



UK-India Roundtable: Science, Innovation & Technology

Overcoming Challenges & Setting the Agenda
in Life Sciences

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About the APPG (Trade & Investment)

The All-Party Parliamentary Group on India (Trade & Investment) ('APPG') was registered in July 2022. The APPG is an interest group that occupies a strategic and effective position within the UK Parliament. It is cross-party and consists of Members of both Peers (Members of the House of Lords) and MPs (Members of the House of Commons).

The APPG Secretariat is the 1928 Institute - a University of Oxford spin-out that researches British Indians and the UK-India relationship. The Secretariat will be the driving force behind the APPG, providing briefings, facilitating visits, engaging with partners/experts, and curating events that underpin the Group's strategic agenda.

The Group's status is that of an All-Party Parliamentary Group, bound by the rules set out by The Office of the Parliamentary Commissioner for Standards.

Our Purpose

The purpose of the APPG is to promote trade and investment between India and the UK for the mutual betterment of their citizens, whilst building an inclusive living bridge between the two countries.

The Group's cross-cutting aims are to:

- Champion opportunities for increased trade and investment between the UK and India;
- Strengthen Parliament's role and ability to address barriers to trade and investment between the UK and India;
- Facilitate investments to create an inclusive Living Bridge between the UK and India;
- Act as the conduit between UK and Indian policymakers, businesses, and entrepreneurs to drive growth; and
- Advocate for a continued friendship between the people of India and the UK.

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Executive Summary

- The All-Party Parliamentary Group on India (Trade & Investment) convened on May 16th 2023 to discuss the challenges and opportunities in the life sciences industry across the UK and India
- Attendees included APPG Members, academics, representatives of the life sciences industry, government, and arms-length bodies
- **This policy note is a product of what was discussed by the stakeholders at the roundtable**
- The overarching difficulties experienced by innovators in both countries is cutting through 'red tape'. Bureaucracy, ethical infrastructure, intellectual property (IP), clarity of vision, and commitment, amongst many other barriers prevent the acceleration of novel products reaching the people that need them most. The new Memorandum of Understanding signed by Ministers Singh and Freeman on April 26th addresses this and aims to cut future 'red tape'
- Stakeholders feel that research and development (R&D) in India is not reaching its potential, likely due to a complex intellectual property framework.
- With academic institutions increasingly turning away from China, Russia, and the Middle East, there is a prime opportunity for India to become a preferred collaborator

Action Points

- Greater clarity and commitment towards both R&D partnerships and disease preparedness. A commitment from policymakers that signals long-term intent would enable a commercially viable short-term vaccine manufacturing industry for future pandemic (and other disease) preparedness.
- Create a **UK-India Innovation Coalition** which can act as an R&D hub for operators in both countries and potentially overseen by the UKRI and an Indian counterpart. This coalition will assist in overcoming the barriers faced by innovators in areas such as IP, MHRA approval, ethics, bureaucracy, contracts etc.
- Reach out to the relevant stakeholders such as, the UK Parliamentary Health Select Committee, NHS, Secretary of State for Health and Social Care, and discuss **ethical capacity building methods** to ensure i) future **ease of access** to biobanks so that priority diseases such as cancer can be rapidly diagnosed, and ii) **public engagement in ethical deliberation** so that ethical guidance is set in line with public values.
- Barriers to entry in the UK health sector to be summarised for the UKRI and other research bodies.

Rationale

The UK-India 2030 roadmap states that 'India and the UK are vibrant democracies and leading economies of the world with impressive advances and capabilities in human resources, manufacturing, innovation, science, education, research, fintech, space, defence, emerging and green technologies, clean energy among others'. A recurrent theme throughout the roadmap is bilateral collaboration in science, innovation, and technology.

On April 26th, a landmark Memorandum of Understanding (MOU) was signed by UK Science Minister, George Freeman MP and Indian Minister of State for Science and Technology, Dr Jitendra Singh. This MOU will enable quicker, deeper collaboration of science between the two countries so that it may drive economic growth, create skilled jobs, and improve lives in the UK, India, and worldwide.

On May 16th, the APPG India (Trade & Investment) convened to discuss the opportunities and challenges that entrepreneurs and innovators in the life sciences face when working in India and the UK and how we may address these moving forwards. In attendance were members of the APPG, Parliamentarians, policymakers, members of arms-length bodies, and representatives of industry.

Background

India has a rapidly growing pharmaceutical industry, it presently ranks 3rd in the Asia-Pacific region amongst the top 12 biotech destinations in the world. The Indian pharmaceuticals market has characteristics that make it unique. First, branded generics dominate, making up for 70 to 80 per cent of the retail market. Second, local players have enjoyed a dominant position driven by formulation development capabilities and early investments. Third, price levels are low, driven by intense competition [1].

