HOUSE OF COMMONS

Science, Innovation and Technology Committee

Oral evidence: Science diplomacy, HC 838

Tuesday 15 July 2025

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Watch the meeting

Members present: Dame Chi Onwurah (Chair); Emily Darlington; George Freeman; Dr Allison Gardner; Jon Pearce; Steve Race; Dr Lauren Sullivan; Adam Thompson.

Questions 1 - 34

Witnesses

I: Professor Charlotte Watts, Executive Director, Solutions, Wellcome Trust; and Dr Jean-Christophe Mauduit, Associate Professor of Science Diplomacy, University College London.

Written evidence from witnesses:

- Wellcome Trust
- University College London (UCL)

Examination of witnesses

Witnesses: Professor Watts and Dr Mauduit.

Q1 **Chair:** Welcome to the Science, Innovation and Technology Committee's very first session in our new inquiry into science diplomacy. Both our panels are very distinguished. This morning, we will be looking at the UK's science capability and reputation and the threats and challenges that it faces. Our first panel will help us understand that. Could you introduce yourself as you answer our opening question?

To set the scene for us, how would you describe the UK's international reputation in science? How has it changed over the last 10 years and what are the main threats to maintaining that reputation? Could you answer quite briefly?

Professor Watts: Good morning, everybody. Thank you for inviting me. My name is Charlotte Watts. I am an executive director at Wellcome, a charitable foundation. We spend about £1.6 billion a year on health research, with significant investments in the UK, including things like Crick and Sanger. There are also major investments overseas focused on the lower and middle-income countries. I have been in the job about four months. Previous to that I was the chief scientist to the Foreign, Commonwealth and Development Office, so this issue is of interest, both in my current role and in my previous role.

In terms of the question, clearly the UK has profound science strengths. It continues to have science strengths and the thing that is important to recognise is the breadth of skills that we have. They range from the cutting-edge frontiers of science through to applications of science, including, for example, to tackle some of the greatest threats that the world faces. The other thing about the UK and its strength is that we are very collaborative. Essentially, science is a collaborative sport. We benefit when we work with others, when we pair skills, when we bring ideas together and when we enable creative and talented scientists to work together. That is inherently international. Sometimes in science, particularly when we are thinking about competitive advantage, the risk is that it becomes inward-looking and as if it is a zero-sum game, whereas actually, if you get the right collaborations, you can grow the pie, grow the opportunities and accelerate progress. It is different from some other areas of endeavour.

Moving to the question of how the UK is regarded, because we are collaborative and open, and because we have strong principles about the way we conduct research, what we do is highly respected and people pay attention to what we do and how we do it. There have been major challenges. Brexit was one, in particular us moving away from Horizon Europe. It is great that we are now back. There are the cuts to development research. It used to be that the UK invested about £1 billion per year in development research, across a range of departments that were managing that. There have been successive cuts. It is a shame

because the UK was the largest bilateral investor in development research, but when you make a cut, you have to break relationships. It undermines trust. It forces difficult decisions.

In answer, the external view is probably mixed. As part of a report that Wellcome has just produced, we talked to some stakeholders both on Brexit and on the cuts in spend. Some of the respondents highlighted that that has undermined the UK's reputation internationally.

Q2 **Chair:** Thank you very much, Professor Watts. You mentioned a number of areas that we will come to this morning. In terms of the opening question, can I turn to Dr Jean-Christophe Mauduit?

Dr Mauduit: Thank you very much for the kind invitation to speak with you. This is my first time in the Houses of Parliament. It is very impressive, and I am very happy to be here. My name is Dr Jean-Christophe Mauduit. I have been working in the UK at UCL since 2019, where I am an associate professor of science diplomacy at the Department of Science, Technology, Engineering and Public Policy.

I have a dual background in my career. I was previously in astrophysics and now I am in science diplomacy, which has been my focus since 2017 or so. My research work focuses on broad issues of science diplomacy, from big science infrastructures to science advice networks, scientific diasporas and so on. I am involved in the development of the European Union science diplomacy framework and the science diplomacy strategy of the International Science Council, a non-governmental actor.

