Role of Science Diplomacy in Building Bridges to Respond to Emerging Challenges

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As the world rapidly transforms into a technologically connected global village, led by innovative scientific and technical advancements impacting every sphere of life, it is essential to ensure balance, equitable sharing of these innovations and a sustainable development model across the globe. Science and Technology (S&T) are part of the ecosystem in any country, though with varying degrees of sophistication and availability of resources. However, the developed countries have generated path-breaking products including the new emerging artificial intelligence-based technologies, blockchain, cryptocurrency, and many more are emerging from the innovation woodwork every day. It has been achieved through an ecosystem that has tapped the best talent from all over the world, encouraged and incentivised innovation, and research and development (R&D). Keeping track of the humongous number of new R&D outcomes being brought out in every country is a challenge to the scientific community. This is where the Indian Diplomatic missions can play a crucial role. The concerned diplomats need to be sensitised and made aware of the role of the embassy in interacting with the S&T community, R&D institutes, premier science universities and industrial bodies in the country of their postings and be quick to link them with the Indian counterparts so that collaborations could be worked out for a mutually beneficial outcome. The scientists and technical teams with domain knowledge need to be fully involved in the technical aspects while leaving negotiations and agreements to the diplomats, who in turn need to be fully cognizant and familiar with the technology and innovation requirements best suited for India in the face of emerging challenges in every sphere. The concept of science practitioners as diplomats may or may not always be in the best interests of the countries involved in S&T collaborations and hence the involvement of career diplomats is important for the best outcomes. S&T is an effective tool to aid diplomatic efforts, as an element of a county's soft power, in order to increase its influence and create goodwill, while being mutually beneficial.

While Science diplomacy is enjoying increased recognition as an important device in the conduct of foreign policy, there is a contestation regarding the concept of science diplomacy, which involves a broad spectrum of policy perspectives and practitioners of diplomacy and 'science diplomats'. Most countries lack a science diplomacy policy, which is impacted by both domestic and geopolitical dynamics, and often gets equated to only the concluding of scientific cooperation agreements as tools of science diplomacy. As a diplomatic activity, science diplomacy refers to the practice of using science and technology in diplomacy to foster dialogue and cooperation between nations, individuals and organisations to develop international relations.[1] Science diplomacy has been extensively practised to address issues such as climate change, sustainable development, space and nuclear cooperation and more recently in response to and handling of the Covid-19 pandemic. Ideas that technology transfers need to be always from the Global North to the Global South sometimes hinder achieving optimum outcomes and create a bias against a lot of innovative work being done in the countries of the Global South, including in India. There are many instances of

frugal engineering and low-cost solutions to seemingly insurmountable problems being developed in India which need to be married with the advances in AI, etc. to come up with robust workable and beneficial solutions in healthcare, agriculture, sanitation, renewable energy solutions, especially in remote areas and for sustainable growth and development.

Pursuant to India's quest to build bridges and partnerships, it is observed that India's bilateral cooperation in S&T with various countries is based on S&T agreements signed between the Department of Science and Technology (DST) with about 80 countries. However, only 44 or so agreements are being actively implemented due to various reasons and are usually dealt with and followed up by the DST without involving the Missions. The Department of Atomic Energy (DAE) and the Department of Space (DOS) also have agreements with many countries for joint projects and sharing of data, etc. For space and nuclear cooperation, there are officers posted by DOS and DAE to some embassies abroad to coordinate and implement specific projects as was the case with France. The present deployment of designated officers in the embassies is small and as much of the S&T cooperation is handled directly from headquarters, projects tend to be sporadic and not part of any long-term plan or strategy; added to this a lack of follow up on agreed programmes or projects leads to these falling off the radar. Currently, there are Science divisions headed by Counsellors in the Missions in Russia, the USA, Germany and Japan, thus leaving a huge untapped area for possible regular collaboration with some other countries like France, Switzerland, Israel, South Africa, South Korea, etc., where extensive R&D and innovations are ongoing in cutting edge technology in areas of India's interests. It is, therefore, imperative for India to expand its Missions' capacity to handle the work related to Science Diplomacy.

India's Science Diplomacy practice follows several modes which include bilateral programmes and multilateral initiatives with the EU, ASEAN, BRICS, G-20, IBSA, BIMSTEC, etc. as also collaborations with international organisations like UNESCO, The World Academy of Sciences (TWAS), UN Commission on Science and Technology for Development and the OECD. The setting up of a New and Emerging Strategic Technologies (NEST) division in the Ministry of External Affairs (MEA) is a positive step as it is mandated to act as the nodal point of coordination for Innovation and Science diplomacy related to new and emerging technologies which could impact India and assess their foreign policy and international legal implications to leverage the benefits for India's emergence as an innovation hub and tech-enabled country. However, the many challenges to achieving this need to be overcome through learning from the experiences of other countries and deft negotiations involving all stakeholders to obviate any lacunae. The Global Innovation and Technology Alliance (GITA) set up jointly by the DST, Technology Promotion Board and the Confederation of Indian Industry (CII) as a Public-Private Partnership (PPP) initiative aims to catalyse innovation and R&D collaborations including soft funding for technology development, acquisition and deployment. It has launched bilateral programmes and joint industrial R&D funds with Canada, Finland, Israel, Italy, the Republic of Korea, Spain, Sweden, the UK and the EU in various strategic sectors that are key to the Industrial Revolution 4.0 and is an important element in facilitating innovation and science diplomacy.[2] This is much needed to ensure that both government and non-government scientific organisations, academics and science entrepreneurs be brought on board to harness and learn from best practices and models already being followed in these countries.

The Science, Technology and Innovation (STI) ecosystem proposed to be created in India through the implementation of its upcoming 5th Science Technology and Innovation Policy has as its key dimensions Open Science, capacity development, financing, research, innovation and entrepreneurship, equity and inclusion, international STI engagement, STI governance, etc. to meet the vision and aspirations for a new contemporary scientific temper and temperament. As stated before, this calls for learning and adapting from the best practices of other countries like the EU, OECD countries, and others who have been able to integrate STI and R&D with industry and entrepreneurship to come up with innovative solutions and targeted technology best suited to the specific issues facing the country.

India's innovation ecosystem is improving through linkages and partnerships with both developing and developed countries but there is a need to further align foreign policy goals with the rapidly evolving domestic technological innovations and scientific advancements to use these as a tool to promote trade, build partnerships with businesses both within and outside the country and making India more competitive, especially in a rapidly transforming technological world and dynamic geopolitical scenario. India's Science and Innovation diplomacy were on display during the Covid-19 pandemic crisis and helped to build bridges along with short and long term collaborations to counter this global threat through direct Government to Government initiatives as also through the PPP mode as seen in the case of Vaccine Diplomacy. India has the talent in the spheres of S&T and Diplomacy and with many diplomats coming from a technology background, they come with some domain knowledge. With some training in the area of scientific and innovation strategies and negotiations and working in close consultation with the key S&T Ministries, Departments and industry bodies, these trained 'science diplomats' could transform the architecture of India's Science and Innovation diplomacy for a win-win outcome to enable India to harness STI to evolve cost-effective solutions to deal with emerging challenges, both domestic and global, in the fields of climate change, sustainable socio-economic development, access to education, clean water, renewable energy, etc.

References

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