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Becoming a Northern Minerva: Injecting Science into Canada's Foreign Policies

Paul Dufour

THE recently completed G8 summit and associated Camp David Declaration demonstrate that science-based issues such as energy, climate, and sustainable development will continue to play a major role in high-level diplomatic discussions. Each of these issues has direct relevance to Canada, a country that has major economic interests in promoting its abundant energy supplies; is home to large numbers of people and ecosystems vulnerable to climate change; and will need to exercise smarter engagement related to sustainable water, health, and other issues in a warming northern habitat. All of the above factors make Canadian leadership in these summits a national strategic priority. Many countries have recognized the central importance of using science more effectively in their diplomatic pursuits, but Canada has not been as deft, thus limiting its influence and ability to advocate for its interests.

This is unfortunate given Canada's favorable global image due to its peacekeeping and its civil international outlook. By most measures Canada is a technology-savvy and knowledge-thirsty society. Its bilingual and multicultural assets are envied, and its key institutions devoted to the global outreach of knowledge have made their mark. Indeed, the Canadian passport remains an international touchstone providing access and contact to some of the most dynamic regions of the world.

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And with its vast, diverse, and abundant geographic setting on the border of three oceans and its Nordic climate, there is no reason that Canada should not adopt a strategic vision for foreign affairs that has science and innovation at its centerpiece. In short, Canada should become a veritable Northern Minerva, a knowledge creator and diffuser of ideas at a time when such science-based issues are becoming ever more critical to diplomacy. Today, however, the focus of its international science engagement and its capacity to act on these issues are largely outdated in this rapidly changing, highly mobile, knowledge-based global economy.

To be sure, Canada has a considerable array of science assets. It has an excellent knowledge base that can be deployed for both discovery and innovation. But the country's track record in using these assets to help shape its global image is less than stellar. In part, this is a function of the poor understanding of Canada's true potential by elements of both the research community and the public policy apparatus. Without an overarching national strategy or any clearly articulated foreign policy to guide it, ham-handed and ad hoc decisions on environmental issues, along with mixed signals on other issues of technology, trade, and investment, have provided little to improve the perceived value of science in statecraft. The recent austerity cuts to Canada's foreign policy, trade, and aid apparatus, including downsizing of the prestigious, forty-year-old International Development Research Centre (IDRC) and retargeting of aid to a smaller, select group of developing countries via the Canadian International Development Agency (CIDA), have not helped. Ongoing cost-cutting measures at the Department of Foreign Affairs and International Trade (DFAIT) have further hampered the linkage of science for diplomacy.

Reversing this trend will require recognition of a new global landscape. The nature of competition is rapidly changing in favor of aggressive users and producers of science and technology, and while Canada contributes to the global pool of knowledge (about 4 to 5 percent of global science and 2 percent of global technology), the country is highly dependent on the world innovation ecosystem. Canada is also dependent on slow-growth economies for 85 percent of its exports, and has been both late and lax in taking advantage of its intellectual assets by linking more strategically to the emerging and faster growing economies.

Science diplomacy networks are clearly on the rise. They are designed to address issues such as climate change, cybersecurity, pandemics, food safety, and terrorism, where diplomacy through science and technology is taking on a larger, more critical role. Therefore, there is a clear and present opportunity for Canada to undertake a smart engagement in these new forums.

Canada must be better equipped for integrating science with traditional diplomacy; the ability to use the "soft power" of science is an often-ignored strategic tool in the traditional arsenal of foreign relations, aid, international commerce, and global influence. The symbiotic relationship between scientists and diplomats can also help brand the image of the country as forward-looking. This is especially important as countries around the world compete to attract top talent and innovative minds to fuel economic growth. This relationship can also add

lustre to Canada's prestige and contribute to efforts to tackle emerging threats and identify opportunities. Belonging to various multilateral organizations can help if strategically used to leverage resources and talent in solving both global and domestic issues. In short, science is a helpful handmaiden to statecraft and vice versa.