To say a word about science diplomacy first, it is a field that does not have an agreed-on definition; it depends on which actor is wielding it. For me, it can be understood as a field of study and practice that seeks to understand, promote and leverage the linkages between science and diplomacy at national, regional and international levels. I would like to say a few words about the UK—Charlotte can echo this—and the great ecosystem that you have in the UK in deploying science diplomacy.

In terms of the question about the UK's position and reputation, I have to say that I am very happy that I am in the UK. It has a great reputation in science and innovation and technology. We see this very proudly in the ranking of my own university and a host of universities in the UK, being in the top 10. The UK is a great innovation country, as we saw from the innovation showcase. There is a lot of innovation happening in this country. From my own perspective and in my own field, I see the UK as innovative, intra-disciplinary and very nimble. It is very willing to explore new fields. My field of science diplomacy is a new field, and UCL invested in that field to try to push it. This is one of the first positions in the world looking at it from a research perspective. I see the UK being very proactive and seeking the edge of knowledge, wherever it may be.

In terms of changes, I echo what Charlotte said about the unfortunate situation with Brexit and what it led to in decoupling from Europe. I feel it

as a European and a French citizen. There are other issues that Charlotte mentioned about cuts to development funding and so on. Those are challenges. Higher education remains very good, but we fear that the long-term trend might not be in the right direction. We can delve into more of the changes, but I would say that science diplomacy in the UK, as Charlotte said, has good processes, institutions and practices that are very solid.

Q3 **Chair:** Thank you very much for that. I want to pick up briefly on the points you have raised around the international collaboration in science and research. We will come to those in more detail. Professor Watts, you mentioned the UK's success in the commercialisation of aspects of our scientific advantage. Of course, there are barriers to collaboration in commercialisation. In particular, the National Security and Investment Act, which came into force in 2022, gives the Secretary of State powers to prevent transactions and acquisitions that would be deemed to impact our national security. Half the final notices issued by the Secretary of State regarding acquisitions involved acquirers from China. Do you think that those barriers to acquisitions and transactions, when it comes to commercial ventures, impact our international reputation or commercialisation in this country?

Professor Watts: It is a tough question. I am not particularly close to the detail. In conversations when I was at FCDO with DSIT, formerly BEIS, which was leading on the area around research security, I think they were trying to strike the right balance, essentially recognising that we need to protect some of the scientific advances. The focus was not only on China; it was essentially on malign actors. What I saw BEIS colleagues do was invest quite heavily in supporting universities to really think about weighing up the balance of risk and opportunities, and then to intervene where there was a concern. Some of the things I learnt when I was in government, on the high side, made me feel that the attention paid to this and the willingness to step in was merited at some point, but I am not really the right person to speak to it in detail.

Q4 **George Freeman:** It is a really important point. Having been the Minister for research and security, I remember the time you are talking about. At the time, UKRI did a survey for me of China exposure across the whole of the UKRI landscape. There were 450 collaborations, of which they red-flagged 45, or rather RCAT did. There was an announcement two years ago over a review of RCAT.

Chair: Could you explain what RCAT is?

George Freeman: The research collaboration advisory taskforce. It was set up in the Cabinet Office to help universities navigate this landscape.

Are you confident that we are moving at pace quickly enough—this is about the Chair's question on China—to support universities, which are not really there to be geo-diplomatic policemen and women? They need specialist advice. Are you confident that we have that framework right, or

do you think it needs to continue to evolve?

Professor Watts: You always need to evolve those frameworks. It is a bit like what the innovators were talking about. There is a bit of a cat-and-mouse understanding of where the risks and opportunities are with new technologies, and what the implications might be if capacity was acquired by others. What is important is that we share intelligence with like-minded partners, so that we are thinking about it in the round.

I don't know the detail on RCAT. It is getting much more into DSIT and BEIS operational questions than I am familiar with, but given the way that technology is moving and how fast it is changing, I suspect we should be keeping an eye on it and making sure it keeps up with the trends and the detailed analysis of implications of tech development. I know that GO-Science has capability, and it has been beefing up capability around trying to support the Government to really understand the implications of technological advances.

