Science, Technology and Education Diplomacy: India's Emerging Influence in Global Affairs

Shailja Vaidya Gupta
Chief Project Director, IndCEPI, Translational Health Science and Technology Institute (THSTI), Faridabad
Former Adviser Department of Biotechnology, Government of India
Former Senior Adviser at the Office of Principal Scientific Adviser to GoI
E-mail: shailja.dbt@nic.in, shailjagupta@thsti.res.in

Historically, nations leading in science, research and development have been the dominating influence on world affairs. The developed world invests heavily in the pursuit of science and the acquisition of knowledge, and it continues to dominate science and technology development, its global use and consequent economic global power.

Post-pandemic, global geopolitics is in flux, and world markets are fluid. The emerging science superpower, China, has suffered a major setback with the erosion of trust, growing acknowledgement of the need for multiple production and supply nodes and the dangers of single large conglomerates holding the world to ransom.

The changing dynamics of global geopolitics have placed India in a fortuitous position to move its scientific machinery centre stage. The resilience and inherent capacity of Indian research institutions and industry was evident during the pandemic, delivering affordable and quality vaccines, diagnostics and healthcare equipment and devices in record time, a model for equitable healthcare for the world.[1]

Sir Peter Gluckman, President of the International Science Council and Founding Chair of the International Network for Governmental Science Advice (INGSA), in his compelling essays on Science Diplomacy, states "One of the most significant manifestations of science's changed relationship with society has been its place within public policy. There is an ever-growing recognition that science has an important role to play in virtually every dimension of policymaking at every level of government, from local to international. These dimensions exist in the social, environmental, and infrastructural areas, as well as in the innovation and economic sectors. Particularly because of the latter, investment by governments in research and development has generally risen, and one consequence of this increased investment has been a much more utilitarian perspective on the role of science from public and politicians alike."[2]

Fortunately for India, there exists much trust and pride amongst the majority population in science and scientists, as evident from the unquestioning support for the many missions of the Indian Space Research Organisation (ISRO) and unhesitant acceptance of vaccines. Science and its potential to influence national and international thought is a card not fully encashed by India. For the developing world or the Global South, India is a fine example of a thriving multicultural democracy with inherent strengths in science and technology and education in STEM, a perfect opportunity for India to flex its soft power in science- using Science Diplomacy to India's advantage.

Science diplomacy can go a long way to developing relationships between two countries. India is emerging as a cogent voice for the Global South, and not without a reason - it has much to contribute to this part of the world:

1. **Affordable quality health care:** The rapid digitisation of healthcare during COVID-19, along with the effective coming together of academia, industry and government to quickly bring to national and international markets low-cost health care products, making it possible for many previously deprived individuals to access quality healthcare services.[1] The Indian "vaccine diplomacy" has successfully positioned India as a global (affordable) vaccine powerhouse.

   India has also been acknowledged as the "pharmacy of the world." The generic medicines the Indian pharma industry supplies to the world at low costs and of high quality are exceptional; India has the largest number of FDA-approved pharma manufacturing units outside of the USA.

   India ranks 10th in "medical health and wellness tourism" of the 46 global destinations[3]; the affordability and quality of health care, the confidence Indian doctors and nurses elicit/inspire, is an invaluable diplomatic tool for generating goodwill amongst even our sworn "enemies".

2. **Affordable quality education in STEM:** The Indian education system is admired globally, with multinational corporates/ tech companies dominated by CEOs emerging from the Indian education system. While in India, we strive to make our education system better, it is also essential that India opens access to our educational and research institutions to the Global South. The migration and amalgamation of different cultures and brain circulation will enrich any education system. The people educated in India return to their country as "Indian brand ambassadors" for life. Many political leaders of neighbouring countries have acquired higher education in India.

   The establishment of the IIT Madras and IIT Delhi offshore campuses in Zanzibar, Tanzania, and Abu Dhabi, United Arab Emirates, respectively are perfect examples of education and science diplomacy, cementing the bilateral relationship between India and these countries definitively. "Education in STEM Diplomacy" has an unlocked potential, and attention must be paid to the ease of education in India.

   Research Institutes could consider establishing "Short-Term Training Courses" in cutting-edge science and technology, inviting participation from low and middle income countries (LMICs); there is a huge demand from these countries for high-value short-term training programs. iBRIC-Translational Health Science and Technology Institute, Faridabad, conducted one such training course in advanced vaccinology with an overwhelming number of applications from LMICs. Ministries of External Affairs and Home Affairs must support higher education and research institutes in this diplomatic endeavour.

3. **Bilateral collaborations in science and technology:** Few enterprises in the world are as thoroughly internationalised as science; with decided and emphatic global impact. Collaborating with the biggest science nations participating in the most ambitious scientific experiments - International Thermonuclear Experimental Reactor (ITER), Large Hadron Collider (LHC), Laser Interferometer Gravitational-Wave Observatory (LIGO), and steering global challenges - climate change, disaster preparedness, positions Indian science well with the competitive global best, underscoring India as an emerging scientific powerhouse.

   International links strategically strengthen expertise and quality of research, increasing the chance that useful knowledge will be taken forward, accelerating the growth of new knowledge. India, one of the largest emerging economies, can use science within the diplomatic spheres to advance its interests in both the Global North and South while understanding varied socio-economic aspirations and needs of individual nations.

Science Diplomacy is a powerful albeit underutilised tool, however, with increasing confidence of the government in Indian science, the scientific soft power will slowly and steadily become a major contributing factor to the increasing influence of the Indian voice in global affairs.

References

1. Gupta SV (2024) India's Response to the COVID-19 Pandemic: A Global Model for Equitable Healthcare. *Vivekananda International Foundation*. https://www.vifindia.org/article/2024/may/27/India-s-Response-to-the-COVID-19-Pandemic
2. Gluckman P (2016) Science Advice to Governments: An Emerging Dimension of Science Diplomacy. Science & Diplomacy, 5(2). https://www.sciencediplomacy.org/sites/default/files/science_advice_to_governments_0.pdf
3. Ministry of Tourism, Government of India (2022) National Strategy & Roadmap for Medical and Wellness Tourism. https://tourism.gov.in/sites/default/files/2022-05/National%20Strategy%20and%20Roadmap%20for%20Medical%20and%20Wellness%20Tourism.pdf