The partial retreat of the United States from global scientific engagement, particularly in funding, has led to the abrupt cessation of numerous US-backed programmes. This shift creates a strategic opportunity for the UK to fill critical gaps and strengthen its scientific collaborations with key international partners.
- 2.2 While, in my experience, Russian activities have had minimal direct impact on the global science and innovation landscape, China's increased involvement has had a more significant effect—particularly in terms of strategic scientific competition—though this is more pronounced in sectors such as manufacturing than in science. Despite these developments, the UK remains among the global leaders in terms of scientific reach and innovation. The UK's research quality and capacity continue to surpass those of most other major economies, including France, Germany and Japan. Overall, the evolving geopolitical landscape offers an opportunity to reinforce the UK's leadership in science and technology and to expand influence.

2.3 UK-led scientific work overseas yields substantial national security benefits. Long-term collaborative research not only generates high-impact science but also cultivates peer-level trust, enabling access to knowledge and context in ways that traditional diplomacy may not. Scientific networks often provide more immediate and granular insight than governmental or multilateral institutions. For instance, while the World Health Organization (WHO) may face political constraints on information access and sharing, scientific collaborations can offer more timely, direct and honest exchanges.

2.4 Researchers can communicate rapidly and informally, often obtaining valuable context even when official information is restricted. This access to near real-time, unfiltered information strengthens the UK's position in global health security and enhances its ability to respond to emerging threats. These networks operate separately from formal diplomatic channels and represent a largely unrecognised but highly effective mechanism for enhancing international preparedness and cooperation.

3. How effective is the UK government's strategy for positioning the UK as a global leader in science and technology, and what role does DSIT play in advancing this agenda? Does the UK need an International Science Strategy and what would it contain?

3.1 While the UK government has made meaningful strides, there remains considerable room for improvement. One key area is articulating and advocating the value of science to national security and economic growth, particularly in low- and middle-income countries (LMICs). Science and innovation are sometimes seen as discretionary expenditures in these contexts, rather than as drivers of economic development. Although UK research funding includes some international components—which are highly valued—they remain limited in scale. This restricts the UK's ability to compete with nations like the US, which has traditionally invested heavily in global initiatives, including establishing networks and centres of research excellence. Similarly, the European Commission's European and Developing Countries Clinical Trial Partnership (EDCTP) programme demonstrates the advantages of proactive, large-scale funding for international scientific networks. The UK could adopt a comparable model to strengthen its long-term partnerships, especially in LMICs that are on a trajectory to a more advanced life-sciences ecosystem. Furthermore, better leveraging the UK's overseas scientific assets to align with broader international policy goals would significantly enhance the UK's global influence.

3.2 There would be significant advantages from a coherent International Science Strategy. Given the strategic withdrawal of the US from many aspects of global science engagement and the increasing activity of other powers such as China and Russia, the UK would benefit from defining its global life-sciences objectives, outline mechanisms for implementation, and articulate its global science diplomacy agenda. Such a strategy would provide clarity, direction and coherence to the UK's international scientific activities and ensure alignment with national interests.

4. How well positioned is the government to link scientific and technological progress with enhanced global and UK security?

4.1 The UK possesses many of the essential components needed to link science and technology with national and global security, but these elements are not yet fully integrated. The country's scientific capabilities and international collaborations are among the strongest globally, yet they lack the targeted coordination necessary to maximise their impact on health security and biosecurity. There is also a need to explicitly define how the UK scientific community can contribute to addressing both naturally occurring threats and deliberate or accidental releases of biological agents.

5. To what extent are science and technology innovation activities supported through UK Official Development Assistance (ODA) spending?

5.1 ODA funding has been instrumental in supporting infectious disease research in low-resource settings. It has enabled rapid responses to health emergencies and facilitated work on complex scientific challenges under difficult conditions. ODA fills a crucial niche that is not addressed by other funding mechanisms. The recent reduction in ODA allocations is disappointing, and risks undermining the UK's ability to respond to global health threats and to maintain its leadership role in international science.

6. How can the UK assess the value derived from its participation in international science collaborations in areas such as space initiatives, climate, particle physics, and vaccine development?

6.1 Evaluation can be based on multiple indicators, including changes in global perceptions of UK leadership, shifts in collaborative processes, and measurable outputs such as new knowledge, technologies or policy contributions. These outcomes should be assessed in terms of their direct and indirect impacts on health, the environment and socio-economic development. While some aspects are inherently difficult to quantify, establishing robust evaluation frameworks remain essential for demonstrating the value of international science collaboration.

7. What are the benefits of bilateral agreements or global collaborations, such as CERN, for the UK economy and its innovation ecosystem?

7.1 Bilateral and multilateral scientific collaborations are vital, particularly in fields such as infectious disease research. Pathogens do not recognise borders, and early intervention at the source of outbreaks is critical to protecting global—and UK—health and economic stability. These collaborations require long-term investment; many successful partnerships have been cultivated over decades. The continuity and depth of these relationships underpin the UK's scientific strength and its ability to attract international investment. Moreover, they contribute to domestic innovation and economic growth by generating knowledge, securing funding and fostering high-impact research.

8. How can the UK be made an attractive destination for global R&D investment, and how can the benefits of this investment be maximised locally and nationally?

8.1 Several factors can enhance the UK's attractiveness for R&D investment, including competitive tax incentives, co-funding mechanisms, streamlined regulatory approval processes and supportive innovation ecosystems. In health research, the NHS and NIHR

represent significant advantages for large-scale, cost-effective clinical studies. However, barriers remain, and greater insight is needed from global industry stakeholders—particularly pharmaceutical firms—on why the UK may not yet be optimally positioned. In addition, consolidating the full R&D pipeline within the UK, including high-containment laboratories (e.g. Biosafety Level 4 research facilities), advanced drug screening infrastructure, and domestic manufacturing capacity, would further strengthen its appeal.

9. How can the government ensure leading scientific researchers continue to view the UK as an attractive place to base themselves?

9.1 Ensuring the UK remains a globally attractive base for scientific talent requires a multi-faceted approach. Scientifically, the UK must remain at the forefront of innovation and provide support for high-risk, high-reward research. On an individual level, competitive remuneration is essential, particularly in fields like Artificial Intelligence and Machine Learning, where academic salaries currently lag hugely behind industry. Visa policies also present a major barrier; restrictive immigration rules have severely hindered the recruitment of international scientists.

9.2 Access to research funding remains a strength, with organisations such as UKRI and Wellcome providing critical support, but sustained and expanded investment is necessary. Additionally, fostering a more seamless interface between academia and industry—especially in the biotech sector—would significantly enhance the UK’s research environment.

Key recommendations

To strengthen the UK’s science diplomacy capabilities, the UK government should:

- Recognise that the extensive and deeply embedded international partnerships of UK scientists are an underutilised national asset. Map those assets and identify where (technically and geographically) reinforcement of UK’s leadership would expand influence in a changing geopolitical climate and support broader domestic and international policy goals.
- This should form part of an International Science Strategy that defines the UK’s global science objectives, outlines mechanisms for coordination, implementation and evaluation, and articulates a global science diplomacy agenda.
- Provide or facilitate long-term investment in strategic international science partnerships, recognising that many successful collaborations have been cultivated over decades.
- Seek greater insight from global industry stakeholders on why the UK may not yet be optimally positioned for R&D investment, and consolidate the full R&D pipeline within the UK, including high-containment laboratories (e.g. Biosafety Level 4 research facilities), advanced drug screening infrastructure, and domestic manufacturing capacity.

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