Q5 **Chair:** On technological advances, you focused on universities and university collaboration in your response, but the National Security and Investment Bill was very much focused on businesses. We know the demand for international investment. That often comes with risks and strings. I think that the Committee would be interested in following up on how the demand for international investment, in the light of the geopolitical issues and the National Security and Investment Act, is impacting on our international presence. Before we move on, could you identify two or three sectors in which you think the UK has a fantastic international comparative advantage? You are shaking your head. Is two or three too few?

Professor Watts: Yes; that's it. I am sitting here representing Wellcome. Clearly the UK's life sciences and its health research capability is really strong. It goes from upstream with biomedical sciences through to developing the applied solutions to big problems. The covid vaccine and the malaria vaccine are examples of the skills that the UK has, and how ODA investments in research have led and supported that capability, which ultimately has application both overseas and, when it came to covid, enabled the UK to produce a covid vaccine very quickly.

In other areas of AI, there are interesting developments in clean energy technologies. Perovskite was one of the areas we were supporting from an international development perspective when I was in FCDO. It is a next-generation solar panel technology. There are things that are sometimes incremental to existing technologies, where the UK spots a niche and can bring its advanced science to some of those big problems

Q6 **Chair:** Thank you. That's three. Dr Jean-Christophe, are there any other sectors?

Dr Mauduit: No, I don't think so.

Q7 **Adam Thompson:** Good morning, both; thank you for coming. Looking

at the talent landscape in the UK in science, in your view do you think the UK has any issues with its talent pipeline?

Dr Mauduit: Where to start? Thank you for the question. In science diplomacy, one of the frameworks we look at is attraction, co-operation, collaboration and influence. Attraction is a big pillar of the strategy. Attracting the best talent is definitely a gain and an advantage for a country.

I believe that the UK attracts talent by the fact of its reputation and its universities. There may still be challenges ahead. My opinion is that Brexit has already created some issues, particularly for EU-UK exchanges. We have noted, for example, a drop of about 50% in EU students coming to the UK. I don't know the exact figure, but it is about 53%. That is a loss in the pipeline. We were looking at the younger generation then studying in the UK, staying for longer and potentially having a career and impact in the UK.

We have seen more stable numbers in the EU workforce in universities, but it has created some instabilities in terms of uncertainty for staff from the EU. There is anecdotal evidence from colleagues who have relocated that they were unsure as to whether they wanted to or could stay in the UK. Things are stabilising, but it has created an unfortunate situation between the EU and the UK where our science technology is so intricate.

Of course, there are discussions about mobility, Erasmus+ and all the programmes that allow free flow between the UK and the EU. One of the potential challenges that I personally see is in the rise of very good universities in emerging economies and powers. China and Singapore are in the top 20 universities, and they have programmes in English. The competitive rise of other universities is potentially drawing the best talent from other regions to regions in the south rather than coming to the UK.

If I may—this is coming from someone who had his education in France—the tuition fees, particularly for PhD students, can be problematic. The tuition fees are very high. We know that it is important for universities in the UK to derive tuition from international students—no question—but I see in my own situation that it is difficult to attract the best talent for PhDs in the UK when there is such a high fee and a scarcity of fellowships and bursaries for them. Something that could be done is to have more bursaries and fellowships for international PhD students if you want to get them into the country.

Q8 **Adam Thompson:** Thanks, Jean-Christophe. Charlotte, do you want to add anything?

Professor Watts: I agree. The UK has been really attractive as a place for students to come, but the competition has become higher with other settings that are cheaper and offer great educational opportunities. It is the fees. It is the visa costs of entry. It is the costs linked to health services. When you add up those figures—the Royal Society has a report

that looks at that—it just makes the UK unattractive. At one level we are going out diplomatically and saying, "We welcome talent and we want to collaborate," but on another level we are not demonstrating that in the bureaucratic challenges and the costs that are then layered on.