Historical Strengths

Canada has had historical success in harnessing science capacity-building capabilities in relationships with the developing world. For example, in the late 80s and early 90s, global opposition to apartheid turned South Africa into a pariah state. As the anti-apartheid movement grew, governments around the world, including Canada, explored new avenues for channelling aid to the country's poor disenfranchised majority. In the late 1980s, IDRC began its involvement with anti-apartheid groups with a series of programs of support designed to prepare South Africans for a multi-racial democracy. When the first freely elected majority government took office in 1994, more than half of the new cabinet had participated in IDRC-supported policy-oriented research. IDRC not only opened one of its regional offices in Johannesburg (since closed), it also worked diligently at the request of the new government to develop green and white papers offering a vision for South Africans on science and technology policy. Indeed, President Nelson Mandela wrote a letter expressing his gratitude to IDRC at the time of its twenty-fifth anniversary celebration. Not only is South Africa now a major player in applying knowledge for poverty alleviation, it is also making its research presence felt globally.

More recently, one new experiment is Grand Challenges Canada, a novel foray into mobilizing Canadian expertise to address the public health needs of the developing world. This initiative has launched several key programs, and through large grants it has developed new initiatives to support rising young stars both in Canada and in the developing world. Launched in 2008, the African Institute for Mathematical Sciences (AIMS) Next Einstein Initiative is seeking to create fifteen AIMS Centres across Africa over the coming decade with several already running. The initiative has received support from the Perimeter Institute for Theoretical Physics in Waterloo, Ontario and other Canadian institutions. The International Science and Technology Partnerships Program (ISTPP), which was designed to help mobilize Canadian strengths and leverage them with new partners such as China, Brazil, and India, also has considerable potential. These types of programs could be expanded to other areas and with other partners.

Another historical case that highlights the Canadian approach to science diplomacy is that of IIASA (International Institute for Applied Systems Analysis) in which Canada was a founding nation. Based in Austria, IIASA is often cited as a prime case of using science to overcome political tensions among key geopolitical

players during the Cold War. Since its creation in 1972, the institute has contributed actively to help shape a warmer diplomatic climate among countries while continuously adapting to the changing knowledge agenda.

Through IIASA, Canada pursued three main objectives: a) engaging more effectively in the decision-making process on national and international policies; b) enabling Canadian researchers, including young scientists, to gain international and interdisciplinary experience while also developing networks of international scientific contacts; and c) improving relations with countries of the former Soviet Union and its former Eastern Bloc allies. For a variety of reasons that had little to do with any strategic overview of its overall international assets, Canada left IIASA in the mid-90s, one of the few international science and research clubs it abandoned. Meanwhile, IIASA continues to grow and is celebrating its fortieth anniversary later this year with a major global summit. Today the institute is focused on food and water, energy and climate change, and poverty and equity—three of the largest challenges facing the planet.

Canadian Legacies in Science and Diplomacy

While Canadian experts have been active in these and other global science initiatives, little has been done to leverage these within diplomatic channels, especially now when Canada's science and technology (S&T) policy is at a crossroads. In the past, Canada's foreign policy has acknowledged the importance of the use of science for diplomacy. In 1970, a Canadian foreign policy statement suggested that: "Canada's most effective contribution to international affairs in (the) future will derive from the judicious application abroad of talents and skills, knowledge and experience, in fields where Canadians excel or wish to excel."

Picking up on this theme, a seminal report of the Science Council of Canada in 1973 argued that: "The role of science and technology will continue to expand. It is probable that, not more than twenty years from now, the locus of decision-making in many sectors will have to shift from the national to the international level. Sacrifices of national sovereignty may become necessary. Thus, the need to develop a capability for properly assessing costs and benefits, in both the political and the scientific spheres, will be increasingly felt."

The report made three key recommendations, which are still germane today: a) Canada should develop the mechanisms necessary to obtain an overview of the extent of Canadian participation in international scientific affairs; b) these should be used as a basis for selecting those domains of international scientific affairs where Canada feels it wants to participate, keeping in mind the national interest; and c) it should ensure the availability of persons having a particular blend of scientific and diplomatic expertise.

