

Science diplomacy- theoretical and conceptual basis

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Science diplomacy

- Science diplomacy is analogous to economic diplomacy or military diplomacy
- Integration of science and technology into diplomatic frameworks and policies.
- Increasing importance and impact of S & T in international relations
- S & T contributes to power and prestige - economic and military.
- Growing importance of knowledge based activities for competitiveness and economic benefits.

Types of science diplomacy*

- **"Science in diplomacy"**: Science can provide advice to inform and support foreign policy objectives.
- **"Diplomacy for science"**: Diplomacy can facilitate science and technology development, through cooperation, negotiations etc
- **"Science for diplomacy"**: Scientific cooperation can improve relations between states through cooperation.
- These are not hard and fast categories. Science diplomacy may overlap more than one of these.

* The Royal Society(UK) and the AAAS (USA), 2010

Science in diplomacy

- Increasing number of global challenges such as WMD controls, climate change, cybersecurity, availability of food, water and energy, human health, environmental degradation, exploitation of outer space and ocean space, etc.
- These challenges are transborder, require application of science and technology, as well as diplomacy.
- Therefore S & T experts must dialogue with policy makers to fashion informed and appropriate diplomatic and foreign policy responses.
- Advanced countries have been setting the agenda and proposing solutions to global challenges while developing countries are at a disadvantage.

Science in diplomacy

- Policy makers must have a minimum level of scientific knowledge, or at least access to others who have it
- Scientists must communicate their work in an accessible and intelligible way, which is sensitive to its wider policy context.
- Establishing and nurturing links between the scientific and foreign policy communities - informs scientists and policymakers: the former about the realities of policymaking; and the latter about the role and limits of science in policy.
- Improving the scientific capacity of delegations from developing countries is particularly important, in areas such as climate change and health.

Diplomacy for Science

- To gain access to emerging S & T and related knowledge and to use it for national S & T development.
- National priorities and objectives in S & T need to be defined clearly.
- S & T intelligence gathering, advance information, and negotiating with those involved.
- S & T collaboration with advanced partners.
- Negotiating S & T exchanges with private sector.
- Commercialization of S & T, the ecosystem.

Diplomacy for Science

- S & T human resources are most important.
- Training, Research partnerships involving R & D institutions and Universities.
- S & T capacity among the diaspora is an important asset.
- Retaining S & T human resources is a challenge. Requires flexibility and realism.

Diplomacy for science

- Main objective to gain access to new and emerging knowledge and apply it at home.
- Contact with institutions and people is the key factor.
- Enabling environment and ecosystem at home to derive benefits.
- Networking and best practices study is useful for policy making.
- Objectives for developed countries are quite different from those for developing countries.

Bilateral S & T agreements – the classic mode

- Bilateral framework agreement – cost sharing, sharing of IPRs, facilitation clauses, joint implementation committee, etc.
- Programme of cooperation, specific activities, partners identified, project approval and monitoring, etc.
- Funding of activities.
- Longer term strategic plans.
- Mostly handled by S & T Ministries.

Science Attache's role

- Assistance in the exchange of scientific information and personnel
- Reporting on significant scientific and technological developments.
- Assistance in the procurement of scientific apparatus, chemicals, and biologicals
- Cooperation with all nationals abroad having programs with scientific and technological aspects
- Scientific and technical advice to the Embassy staff
- Arrangements for collaborative research projects with foreign scientists
- General promotion of better understanding with and foreign science agencies.

Science attaches

- Slovenia has SAs in the embassies in the US, Israel, China, Japan and the United Kingdom.
- India has S&T wings in its Embassies in Japan, USA, Russia, Germany. Scientific Officers from concerned departments in Austria, UK, USA, and France.
- UK's Science and Innovation Network (SIN) has approximately 90 officers in over 30 countries and territories around the world building partnerships and collaborations on science and innovation.
- France has S & T Departments in Embassies in the US, India, and 8 other countries. In US alone it has 24 officers in 7 Missions. In India 8 officers in 3 Missions.
- Not possible to have SAs in more than a few countries. What about the others ? How are they to be covered ?