More broadly, I worry about how attractive science is as a career. I have a son who was weighing up whether he would even bother going to do a PhD. He is a smart kid and his parents are scientists. He probably would have done that in the past. If you are skilled, academia is not attractive. You are on short-term contracts. You are on soft money. Salaries aren't keeping up with the cost of living. It is quite a challenging space. If you are thinking about how we maintain our science strength, it is a bundle of things. Even if you are a UK young scientist, it might mean that you go into other options. I have a concern about that too.

Q9 **Adam Thompson:** Thank you both very much. I was a research-active academic before I came into Parliament, so a lot of the things you have just said resonate with my own experiences. I lost excellent PhD students to industry and excellent non-UK national students to different countries. You raised issues about tuition fees post Brexit, foreign competition, job scarcity, high competition, visa costs, national health service costs and the overall attractiveness of science. It is probably safe to say that you feel a threat is posed to UK science by that. How vulnerable do you think we are in the long run to a brain drain to other countries, and missing out on talent from abroad, and what are your views on how we might address some of the issues you raised?

Professor Watts: We are vulnerable, and it is good that you recognise it. A recent initiative was announced, alongside the Royal Society, to attract talent, and we need to do more of those sorts of things. The risk is that we say, "Let's bring in the brilliant Nobel scientists," but it is about how we keep the pipeline going, and attract mid-career scientists. Those are often the ones who come and end up settling. It is thinking about the pipeline of scientists, and what initiatives might bring people in at different stages. We need to think about it in the round, ultimately.

Dr Mauduit: It is hard to say, in terms of potential brain drain. One thing I want to add is the potential implication of immigration laws, especially for families of students. To study in the UK, our students have had to leave young babies at home. That tells you that they really want to study in the UK, but it creates a lot of hardship for families. That is a shift that I have seen and it is sad to see people having to leave family behind.

I don't think I am the best one to address brain drain. I do not necessarily see a brain drain outwards from the UK, but brain circulation might be an issue—post-docs being sent overseas and coming back to the UK, and so on. It may not be so much of an issue, but something for the country to work on, to make sure that when you send people overseas you bring them back. In my astronomy studies I was told in France, "Okay, you go to the US and do a couple of years there; then you come back, and you enrich the knowledge in the ecosystem." Now the

question is what will happen with the various geopolitical issues and tensions that we see, especially in, say, the US, where a lot of Europeans were going to get that brain circulation.

Chair: That is an excellent answer, which brings us nicely to the points that Emily is looking to make.

Q10 **Emily Darlington:** I want to pick up something that you were talking about before, and then I will come on to ODA. Are there any countries, or research teams in countries, that Wellcome will not work with?

Professor Watts: We support quite diverse geographies of scientists. I'm not sure, actually. I must say I am quite new, in terms of that.

Q11 **Emily Darlington:** Could you write to us on that?

Professor Watts: I can write to you, yes.

Q12 **Emily Darlington:** It would be useful to know how you deal with security on these issues. You are a fantastic organisation and a very large one, so I and the Committee would love to understand better how you deal with those geo-security situations, in terms of research collaborations.

Professor Watts: I am sorry; it is just that being relatively new I cannot answer—

Q13 **Emily Darlington:** I am going to come on to an area where you have a lot of experience, which is ODA. In the submission from the Wellcome Trust to this inquiry, you stated: "Successive cuts…have weakened the UK's pre-eminence in international development research and…sparked concern about the fate of global health R&D." I want to take that in two parts. First, how has it impacted our pre-eminence in terms of soft power with the countries we work with?

Professor Watts: The UK has supported science relationships with Africa and a number of countries in south and south-east Asia, through the ODA research investments that it has made. As you know, a pretty distinctive part of the UK's development offer has been that it supported research. It was taking a long-term view of the significance of the challenges. You need to invest research to generate new solutions and that was the focus of the ODA R&D. It drew very much on the UK's strengths. That was known and recognised. Many collaborations over a number of years were supported through ODA R&D and there have been cuts of 0.7% to 0.5%, and from 0.5% to 0.3% in the recent spending review.

