Guest Editorial

India's scientific diaspora has long been an invaluable asset in shaping the global landscape of research, innovation, and technological advancement. In recent years, the conversation has shifted from the notion of "brain drain" to "brain gain" and now to "brain circulation." This evolving narrative highlights the dynamic nature of the Indian scientific community abroad and its potential to drive India's growth.

The Indian scientific diaspora is one of the largest and most influential, with millions of professionals working across the globe, including the United States, United Kingdom, Canada, Australia, and Europe, in fields such as information technology, biotechnology, artificial intelligence, space science, and agriculture. These countries, known for their strong research ecosystems, attract top-tier talent from India. Meanwhile, India stands as one of the top exporters of scientific talent globally, with its diaspora continuing to contribute to the development of host countries.

India ranks among the world's leading exporters of scientific talent, with a growing trend of its scientists contributing to groundbreaking research and international collaborations. However, as much as this exodus of talent has fueled innovation in foreign labs, it has also created an urgent need for India to turn its diaspora into a resource that will propel domestic scientific growth. The good news is that the shift toward brain circulation — where professionals engage with their home and host countries — offers immense promise. Rather than viewing the movement of scientists as a loss, India can leverage this diaspora to foster global partnerships, knowledge transfer, and joint research that benefits India and the world.

Recognising the importance of this talent pool, the Indian government has initiated programs to better engage with its diaspora. Initiatives such as **VAJRA** (Visiting Advanced Joint Research), **VAIBHAV** (VAIshvik BHArtiya Vaigyanik), and **GIAN** (Global Initiative of Academic Networks) are aimed at fostering knowledge exchange and collaboration between domestic and international research communities. The **PRABHASS** (Pravasi Bharatiya Academic and Scientific Sampark) initiative by CSIR strengthens ties, promotes collaboration, and enhances knowledge exchange between Indian and overseas Indian scientists. Expanding such programs and creating new ones could foster a new era of scientific collaboration and innovation, benefitting the global scientific community.

While these initiatives have made significant strides, India must deepen its engagement with its diaspora to capitalise on their expertise fully. This special issue focuses on the scientific diaspora, aiming to capture their perspectives and recommendations for strengthening India's science and technology ecosystem. The contributions underscore the pivotal role that the Indian scientific community abroad plays in shaping global research collaborations and influencing national development.

The perspectives of several prominent members of India's scientific diaspora offer valuable insights into how India can better engage its global talent pool. Dr Raghavendra Jana from Skoltech, Russia, advocates for expanding programs like VAJRA to strengthen India-Russia collaboration, particularly in climate-smart agriculture. He emphasises leveraging each nation's strengths in environmental science, data analytics, and agricultural technology. Dr Harjeet Khanna of AgriFutures Australia explores the emerging trends of science diplomacy, digital collaboration, and philanthropy, noting initiatives like the Tata Institute for Genetics and Society, which is addressing global health challenges like malaria. Prof. Ravinder Rena, Professor of Economics at Durban University of Technology, South Africa, urges India to deepen ties with the Indian diaspora in Africa, particularly in sectors like renewable energy, agriculture, and healthcare. Dr Suresh Babu Naidu Krishna, also from Durban University, advocates for greater collaboration between India and African nations to address

climate change and health challenges while ensuring young scientists are equipped with the skills and opportunities needed to tackle future challenges.

The final article comes from the International Organization for Migration (IOM), Geneva, Switzerland. It discusses the IOM's Strategic Plan for 2024-2028, emphasising the multifaceted role of diaspora communities in advancing global health outcomes. The article also introduces the Global Diaspora Policy Alliance (GDPA), underscoring its role in fostering long-term partnerships to improve global health practices and policies.

The perspectives and recommendations of diaspora scientists underline the importance of creating an inclusive and collaborative scientific ecosystem that will not only benefit India but also contribute to solving global challenges. We hope this special issue offers valuable insights and contributes to shaping future Indian science and technology policies, leveraging the expertise of the global scientific diaspora to drive progress both in India and worldwide.

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