

DST-CENTRE FOR POLICY RESEARCH



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# The Need for Institutional Capacity Building to enhance India's Science Diplomacy



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## Introduction

In the current scenario, a nation's Science, Technology, and Innovation (STI) prowess have become increasingly important as a critical driver of foreign policies. It can address common global issues such as climate change, clean and green energy, strategic technologies, and artificial intelligence. Increased globalization has opened channels for enhanced international STI engagements and cross-border technology sharing amongst countries that play a significant role in technological advancements with a greater goal to address socio-economic challenges regionally and globally.

STI is one of the main currencies for exchanging dialogues among different societies and sovereign nation-states. It is emerging as a critical attribute to transform the dynamics of diplomacy and geopolitics. As an art to negotiating for a country's national interests, diplomacy has been transformed into a scientific tool for projecting national competence and capability and is regarded as a tool for scientific advancement<sup>1</sup>. This has led to the emergence of novel and unique technologies that have further enhanced human society's knowledge base. It has also led to the spontaneous flow of information and thus improved the science of carrying out the art of diplomacy. Therefore, institutional capacity for science diplomacy must be built to explore and implement such initiatives, especially in developing countries like India.

## Science Diplomacy - Concepts and Understanding<sup>2</sup>

Science Diplomacy is an umbrella term that encompasses various scientific, academic, and

technological exchanges among nations and societies.

The commonly understood objectives of Science Diplomacy strategies aim to:

- 1) Strengthen bilateral and multilateral scientific collaboration and co-operation that supports the country's STI interests
- 2) Facilitate evidence-informed decisions of the country, particularly in multilateral projects and tackling global challenges.
- 3) Attracting fresh STI opportunities and talent into the country.

The 2010 Royal Society-AAAS approach toward science diplomacy can be referred to from three different angles<sup>3</sup>.

- a) Science in Diplomacy includes applying scientific inputs and research results to diplomatic conduct and foreign policymaking.
- b) Diplomacy for science that involves leveraging diplomacy to foster STI interventions, projects, and capacity among countries by increasing collaborations for the common good.
- c) Science for Diplomacy employs STI's goodwill to achieve diplomatic goals and bring nations closer through STI engagements.

The assumption that STI can be leveraged as an element of soft power in international relations, coined by Joseph Nye (2008), works best, especially when traditional diplomatic measures reach a standstill. STI Diplomacy has a direct correlation with national interests and

1. Relia, S., Mitra, A. and Ramasami, T., 2014. Science and Technology Perspectives for India's Foreign Policy. *Indian Foreign Affairs Journal*, 9(2), pp.154-168.

2. Ruffini, Pierre-Bruno. "What is science diplomacy?" In *Science and Diplomacy*, pp. 11-26. Springer, Cham, 2017.

3. Ruffini, Pierre-Bruno. "Conceptualizing science diplomacy in the practitioner-driven literature: a critical review." *Humanities and Social Sciences Communications* 7, no. 1 (2020): 1-9.

objectives. A more profound understanding involves leveraging evidence-driven scientific prowess to further diplomatic initiatives that enhance the nation's image.

It explores how states, science institutions, international organizations, or individual scientists used science to shape and influence relations across borders for political purposes and how these interactions have reflected the bilateral/multilateral science programs and projects.

## Global Initiatives in Science Diplomacy

Science diplomacy initiatives have been globally accepted and promoted in the current geopolitical scenario. The Royal Society and the American Association for the Advancement of Science (AAAS) signed a joint agreement and in 2010, released the report 'New Frontiers in Science Diplomacy'. It was one of the world's most strategic steps toward formalizing the perception of Science Diplomacy. The first global meeting - "EU Science Diplomacy beyond 2020", took place in Madrid in December 2018. It led to the signing of the "Madrid Declaration on Science Diplomacy" which brought forth the vision of science diplomacy in a global context. In addition, there is a need to adequately represent the challenges of low- and middle-income countries (LMICs) of Asia, Africa, and Latin America that house 80% of the world's population and constitute the global south.