In some cases, where the changes were abrupt, that has undermined, and meant the renegotiation or stopping of, contracts that were well established over many years. That breaks relationships and trust. Also, when you look at what you get from research, it is products that save lives—new treatments and vaccines, if you think about health—and evidence to inform the UK's development investment. It has undermined our ability to use the existing development resources that the UK is investing, and the evidence that others can use as well. It has

undermined our ability to make good decisions. The changes have undermined our credibility. We have chopped and changed and had to cut areas that we had invested in for a long time.

Q14 **Emily Darlington:** To push you a bit further, what are the real-world impacts of that on the UK's credibility and research collaborations?

Professor Watts: The things I see and worry about now, which are a combination of what is happening with the UK cuts and from the US side, are, for example, the withdrawal of major tranches of research support. I am concerned about what funding there will be in future to support major trials to test interventions in developing countries, and work with trial networks and research institutions, across South Africa, for example. Where that capacity has been built up for many years, they suddenly face major cuts. It is the ability to generate knowledge, for countries to generate evidence to inform their own economic growth and health.

Q15 **Emily Darlington:** To take that through, we are talking about lives.

Professor Watts: Yes, lives, definitely.

Q16 **Emily Darlington:** What kind of impact do the cuts to ODA have on our reputation and our ability to provide any influence in the global south?

Professor Watts: For me what was really important about ODA R&D was that it was solution-focused. It was, "Let's work in partnership with lower and middle-income countries to generate solutions to the big problems we face." It was a modern development offer. All countries want to collaborate with the UK. Our reputation is that strong. They all want to use science and innovation to grow their economies and solve the problems they face. Because we had science and research funding and worked in collaboration we were able to develop new solutions, but it was also an important part of the UK's relationship with a range of lower and middle-income countries. That has now been undermined.

Q17 **Emily Darlington:** The Wellcome Trust focuses on global health security. As you rightly pointed out, we are huge research leaders in that. The UK Government investment in global health has been cut in the last five years by 70%. What do you see as the major areas where that will make an impact? Are there major research or health areas, or particular countries that you think will be impacted most?

Professor Watts: We are still trying to understand the implications of the current cuts for how that pans out. One of my main concerns is the issue I referred to, of the loss of funding to quite applied science—the translational science focused on testing interventions and innovations in lower and middle-income countries. I worry about some of the specialised UK institutions, such as the Liverpool school and the London school, which are heavily dependent on that source of funding and have deep expertise and extensive partnerships, and also about the wider collaborations that UK universities had with lower and middle-income

countries. All that has a diplomatic impact and influences our relationship with those countries.

Q18 **Steve Race:** Just a quick additional question on that. As the UK, the US, and a couple of other European countries—Germany and Scandinavian countries—have also scaled back their ODA, do you see other science-led countries stepping into those relationships? Do you fear it might happen in the future?

Professor Watts: There is a risk that others will step in. I cannot speak about what is happening on research, but, for example, in the partnership with the WHO, China is now stepping in very actively and offering significant funds at the World Health Assembly, I believe. In some ways, other countries bringing resources to the table is needed and is welcome, but we should not lose sight of the significance of the cuts that the UK has made; it has created a big gap that others can exploit.

Q19 **Dr Sullivan:** Obviously, science is a global enterprise, and knowledge that is created or generated cross-globally has impacts here in the UK as well. Do you think that science and scientists are good at explaining and relaying the positive message that happens through collaboration so that it can be valued here in the UK?

Chair: That is what is known as a loaded question.

Professor Watts: I think I know the answer you want. What is amazing about investments in science, be that development or elsewhere, is that it is a global public good, so if you produce the next medicine or technology and can make it accessible the returns are phenomenal. At one level scientists are good at getting excited about what you can do with science, and the impact it can achieve. Sometimes—I am a scientist as well—we have not been great, particularly when we are thinking about overseas and international development, at saying, "What does it mean for the UK?" For example, the covid vaccine platform technology came basically from research that was funded by development funding. Sometimes those links are tangible, but we tend not to highlight that story as part of why we invest.

I have just had to make a submission to the covid inquiry. I was revisiting the modelling analysis conducted by a range of modelling groups in the UK to inform the national response. Those modellers were previously focused on infectious disease modelling in lower and middle-income countries, and essentially pivoted all that expertise to the UK. There are lots of ways in which the benefit to the UK translates; they are slightly nuanced and sometimes complicated to tell, but are an important part of the skills that we have in the UK because of the international collaborative research that different universities are part of.