Alternative models

- Train diplomats to carry out SAs role together with economic work, with specific guidelines and instructions from headquarters.
- Use local institutions and consultants for obtaining information and analysis of opportunities.
- Use consultants from home for carrying out research and analysis, especially on sector specific topics.

Diplomacy for science – some elements

- Full time Science advisers in Missions abroad, or Officers assigned to do this work part time.
- Scientific advisors attached to top leadership.
- Strategic objectives at country/regional level to be defined by Foreign Ministries in consultation with S & T institutions.
- Briefing of officers and instructions to Missions abroad.
- Periodic reporting on developments
- Contact building with local S & T entities.
- Facilitate cooperation with home country institutions.

S & T acquisition issues

- Research centres in countries may tap S & T talented workers by funding R & D to generate IPRs.
- Benefits of commercialization of IPRs may be taken over by MNCs with access to larger markets and resources.
- Similar issues may arise in externally funded S & T activities, with unaware partners.
- How much of the value goes to the host country ? Case of Israel, India.

Science for Diplomacy

- S & T partnerships can help bridge differences among countries.
- Examples US/USSR, US/N Korea, US/Cuba, Middle East, etc.
- S & T contacts can help build confidence and provide alternative channels for communication.
- S & T cooperation to tackle common problems can strengthen relations with neighbours.
- Similar to cultural or sports diplomacy.

Science for Diplomacy - examples

- Science cooperation agreements between the US, USSR and China in the 1970s and 1980s, US /Libya in 2004, US/Cuba(since 1997), etc.
- Creation of new institutions- CERN(Geneva, with 20 states) , ISS(with 5 space agencies), ITER, etc.
- SESAME(located in Jordan with 8 members including Israel and ME States, and 17 observer states)
- Iran nuclear agreement (P5+1 and Iran)
- Arctic Science Agreement, 2017

THE SESAME PROJECT

SESAME is a 3rd generation light-source ('extremely bright flash lamp → very powerful microscope') near Amman – starting to operate

SESAME will foster

- science and technology in the Middle East and neighbouring countries (from biology and medical sciences through materials science, chemistry, and physics to archaeology)
- cooperation across political divides

Members:

Cyprus, Egypt, Iran, Israel, Jordan, Palestinian Authority, Pakistan, Turkey

Others welcome



Observers: Brazil, Canada, China, EU, France, Germany, Greece, Italy, Japan, Kuwait, Portugal, Russian Federation, Spain, Sweden, Switzerland, UK, USA

EU Horizon 2020 programme

- Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020) – in addition to private investment.
- Priority objectives – Excellent Science, Industrial Leadership, and Societal Challenges
- Simplified processes compared to previous FP7 programme.
- Projects require partners from at least 3 EU/Associate members and can then include others anywhere in the world.
- Cofunding arrangements with Indian Ministries of S & T and Biotech, to promote Indian participation.

Diplomacy for Science - Large scale ISC

- CERN Large Hadron Collider, ITER Fusion energy research.
- Human Genome Project
- International Space Station (ISS)
- SESAME Project
- All such projects require detailed international negotiations to finalize agreements. Diplomats and scientists need to work closely together.
- With costs of basic research rising, more such international projects are likely

Conclusions

- Developing countries need to integrate S&T into their diplomacy.
- S & T developments do give rise to new challenges for diplomacy.
- International agendas and frameworks for S & T have been largely shaped by advanced countries.
- Diplomacy for Science can be a powerful tool for development and achieving the SDGs.

Resources

- Science & Diplomacy, AAAS, <http://www.sciencediplomacy.org/>
- Science diplomacy, TWAS, <https://twas.org/science-diplomacy>

Thank you