There has been some progress today tackling these gaps with DFAIT, along with federal science-based departments and agencies, working to develop

and to maintain an inventory of international S&T agreements and activities undertaken by government agencies and departments. The existing bilateral and multilateral science arrangements that Canada maintains across the globe have rarely come under any systematic review. The notion that Canada can continue to maintain all of these in a reasonable and effective way is under discussion, especially with the retooling of the government's Global Commerce Strategy and with the government's austerity cuts taking their toll in both the public science infrastructure and international development agencies. This is a job not just for DFAIT but for the whole of government and other key stakeholders.

The needed expertise and training remain a weak link with little effort to integrate science expertise in foreign postings for more informed diplomatic actions. The government tends to focus on trade, technology, and investment, and views them as silos. As such there is often a blind spot for strengthening diplomacy and international commerce through science. The notion for example of establishing a science advisor much like the U.S. counterpart at the Department of State or in the UK has been advanced but with little resonance.

Canada also has a proclivity to under-deploy research experience and assets. The country is blessed with tremendous skills, but traditionally has not aggressively exposed its students to international venues. This is changing somewhat with new internationally oriented scholarship programs and more recent education- and technology-focused international delegations to emerging economies led by Governor General David Lloyd Johnston (a former university president). A much anticipated expert panel report to the prime minister on Canada's international education approach is expected shortly that may also address this weak link more pointedly. However, the report must also tackle how these international education assets, especially in the fast-moving science, medical, and engineering fields, can better assist foreign policy ventures.

A Renewed Science and Diplomacy Partnership

Canadian federal and provincial agencies and departments have developed various responses to match opportunities in and challenges from the international S&T arena. Quebec's international affairs ministry, for example, has a former astronaut posted in its Washington, DC, office, and for the first time, a chief scientist to the Quebec government has been appointed. Also, several provinces have developed science and innovation alliances with China and India, and a new Canada-India center of excellence will be announced in the fall with funding from the federal government. With an "intermestic" (i.e., focused on both international and domestic concerns) paradigm emerging in global S&T and national innovation policy, stronger support and linkages among these and other measures will be necessary if Canada is to build on its past reputation as a reliable global partner with extensive knowledge and research skills.

Canada will need greater innovation on the part of government in restructuring its numerous instruments of science advice, development research, investment forays, foreign relations, and domestic policy. Close benchmarking of experiments in other jurisdictions would be useful in this matter, including an independent assessment of successes and failures. One such instrument should be science advisory capacity in the Canadian government foreign affairs and development departments. There is the need for rapid response capability to address international diplomacy issues that affect or are affected by S&T. Canada could build on the experiences over the past decade in the United States and the United Kingdom—both of which have implemented science advisor positions in their foreign ministries. Given the growing role of science both in traditional diplomacy and in diplomacy-focused development, Canada should consider having its science advisor appointed at the rank of ambassador. Such a person would not only have important clout in the inter-ministerial discussions in terms of elevating the role of science in foreign affairs, but would also be an important international envoy for Canadian science. It is also important that such a person serve as an advocate for science-based approaches to development, perhaps having a joint appointment in CIDA.

At a more operational level, DFAIT needs to identify innovative mechanisms, such as science fellows—much like the U.S. AAAS (publisher of *Science & Diplomacy*) and Jefferson science diplomacy fellows—who can provide short-term science input into the foreign policy apparatus. At the same time, DFAIT and CIDA should build on the extensive international networks and expertise contained in Canada's top research universities by developing formal mechanisms for input into foreign policy development and implementation. This could be a critical function of the science advisor's office.

Canada could also reenergize some of its capacity-building legacy by using its global networks more effectively to strengthen and mobilize its science assets in support of enhanced partnerships with the developing world. Clearly, as is the case with some other countries, Canada could take better advantage of its expertise based in its posts abroad or through expatriate channels in other countries (such as the C100 initiative of expatriate entrepreneurs and researchers operating in Silicon Valley or through its considerable Indian and Chinese diasporas). The research community itself could also do a better job of recognizing and reporting on the science implications emerging from its networks at large.

Science is a powerful diplomatic tool when handled responsibly and with the full understanding of its limits. Canada has much to offer in this arena—indeed, it can better shape its image as a Northern Minerva. For this to happen, necessary action must follow with a renewed and smarter alliance between science and foreign policy engagement. **SD**