Chair: That was very well communicated to the Committee. We hope it will be better communicated to the public, which is part of the Committee's ambition, as well.

Q20 **Emily Darlington:** I am going to come to USAID and Gavi, in a smooth transition. The UK cut funding to Gavi by 40%. The US has not committed. They have a different attitude to vaccines from ours. It is reckoned that USAID cuts will result in an additional 14 million deaths by 2030. If we are not stepping into that space, who is? Nobody?

Professor Watts: There are two parts to the response to that question. The Gavi global fund is incredibly important and the activities that it has delivered have saved lives. Vaccines are highly efficacious. The childhood vaccines, for example, that Gavi deploys are fundamental in leading to reductions in child mortality. We should continue to support and invest in vaccines. Ultimately, the resources that the UK gives to the Gavi global fund are affected by the choice about the scale of ODA that the Government want to commit. I appreciate that there are challenging situations and pressures.

Q21 **Emily Darlington:** Were you disappointed by the 40% cut to the UK contribution to Gavi?

Professor Watts: I am disappointed by the cuts to aid and subsequently by cuts across a range of areas, including Gavi. So saying, I am very supportive of the Lusaka agenda, which tries to think in the long term—as Wellcome very much does—about how we support the integration of things like the delivery of vaccines into national health systems. How do we move from reliance on a centralised mechanism of delivery to having countries and health systems deliver childhood vaccines themselves? It is that sort of balance of funding, between two countries directly versus a range of pooled funding mechanisms. I would like to see an evolution of that, but ultimately I would like to ensure that children continue to receive lifesaving vaccines.

Q22 **Emily Darlington:** I am going to talk about Trump Administration policies, and maybe Jean-Christophe wants to come in. I know ODA was your particular specialty. The new Trump Administration has made a 56% cut overall to science funding, a 73% reduction in staff and fellowships and a 28% cut directly to NIH. How do you think those cuts will affect science and research? How will they affect collaborations with the UK?

Dr Mauduit: That is a big question. Maybe I can quickly elaborate on what Charlotte said about ODA. It is critical. To be seen as a reliable partner is to think long term. The short-term loss of collaborations with partners, particularly in the global south, who may feel that they have been let down, will create some long-term uncertainties that will be detrimental to collaborations. Again, just to echo Charlotte—

Q23 **Chair:** Please don't echo what has already been said, because we are running out of time.

Dr Mauduit: Okay. Not a problem. On your question about the US, it is a very concerning situation. I spent about eight or nine years in the US. Good friends and colleagues there have all been impacted by the cuts, and especially the unfortunate issues on policies on universities, and the

uncertainty that that generates for the US ecosystem. I understand that the US and the UK are quite close in these collaborations, so it will inevitably have an impact on the relationship between US science and UK science.

I know that post Brexit a lot of the Science and Technology Network—formerly SIN—worked to get the US and the UK closer together, among other countries, so the problem of a "like-minded" country going into what I would say is an attack on science is very problematic for everybody, including the UK. I don't know if the close geopolitical relationship between the US and the UK will also suffer from what is happening.

Q24 **Emily Darlington:** Okay, we'll flip it. Where is the opportunity for the UK in this situation?

Dr Mauduit: I imagine the opportunity is to position the UK as an actor that has policies that go counter to that—supporting universities, attracting talent and being welcoming to any kind of research that tackles global challenges such as climate change. The UK, of course, and other countries, have a window of opportunity, in a bit of a win-win way, to gain talent and demonstrate that they enable all kinds of science that are deeply critical for global challenges and hence national security and national interests.

From my perspective, that needs to be done carefully, not just as an extractive gain but as a welcoming policy. I do not know if I express myself correctly.

Professor Watts: The big opportunity is for the UK to position itself as a partner of choice across multiple sectors. I think we are a partner of choice both because of the strength of our universities and the way we do research, and because of the environment we can offer, which is multicultural, with good regulatory systems and a Government who care about science. There are a lot of opportunities. Some of the issues around visas and so on are the major barrier to a consistent message.

