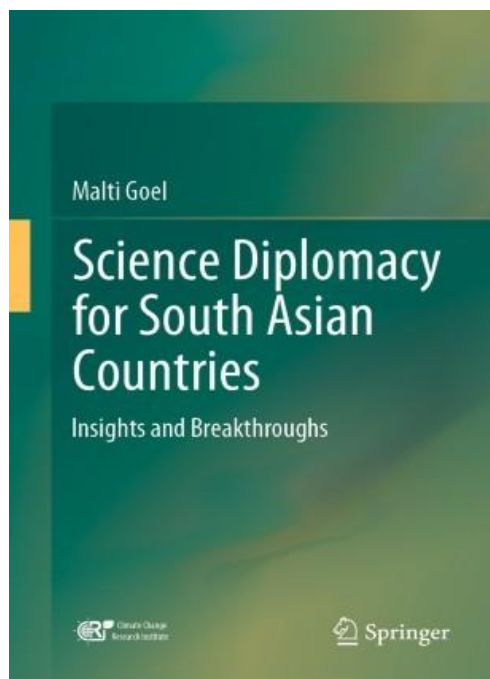


Dr Malti Goel, Ph.D, D.I.I.T, IIT Delhi, Former Adviser, Govt. of India & CSIR Emeritus Scientist publishes a book on Science Diplomacy with Springer Singapore



Covers science diplomacy for Afghanistan, Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, Pakistan and Sri Lanka

Elaborates on the current state of bilateral cooperation in technology and research of India with neighboring South Asian countries

Brings together the latest information on international governance models, mega-science projects, science policy and science diplomacy in India

Foreword by Prof. Dorairajan Balasubramanian
Voice President, TWAS

who are specialists in their fields. We need 'diplomats' with scientific appraisal and 'scientists' conversant with the art of diplomacy.

The book on *Science Diplomacy for South Asian Countries: Insights and Breakthroughs* is a laudable and brave attempt to catalyze understanding of science diplomacy cross-cutting concepts among the scientists and diplomats in South Asian countries. The need for the book is apparent. Among the developing countries, there is a realization that science diplomacy is less known, and new initiatives are beginning. Therefore, it is the right time to address the challenges of growth and development in South Asia, a lesser integrated part of the world. The book introduces concepts and contours of science diplomacy with international examples. India's current S&T collaborations and future of science diplomacy with neighbouring countries are discussed. In practice, science diplomacy could mean several things. It would require understanding, mutual trust, cooperation, engineering skills, and diplomacy to find a solution for the real problems and the people's aspirations.

I compliment the author for her pioneering effort to take the first step to unravel the disparities and difficulties in cooperation, with possible strategies for adopting science diplomacy in south Asian countries. She does a great job creating awareness among the researchers, scientists, diplomats, and policymakers to take it forward. Readers from countries in South Asia and others would find the book an excellent research resource material.

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Science diplomacy is the tool to build international collaborations among countries and regions to address common issues using scientific and technological knowledge. The World Academy of Science (TWAS) recognizes the importance of science diplomacy for regional cooperation, and science diplomacy is one of its flagship programmes launched in 2011. The TWAS has offered summer courses, thematic meetings, and regional workshops to scientists, scholars, policymakers, diplomats, and other stakeholders from developing countries. Through these activities, the TWAS has made incredible contribution towards capacity building in science diplomacy for aspirants in developing countries.

The genesis of the programme is the Center for Science Diplomacy established by American Association for Advancement of Sciences (AAAS) in 2008. The AAAS Centre has been a leader in bringing science diplomacy to limelight as a critical aspect of science and international relations for building bridges between the nations. It has been documenting and sharing experiences, developing an intellectual framework and providing trainings to support the practice of science diplomacy. Science diplomacy calls for multidisciplinary roles from the institutions both government and non-government and a closer interaction between the scientists and diplomats.



