Science and technology diplomacy – some reflections*

Ashok Parthasarathi

It was during the First World War (1914–18) that science and technology (S&T) began to have a major impact on the wars in particular, and defence in general. If there was one example of a major weapon which changed the course of the War, it was mustard gas. This gas produced and used in large quantities, wrought havoc in the trenches of both the warring sides.

This S&T-based warfare expanded greatly during the Second World War (1939–45). A few major examples of such expansion are: radar and sonar, advanced radio and telecommunications, accurate guns of all types ranging from pistols, hand-held rifles to heavy machine guns and mortars. The submarine as a major S&T-based weapon system came into its own as did advanced military aircraft of various types – fighters, fighter bombers and heavy bombers. Ammunition also became more lethal and accurate. Notable example was the invention of the deadly fire-causing agent – Napalm. However, the most deadly was the use of new weapons with a lethal scale never seen before. Fire bombing of Tokyo, Japan, wave after wave by B-29 Bombers of the US Air Force, is an unforgettable example. However the discontinuous quantum jump in lethality and destructive power based on advanced S&T were the nuclear bombs dropped on Hiroshima and Nagasaki in Japan by the US Air Force on 6 August 1945. That bombing made sure that wars would never be the same again.

Enormous as its effect was on totally transforming warfare, the impact of S&T on relations between nations became extremely necessary and hence the great importance for science diplomacy. It also transformed practically every walk of life – be it medicine or transport or energy.

Consequently, S&T became a key ingredient in the formulation and implementation of foreign and security policy. The dire need for a new type of diplomat was born: the S&T diplomat. He/she was to be a person with a fine blend of detailed technical knowledge of S&T and one who not only realized, but was also adept at performing tasks of diplomacy and foreign policy. It was thus a huge shake up in the diplomatic system of the Government. With this development, the S&T specialist being on tap or on top came up.

We came into S&T diplomacy rather late. Until 1972, the only S&T Minister or Counsellor was in our High Commission in London. Then, as part of the preparation in 1972, of the S&T Plan by the National Committee on S&T (NCST) during 1971–74, science counsellors were posted to our embassies in Moscow, Washington, Bonn and Tokyo. This new breed of diplomats was not initially accepted by the other 'normal' diplomats in the embassies. It took some time to secure acceptance. Soon they made themselves useful to their ambassadors and indeed became assets to them as well. Tensions, however, soon built up between the science counsellors and the traditional Indian Foreign Service (IFS) officers. Another issue was the relationship between science diplomats and the S&T communities back home. It took an able ambassador to get the best out of his S&T counsellors.

Then, there was the question of the loyalties of the S&T counsellors to their ambassadors on the one hand, and their scientific and technological communities back home on the other. This issue of divided loyalties of the S&T diplomats, whether they were fish or fowl, continued all through.

As analysis of the institutional affiliations of the S&T personnel selected for the positions of science counsellors in our embassies over the years 1975–2015 reveals that most of them, indeed an overwhelming majority came from the IITs and universities, but not from our major R&D agencies or their establishments such as DAE, ISRO or DRDO. Consequently, the selected persons had poor appreciation of (a) governmental decision-making processes, and (b) how to work with colleagues having different backgrounds – most notably officers of the IFS, who were their colleagues in our embassies. Although the Department of Science and Technology (DST), was the nodal department for the S&T counsellors' programme, which organized and ran orientation programmes for the S&T counsellors before they took up their positions abroad, the width of the programme for the 'to-be counsellors', in terms of key policy areas such as Intellectual Property Rights, including detailed knowledge of the latest version of our Patent and Copyrights Acts was inadequate. Experience has shown that not all the science counsellors were up to the mark. Then, there was the issue of the knowledge that the science counsellors had of our S&T system. Often, they had not visited even one or two of our major industrial plants, e.g. BHEL or Bharat Electronics Ltd (BEL). Therefore, they had not been exposed to the high-tech products and production processes in vogue in those companies. For example, in 2004, BEL had been chosen by the globally prestigious professional body – the Institute of Electrical and Electronics Engineers (IEEE), New York, as the world's best medium-sized electronic company. BEL was a regular exporter of hi-tech military-grade radio communication equipment to other developing countries such as Syria, Indonesia, Botswana and Argentina, providing the armies of those countries with state-of-the-art equipment at prices 30%–40% lower than those that prevailed for corresponding equipment from the highly industrialized countries.

I would now like to turn to the crucially important aspect of the 'charter of duties' of the S&T counsellors – not only those posted in other developing countries, but even from the vantage point of our counsellors in the highly industrialized countries. As numerous studies and workshops undertaken by RIS have demonstrated, in actual practice, the role of S&T counsellors and S&T diplomats is enormous. We have barely scratched the surface. Once again, my own experience

*This note is based on the Inaugural Address by the author at an International Conference, on 'Developing Countries in the Realm of Science and Diplomacy and South–South Cooperation' organized by the Research and Information System of the Developing Countries at New Delhi between 4 and 6 November 2017.

of some three and a half decades in the Government of India has shown, what is crucially important for success in the area is our counsellors having the correct value orientation, e.g. not one of 'talking down' to scientists and technologists in other developing countries, but of actually thinking and acting in a spirit of comradery.

I would at this point like to raise a rather fundamental matter, viz. the nature and scope of the responsibilities as S&T counsellors formally given or spelt out by DST. My conversations with several of those counsellors and several secretaries to the Government, including those of DST over the years has led me to conclude that, it had not been done in any formal or structured way. All that was given to the counsellors was a rather vague, if not fuzzy objective of 'Improving S&T relations with the country of their accreditation'. This is far from adequate. The counsellors need to be given 'offensive' targets as well, e.g. what are the Chinese and Pakistani S&T activities in the countries of their accreditation. Do they clash with the proposed collaboration projects we have underway or have contemplated in the country of accreditation concerned? If so, what should be done about it? Can those projects be derailed, if not sabotaged?

Another feature of our collaborative projects with other countries – both highly industrialized and developing is that it tends to be much more science-oriented than technology-oriented.

The use of modern audio-visual equipment and programmes in this digital era, is also not at all adequate. The counsellors distributing CDs and ROMs to the S&T agencies and S&T communities they are accredited to, has to be stepped up steeply.

An important responsibility of our ambassadors should be to have designed and executed many more initiatives than today, where the commercial/economic and S&T counsellors work together in close cooperation on a particular task or project, in mission mode.

We in this country have the fourth largest S&T system in the world. To promote South–South cooperation in S&T, our counsellors should take the approach of defining S&T cooperation. For example, say with Ghana or Indonesia by mentioning: 'My friends, we have spent almost 50 years in building our S&T capabilities and capacities. We are delighted to put those capacities and capabilities at your disposal. Choose what you think would be of use to you and we will provide you with all that you need. As for money, we will talk about it later.' This is the approach that our main competitor, i.e. China has adopted in the Southern countries with highly successful results.

Ashok Parthasarathi (former S&T Adviser to late Prime Minister Indira Gandhi) lives at B-260, 1st Floor, Greater Kailash-1, New Delhi 110 048, India.
e-mail: aparthasarathi2002@gmail.com