Q25 **Steve Race:** Could you characterise the global environment for scientific research at the moment? It used to be a bit more about collaboration. We had great post-cold war, and during the cold war, science collaboration in space, and elsewhere. What does it look like at the moment? Are we moving into a much more competitive environment, or are there still areas where we collaborate?

Professor Watts: Yes, there is a history of strong collaboration, even when there are geopolitical tensions. I think we are moving to an era where it is more complex. When Patrick Vallance was the Government's chief scientific adviser, he came up with the own-collaborate-access framework. The distinction is quite useful to think about. Predominantly, we should be thinking about how we collaborate with the world, and should be very open, but clearly there are some areas where we need to

be owning that, or being careful about who we collaborate with. It is pretty much linked to your next session, on security agendas. There are other areas where we absolutely have to collaborate, because without combining skills and complementary technologies, we won't make advances in major areas.

The other complexity we have now is in dual-use technologies. There, it is important that we identify where there are real risks, versus potential, perceived risks. The category of AI, for example, is so broad. There are concerning areas but massive opportunities, where, essentially, to work effectively we need to bring a bit more nuance to our thinking about how we collaborate, and try to collaborate as much as possible, while at times keeping research as safe as necessary.

Q26 **Steve Race:** Where do you think the future of the UK lies, in science diplomacy, given the challenge from China? Let's face it: China is the major collaborator-versus-competition in the future. If we train thousands of Chinese students who then go back to China and create a science and innovation ecosystem, is that a big challenge to our future success and prosperity?

Professor Watts: That comes back to its not being a zero-sum game. Essentially, China is a really important economic partner for us. Its scientific strengths are growing. For the UK to keep up, we need to collaborate with China on a range of areas. That is part of the complexity of getting the balance right. Clearly, in some areas, we do not want to share technologies, and we want to make sure that we are cautious.

On the balance, we have to be realistic. Chinese students will go to many different countries, and we need to recognise how much UK universities depend on Chinese students. The fiscal situation for UK universities is very challenging at the moment, so we have to be cautious about saying "We shouldn't do this," without an alternative for the financial viability of UK universities.

Q27 **Steve Race:** A final question from me on this. We always think about how we want to collaborate and how we would like to see the world. What is our view on what China wants to get out of our science?

Dr Mauduit: Thank you for the question. For science diplomacy it is a tricky situation. We are seeing a move from a more collaborative to a more competitive environment, with the rise of research security issues, strategic autonomy, and so on. There is a hardening in the field of science diplomacy, in terms of the competition-versus-collaboration balance. As Charlotte said, we need to be careful about that balance.

I strongly believe that collaboration is deeply needed. Again, it will depend on the exact areas, and that is where strategic thinking is needed. We have seen, for example, with UUK—looking at quantum and how access through Horizon Europe would work—that everybody is doing this in terms of strategic sectors. That is okay, but there is a lot to derive

from collaborative endeavours in science, not only for access purposes and getting the best talents, collaboratively, that may inform your science, innovation and technology base in the UK, but because there is an element of building trust and relationships that are important for the future.

In the hardening of geopolitics, and the fierce competition that we see, of course global sciences might suffer from it, and we need to make sure that nationally we keep a focus on the fact that collaboration serves not only global science but national science as well. Of course, in terms of strategy, there are some areas that might be looked at.

As a final word, several countries are indeed ramping up their science diplomacy strategies, so they are looking at this very carefully.

Q28 **Chair:** Which countries specifically?

Dr Mauduit: There are a host of countries in Europe, for example, that are looking at their own strategies. The EU is also looking at it. It is very hard to look at or understand what, say, the science diplomacy strategy of China is, because it is quite obscure, but we know that a lot is happening in emerging economies as well, from Asia to Latin America.

Q29 **George Freeman:** The sharp end of this is who should decide. In a global race, with some pretty hostile actors and dual-use technologies, the world that we all grew up in, of open, collaborative science, is over. It is very hot. Who should police it? Do you want Ministers to say, "Sorry, you can't do that any more with that country"? Should universities be left to make that decision, in a world where we are investing £20 billion of public money? That is the hard question on which I am keen to hear from both of you. Who should decide? Who should police this?