Efforts are being made to institutionalize STI diplomacy. Some of the key initiatives are:

a) Institutionalizing the Centre for Science Diplomacy by the AAAS in 2008.

In association with the World Academy of Sciences, the AAAS for advancing science in developing countries (TWAS), Italy, has organized 'AAAS-TWAS Course on Science Diplomacy' every year since 2014.

b) The European Union started with the online course for science diplomacy (S4D4C European Science Diplomacy Online Course from 2018). The European Union also released The S4D4C Open Doors Toolkit as a knowledge exchange experience in policy and diplomacy for researchers.

c) Under the aegis of the European Union, as part of the Horizon 2020 Programme-'Inventing a shared Science Diplomacy for Europe (InsSciDE)' project was undertaken.

d) The European Academy of diplomacy is the first non-governmental and non-profit academy providing training and expertise in diplomacy. It started a dedicated school for science diplomacy 'Warsaw Science Diplomacy School'.

e) Among the global south countries, Brazil has been spearheading attempts to institutionalize Science and Innovation Diplomacy through the "São Paulo School of Advanced Sciences on Science and Innovation Diplomacy" (InsSciDE) from 2019 formulated the São Paulo Framework of innovation diplomacy<sup>4</sup>.

f) Other attempts to institutionalize STI diplomacy include 'Diplomatic Circles and Networks' such as SciTech DiploHub, the European Union Science Diplomacy Alliance, Science Policy in Diplomacy, and External Relations (SPIDER) network of the International Network for Government Science Advice (INGSA).

4. <https://innscidsp.com/framework.pdf>

Today, STI diplomacy is primarily practiced through the ministries of Foreign Affairs of several countries, through STI missions abroad, bi-national S&T Centres such as the Indo-French Centre for Promotion of Advanced Research (IFCPAR / CEFIPRA), Indo-German Science & Technology Centre (IGSTC) and Indo-US Science & Technology Forum (IUSSTF), Science attachés and Science Innovation Centres like that of Swissnex, German Centre for Research and Innovation (DWIH), etc.

### Science Diplomacy in India<sup>5</sup>

The Ministry of External Affairs (MEA) is also actively promoting science diplomacy in India through a network of Embassies in different countries; organizing the Indian Technical and Economic Cooperation (ITEC)<sup>6</sup> Programme and creating a linkage platform such as Pravasi Bharatiya Academic and Scientific Sampark - Integrating Indian Diaspora with the Motherland (PRABHASS). The new Emerging Strategic Technologies (NEST) division started to play the role of India's nodal point for foreign policy matters associated with new and emerging technologies. The Global Innovation and Technology Alliance (GITA) is yet another attempt to promote India as a significant technological innovator and benefactor internationally.

Indian initiatives through the lens of international co-operation and STI diplomacy are primarily carried out by the Department of Science and Technology (DST). The DST engages in over 80 bilateral and multilateral engagements while negotiating, concluding, and implementing STI agreements globally. The division presently supports three

bi-national S&T Centres, which are independent entities established under intergovernmental arrangements with France, [e.g., Indo-French Centre for Promotion of Advanced Research (IFCPAR / CEFIPRA); Indo-US Science & Technology Forum (IUSSTF) and Indo-German Science & Technology Centre (IGSTC)]. India also has Science Wings in Indian Missions in Berlin, Moscow, Tokyo, and Washington DC and engages in STI diplomacy through the four Science Counsellors. The other key players include the Office of the Principal Scientific Adviser to the Government of India (O/o PSA), the Ministry of Science and Technology [through 3 departments- The Department of Science and Technology (DST), Department of Biotechnology (DBT) and Department of Scientific and Industrial Research (DSIR) including Council of Scientific and Industrial Research (CSIR)] and other S&T line and socio-economic ministries and their associated departments such as Indian Council of Agricultural Research (ICAR); Indian Council of Medical Research; Ministry of Electronics & Information Technology (MeitY); Ministry of Education, Department of Atomic Energy, Department of Space, etc.