There are several factors behind this:

- **Rapid Growth** [2] – As per the Economic survey 2021, India's pharmaceutical sector is likely to reach USD 65 billion by 2024, while another research pegs its medium-term growth to USD 120-130 billion, by 2030

[1]https://www.mckinsey.com/~media/mckinsey/dotcom/client_service/Pharma%20and%20Medical%20Products/PMP%20NEW/PDFs/778886_India_Pharma_2020_Propelling_Access_and_Acceptance_Realising_True_Potential.ashx

[2] <https://www.vestian.com/blog/life-sciences-sector-in-india-untapped-prospects/>

- **Strong workforce** – India has the second-largest share of pharmaceutical and biotech workforce in the world. The cost of manufacturing in India is approximately 33% lower when compared with that of the US, as per industry analysis. India's relatively low manpower costs and a large skilled talent pool has the potential to be exceptionally attractive to external R&D investment
- **Increasing venture capital investment** – India currently holds 4th position in attracting VC funding to the technological–health sector, with an investment of USD 4.4 billion recorded during the period 2016-2021, of which 43% was invested in 2021 alone.
- **Joint ventures with Indian pharmaceutical companies** [3] - Three of the largest global pharma players, including Pfizer, Bayer, Merck, AstraZeneca, and GSK have entered joint ventures with some of the largest Indian pharmaceutical companies.
- **Government initiatives** [2] – The pandemic has been a major driver for increased government funding, to the health and life sciences sector. The Department of Biotechnology was allotted USD 343.56 million for developing basic infrastructure, genetic engineering, technologies and bioinformatics, agriculture biotechnology, and training skilled professionals. To strengthen the Pharmaceutical Industry (SPI) Scheme, a financial outlay of USD 665.5 million for the period FY 21-22 to FY 25-26 was also announced. These initiatives are expected to strengthen the life sciences sector substantially in the next decade.

Themes Discussed

- Participants stated that they feel R&D has slowed in India over recent years
- There are significant barriers to working in the UK
- UK entrepreneurs and academics do not feel comfortable operating alone in India, without adequate infrastructural support in bureaucracy, ethics, and collaborations.
- There is potential to address gaps by building communication with existing initiatives e.g: Advanced Research & Invention Agency (ARIA), UK-India Research Council, the UKRI, and the Science Innovation Council
- Long-term investment and commitment is needed to address emerging life threatening diseases e.g. vaccines/pandemics, cancer, mental health, antimicrobial resistance, etc.
- Life science and pharmaceutical operations, research, and clinical trials are difficult in the UK - mutual capacity building is needed in ethics and bureaucracy.

[2] <https://www.vestian.com/blog/life-sciences-sector-in-india-untapped-prospects/>

[3] <https://www.wilsoncenter.org/blog-post/indias-economic-ambitions-pharmaceutical-industry>

A UK-India Case Study: Vaccines

A representative of an India-based life sciences company discussed their experiences operating within the UK:

1) R&D

- Utilising feedback loops with the UK for the rapid production of vaccines against: COVID-19, malaria, and Ebola.
- Though there is a strong regulatory environment in India, the regulation process is streamlined

2) Manufacturing

- There is a demand for efficient/diverse manufacturing base in the UK to ensure a robust supply of vaccines
- Making these vaccines in the UK is exceptionally costly
- Potential to manufacture 200 million doses a year of several vaccines across multiple technology platforms, but the lack of a long-term commitment hinders investment

3) Pandemic preparedness

- It is beneficial to deliver at scale locally
- Health threats not taken seriously, and policymakers are hesitant to proceed. Long term investment requires buy-in beyond the NHS
- The EU is moving fast on project HERA, an operation whereby the EU can control of specific manufacturing plants in times of a health emergency. They are operating with a defence mindset, as opposed to a public health mindset and this is something that UK can learn from. Bio-defence should go beyond the MoD and UKHSA and we should leverage defence capability in health at DHSC.

Follow up points raised by members of the roundtable:

- The next global health emergency will likely happen again and sooner than 100 years. A long-term plan by the government is required to mitigate this and prepare manufacturing capacity
- Pre-pandemic, an Indian-based company struggled to sell vaccines to the UK/West, citing the need for MHRA approval. However, as the threat of COVID-19 became increasingly evident and the need for vaccines were imminent, the MHRA gave their approval in weeks. Shortly after the first batch of vaccines were delivered, the Indian Government stopped their vaccine export, having left the UK with only half of the vaccines promised. This highlights a critical need for the UK to manufacture their own vaccines, at scale.
- We could look to investment incentive paradigms such as those in Uganda [4] whereby there are subsidies to attract investors, such as operating tax-free for 10 years from the commencement of the investment.