Professor Watts: It is the million-dollar question.

Q30 **George Freeman:** You have been in the Foreign Office, as well as being now at Wellcome. You are brilliantly positioned to give us a steer on that.

Professor Watts: It was really interesting for me going from DFID, which was really about solutions, to FCDO, where you had both the risk and the opportunity conversations and awareness internally. I think it has to be a conversation that includes both Government and security alongside academics. Somehow you have to bring those together, to try to get the balance right, because the risk is that we become so focused on the security side that we miss major opportunities. Somehow, you have to bring the analysis together to think about the trade-off, and it has to be quite agile. We are evolving the model. From what I was seeing in government, it was evolving to working much more with academics to try to get the balance right and increase their awareness, as well as having a lever to intervene quite actively and deliberately in some cases.

Q31 **George Freeman:** In a world where universities are desperate for money, and China has a huge amount of money, is leaving universities to

make the decision enough? Shouldn't somebody police it?

Professor Watts: You need to police it, but the bit I am struggling with is the how and what that looks like. In what areas do you need to police it and what are the areas where you really don't have concerns?

Q32 **Chair:** Establishing principles around that is something this Committee is very interested in.

Dr Mauduit: I wouldn't think of it as either top down or bottom up; it should be a consultative process. The EU has started to get an exchange going between scientists, academics and diplomats and security experts. Bringing these communities into the same room where they can hear each other is where things really click. Scientists are quite globally oriented and think about global science and collaborations. Security experts might have very opposite thinking and be restrictive, so having those communities talking to each other is absolutely crucial. That is what the EU started in its reflections on science policy strategy, bringing scientists and diplomats and security people into the same room to talk about these things; otherwise, it will be either too top down or too bottom up. It has to be somewhere in the middle.

Q33 **Chair:** Is the UK following the European Union example in convening scientists, security experts and diplomats to establish a science, diplomacy and security policy?

Professor Watts: I am not sure about that, but in my previous role I saw closed fora conversations between technical experts in a particular area and security leads and others where they were thinking through the specifics of trying to get the balance right in some areas.

Q34 **Chair:** It strikes me that this is an area that is incredibly important and it will only get more important as China's spend on science is set to increase. For example, we have seen how in Ukraine in particular a technological advantage in drones during a time of conflict has had such an impact on the conflict there. The Committee is very interested that we do not seem to have a policy or principles around that and it is something we will definitely want to follow up. We have already run over time, but this is a very important area so I will ask each of you for any last comments.

Dr Mauduit: In terms of initiatives, in the science diplomacy community we try to get those communities to talk to each other. In the EU, there is a movement that does that. At the end of the year there will be a conference in Denmark that looks at science diplomacy in this difficult, turbulent, geopolitical world, bringing together scientists, diplomats and so on.

On the academic side, a colleague of mine, Professor James Hammond, myself and others, together with the Royal Society, will convene next year a discussion with scientists, diplomats and foreign security experts on science in conflict, for example, trying to find the ethical lines underlying a

science diplomacy strategy, because at the end of the day it is also about moral values and trying to exchange these points of view in parity. From my point of view, it is about getting those communities to talk to each other, which is incredibly important.

Professor Watts: I have a couple of additional comments. On Steve's point about what countries want from us, a really important source of information is the UK Science and Technology Network; it has 130-plus staff in 65 locations. One of the strengths the UK has versus other countries is that we have people in overseas offices who are scientists interacting with the science community and maintaining science relationships. It is also a source of information about where the opportunities are and it can enable collaboration. In the AI summit, for example, the UK could bring together Europe, the US and China to talk about AI safety, which is incredibly sensitive. It was essentially drawing on the diplomatic relationships with the science and tech community to enable that. The future role in regulation that the UK can play is an important part of what diplomacy can give and it is really important for the UK to be involved in that.

Chair: It is very good to end on a positive example of science, diplomacy and collaboration. Thank you very much for your contributions.