The major initiatives undertaken in India for science diplomacy are as follows:

a) Publications focusing on science diplomacy: The Council for Scientific and Industrial Research (CSIR)- National Institute of Science Communication and Information Resources (NISCAIR) in 2017 launched 'Science Diplomacy- India's Global Digest of Multidisciplinary Science'. The Research and Information System for Developing Countries (RIS) started with the 'Forum for India Science Diplomacy (FISD)'. FISD organizes webinars and seminars and publishes,

5. Source: Mishra A, Singh S R K, Raut A A (2020) Traditional Knowledge in Agriculture. Division of Agricultural Extension, ICAR, New Delhi, Pp.39.

6. It is part of India's external development assistance Programme for developing countries across the globe. It provides lines of credit, grants, technical consultancy, scholarships, disaster relief, humanitarian and societal aid, and a broad spectrum of capacity-building initiatives (<https://www.itecgoi.in/index>).



among other things, reports. RIS and National Institute of Advanced Studies (NIAS), Bangalore also launched India's first Program on Science Diplomacy, with funding from the Department of Science and Technology (DST).

b) India has taken the lead in setting up science diplomacy initiatives such as the International Solar Alliance (ISA), Asian and Pacific Centre for Transfer of Technology (APCTT), International Centre for Genetic Engineering and Biotechnology (ICGEB), and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). [A25] was conceived as an alliance to specially address the energy needs of countries rich in solar resources. India has also taken the lead in a humanitarian initiative, 'Vaccine Maitri', to provide vaccine access and supply globally during pandemics.

These institutional agreements have become the building blocks of India's STI diplomacy and need to be extensively boosted to get the best from diplomatic practices. There are several gaps in the Indian STI diplomacy practices, which are scattered and restricted mainly to traditional international cooperation and associated diplomatic activities. For a country as large and diverse as India, there is a need to build capacity through formal training for STI diplomacy. India must take the lead in spearheading the STI diplomacy wave in the global south. STI diplomacy should evolve as a tool of the foreign policy of India.

## Way Forward

The Indian Science diplomacy ecosystem can thrive and flourish if the following measures are implemented:

1. Formal education and training in science

diplomacy have to be integrated with the science administration and public policy.

2. Skill sets in science diplomacy have to be imparted by institutionalizing the concept of science diplomacy in our Higher Educational Institutes. We need innovative models for promoting science diplomacy in the country. Scholarships and fellowships in this domain need to be initiated to lead to more researchers in science diplomacy. STI diplomacy could thus also evolve as a promising career opportunity.

3. India needs to build a network of countries (developing and developed) to evolve scientific and technological collaboration to be grown as a science diplomacy initiative. India has taken the lead in ISA, and on similar grounds, India can take the lead in other thematic areas.

4. Integration of institutions, academia, think tanks, strategic community with the scientific acumen for working on global STI challenges so that the scientific community is closely engaged in the STI diplomatic agreements<sup>7</sup>.

5. Increased placement of scientific ambassadors in the embassies or consulates abroad for better communication, also focusing on the right approach to scientific communication for its diplomacy conduct. There is an urgent need to increase the number of science counsellors, and science attaches in the Indian embassies.

6. Focusing on building and upgrading the institutional challenges posed to the STI Diplomacy framework, discussing and finalizing sectors, timelines for the joint projects of mutual interests, and coordinating the way forward for India in the practical implementation of collaborative working groups for scientific ambassadors.

7. da Silva, Renan Gonçalves Leonel, Gabriela Gomes Coelho Ferreira, Janina Onuki, and Amâncio Jorge Nunes de Oliveira. "The institutional building of Science and Innovation Diplomacy in Latin America: toward a comprehensive analytical typology." *Frontiers in Research Metrics and Analytics* 6 (2021): 9.

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