- The NHS, though a big enough market, does not guarantee they will buy the product nor a guarantee the UK will export it, hindering the manufacturing to be in the UK.

Action point: There needs to be greater clarity and commitment towards both R&D partnerships and disease preparedness. A commitment from policymakers that signals long-term intent would enable a commercially viable short-term vaccine manufacturing industry for future pandemic (and other disease) preparedness.

A UK-India Case Study: Cancer

- 1 in 2 people will develop cancer in their lifetime, and with over 200 types of cancer, testing can be complex [5]. Current NHS waiting times can be up to 2 months (62 days) between the date the hospital receives an urgent referral for suspected cancer and the start of treatment [6].
- An Indian molecular diagnostics company has developed a pan-cancer blood test. They have wanted to prioritise working with the NHS and have only just been green-lit following more than a year of discussions. This was likely catalysed by a highly cited journal article and a recent US prime time interview.
- Accessing the UK blood/biobanks has been exceptionally difficult, despite the potential of this blood test. The benefits of allowing access has been largely overlooked. This is furthered by barriers including a lack of investment in ethics, patient feedback, and public engagement in ethical deliberation.
- The NHS are pioneers in small molecule biology and could monetise this. The UK could explore monetising blood banks within academia to generate revenue for the NHS.
- There needs to be an investment in ethics, consent, and capacity building to ensure a smoother/faster regulatory process

Action point: Reach out to the relevant stakeholders such as, the UK Parliamentary Health Select Committee, NHS, Secretary of State for Health and Social Care, and discuss ethical capacity building methods to ensure i) future ease of access to biobanks so that priority diseases such as cancer can be rapidly diagnosed, and ii) public engagement in ethical deliberation so that ethical guidance is set in line with public values.

Action point: Barriers to entry in the UK health sector to be summarised for the UKRI and other research bodies.

[4] <https://www.pwc.com/ug/en/press-room/tax-incentives-available-to-manufacturer.html> [5] <https://www.trade.gov/country-commercial-guides/india-protecting-intellectual-property>

[5] <https://www.nhs.uk/conditions/cancer/>

[6] <https://www.cancerresearchuk.org/about-cancer/worried-about-cancer/cancer-waiting-times>



Health and Innovation Challenges

- Diabetes, ageing, mental health, antimicrobial resistance (AMR) present some of the major global healthcare challenges. AMR is a particularly worrying condition and results in millions dying globally. There needs to be a new generation of antibiotic innovation.
- TeleMedicine is a cost-effective way to address intersectional health concerns, treat rural communities, provide equitable healthcare, and prevent many needless deaths. Ongoing UK-India R&D to address these concern need to be facilitated to expand into a viable application.
- As many UK institutions, particularly within the University of Oxford, are reluctant to collaborate with China, Russia, and the Middle East, India could plug this R&D skills gap. However, as there is a lack of innovation-based R&D in India, this opportunity could be taken by another country.
- Stakeholders felt the intellectual property (IP) ecosystem in India is challenging and is not reforming quickly enough to match the pace needed [7] and it was felt this will deter major R&D developments and investment.
- £16 million of new investment from UK Research and Innovation (UKRI), matched by the Government of India, was launched during the UK-India Science and Innovation Council (SIC) in London on 26 April 2023 [8]. One of the key priority areas includes *improving farmed animal health and welfare through better understanding of infectious diseases and resistance to treatment*. However, there are still some bureaucracy issues. More activity from the Department of Biotechnology in India is desired.
- There is now a prime opportunity to lean into collaborations with India and establish priority partnerships, evidenced by previous track record [9]. UKRI-India life science collaborations have already shown positive outcomes in: women's health, children's mental health, ayurveda, and many other projects in other disciplines.
- The UKRI team and other research bodies need to be made aware of the barriers to collaboration and investment.

Action point: Create a UK-India Innovation Coalition which can act as an R&D hub for operators in both countries and potentially overseen by the UKRI and an Indian counterpart. This coalition will assist in overcoming the barriers faced by innovators in areas such as IP, MHRA approval, ethics, bureaucracy, contracts etc.

[7] <https://www.trade.gov/country-commercial-guides/india-protecting-intellectual-property>

[8] <https://www.ukri.org/news/uk-and-india-commit-to-research-and-innovation-collaboration/>

[9] <https://www.ukri.org/wp-content/uploads/2021/09/UKRI-300921-UKRI-India-Impact-Analysis-Report.pdf>