Author: Dr. (Mrs.) Malti Goel

Foreword by Prof. D. P. Agrawal
Chairman, Governing Council, CCRI

Chapter 1
Introduction to Science Diplomacy

Dr Malti Goel, President, CCRI



Science diplomacy is at the crossroads between science and technology and foreign affairs. L. S. Dand and R. S. Patman, in their book *Science Diplomacy: New Day or False Dawn?* (2015) write, 'As modern foreign policy and international relations encompass more and more scientific issues, we are moving towards a new type of diplomacy, known as Science Diplomacy'. The statement is valid for developed countries, though even after six years science diplomacy is a much less-known concept among the developing countries.

As the progress is being made in documenting and sharing skills, science diplomacy is recognized as the 'soft power' of science requiring mutual trust and understanding against the 'hard power' of technology involving defence-related interventions and economic sanctions. Unlike traditional diplomacy pursued secretly, science diplomacy aims to raise awareness and promote common interest towards a goal. It is open diplomacy hoping that it could help build regional coherence in scientific communities and improve relationships between the countries.

South Asian countries are rich in human and natural resources, yet economic development in the region has lagged compared to other world regions. During my tenure as Chairman, Union Public Service Commission in India, we began a dialogue between all the Chairmen of the respective public service commissions of SAARC members about the role of public service commission in influencing the youth of the country through the route of education, science and technology, and development. In the very first meeting, the realization was that the members did not appreciate India's big brotherly attitude. Mutual respect is a critical issue to overcome the prevailing mistrust.

I am happy that the book *Science Diplomacy for South Asian Countries: Insights and Breakthroughs* is a thought-provoking attempt to introduce role of science in international affairs for the growth of the region. I commend this work for its original scholarship and praise the author. The foreign policy relationships in future will give significant recognition to scientific professionals and science diplomacy for finding solutions to global challenges contributing to the region's sustainable growth. Breakthroughs in science and technology collaborations will take place and bring the nations in South Asia closer. India needs to take action to develop strategies to make it a win-win situation for the partners. Therefore, it is most reasonable for the

Ministry of External Affairs (MEA) to come forward by creating an arm on science diplomacy for South Asia.

I am confident that the book will be a valuable resource for students, researchers, and policymakers.

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Founder Director, IITM, Gwalior, India
Former Professor and Dean, IIT Delhi, India

1.1 Science and Inquiry

Science and scientific discoveries have contributed to our understanding of the mysteries of nature from the time immemorial. The Royal Society of London founded in 1660 exemplified the role of science among people. This 'learned society', and a world's oldest academy dedicated to science, has the motto 'Nullius in Verba', meaning 'Take nobody's word for it', i.e. verify the facts through knowledge or scientific inquiry [1]. The resurgence in society about 'science' and 'inquiry' came with the Copernicus scientific theory of heliocentric universe. Nicolaus Copernicus (1473–1543 AD), a Polish scientist challenged the Ptolemy's existing geocentric theory and prevailing thought that the planet earth is the centre of the universe. He stated that the Sun is in the centre¹ and the earth and other planets revolve around the Sun. Copernicus, was condemned vehemently by the religious authority of the Roman Catholic Church. His work explaining the theory was not allowed to be published and the heliocentric texts were banned. The famous Italian scientist Galileo Galilei (1564–1642 AD), who supported Copernicus theory was put under house arrest. In this cacophony the Royal Society continued to promote scientific inquiry for improving natural knowledge independent of political or religious interferences. Religious leadership dominated the western societies until the first Industrial Revolution of the eighteenth century, which provided a major breakthrough to realize a scientific enterprise.

On the other hand, ancient eastern civilizations had been more cooperative and had zeal for scientific reasoning. Greek Geographer Eratosthenes of Cyrene in the second century BC had foretold that the earth is round and its circumference is (today's equivalent of) 40,000 km. He calculated the earth circumference by using the differences in the observed angles of the Sun from two different locations. According

¹ The work as De revolutionibus orbium coelestium libri vi ("Sixth Book Concerning the Revolution of the Heavenly Orbit") was published as a book in 1543.