

Science and diplomacy

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It goes without saying that large developed countries have long used science as a way of projecting themselves globally. And today, we are seeing smaller countries like New Zealand borrowing from that same playbook. For a small country and one as isolated as ourselves, with little geopolitical significance, a key challenge of our foreign policy is ensuring our relevance to the world. It is understandable that New Zealanders are disproportionately active in the international arena and this includes using science.

Diplomacy has long played a role in assisting trans-national science; that is in promoting *diplomacy for science*. This is most evidently seen in the raft of bilateral agreements involving researchers between states and in the development of global science projects such as the international space station; CERN: the Square Kilometer Array; and the Antarctic Research program. One particularly innovative example that New Zealand has been instrumental in is the Global Research Alliance on reducing agricultural greenhouse gas emissions. This New Zealand – initiated proposal was born alongside the climate meetings in Copenhagen in 2009. New Zealand recognized it was unique amongst developed countries in having over 50% of its emissions associated with agricultural production; a pattern more like that of many developing countries. At the same time, it was in a scientific position, to be a leading force for change in this sector. It proposed a global alliance led by scientists to identify research gaps to mitigate agricultural emissions on the basis that addressing this sector could engage a range of countries in mitigation more broadly. At a meeting in Wellington in 2010 about 30 countries joined the initiative and it now has over 40 countries including all the big agricultural emitters and major countries. The initiative is structured with light-handed

governance and a very productive research effort is under way. Key to the early success of this effort: the diplomats were essential to develop the alliance but have now allowed the scientists to drive the work. Later this afternoon, Dr Harry Clark who is the New Zealand scientific lead on this project will expand on this initiative further.

When you reflect on any examples of where classic *'diplomacy for science'* has occurred then there has generally been a reciprocal effect in the area of *'science for diplomacy'*. For instance, there has been no doubt that Antarctic research played an important role in sustaining New Zealand-US relationships when the political relationship soured over the effective bans that New Zealand placed on aspects of military partnerships with the United States over nuclear powered vessels. For our part, there is no doubt that the Global Research Alliance on agricultural greenhouse gases has been a doorway for relationship building with a number of countries, and has allowed New Zealand to project itself globally. Thus, diplomatic objectives can be met using science policy tools, all while advancing internationally collaborative science itself.

Science has also been a major part of building long-term relationships with countries through NZ's bid to be a member of the UN Security Council. Our promotion of agricultural science and New Zealand's expertise in this area has helped us build substance into relationships with countries with whom we have not have strong ties or are geographically remote. My Office has made a significant contribution in this regard. And we are very pleased with the interest shown by other countries towards New Zealand's expertise in agricultural science.

There is another core role for science in diplomacy. Think of the world's ungoverned places – space, the Antarctic, and the cyber world. To the extent that they are governed at all, they are largely governed by scientific collaborations. This is most obvious in the Antarctic Treaty that restricts the use of the white continent to scientific purposes alone. Later today we will hear from the scientific committee on Antarctic research,

which is meeting contemporaneously in New Zealand.

The third class of interaction between the diplomatic and scientific worlds is when science provides technical knowledge to meet diplomatic or trade objectives – that is: *science within diplomacy*. Without scientific verification, arms treaties, would not be possible. And I suspect that when the world finally gets to an effective mitigation approach to climate change, similar demands will be made on the global science system. Science is absolutely core to an effective rules-based global trading system; for us as a small trading nation this is absolutely critical.

While we can distill the interaction of science and diplomacy down to the three somewhat artificial categories, in practice there are important nuances that mediate these relationships. For example, science and diplomacy can become intimately linked in dealing with disasters that cross political boundaries or where expertise is needed across boundaries. We may be facing such a challenge now with the Ebola crisis that still has the potential to become a global crisis. Indeed, as with anything, context and perspective are paramount. A country typology might be simplistic, but we do know that there are important distinctions between large and small, developing and more developed countries. Also between countries with larger strategic and industrial influence, and those without.

One area where this is becoming most pronounced is in innovation.. As innovation based economic growth becomes the centerpiece of many countries' economic growth strategies, the role of science in that setting becomes more obvious. It is clear that countries want to project their image as sources of innovation. Thus countries appoint scientific attaches to many embassies and we have seen the development of scientific and innovation networks amongst governments. For example later this week, the Asia Pacific Economic Council of 21 economies will have its second chief science advisor and equivalent meetings to discuss matters of common interest. Another example is the

New Zealand- led Small Advanced Economies Initiative, which brings the only non-European IMF –defined advanced economies with populations under 10 million people (Singapore, Israel and New Zealand) together with three European partners (Denmark, Ireland and Finland) to explore development in science, innovation and economic policy. This initiative was borne of the recognition that there are small nation economic particularities that play out in the science and innovation sectors. For example, small countries face more acutely the issues of prioritization within the science systems – they cannot afford to be good at everything or have critical mass in too many areas. This small nation network is proving to be particularly valuable to policy makers in the six countries and this has led to some very distinct insights and new sources of collaboration.

But let me talk about some issues where there is a danger that small countries could get forgotten.

Science systems around the world are undergoing major disruptive change. This has numerous dimensions – governments are taking a more utilitarian view of their investment in science, open access publishing has had a number of unintended consequences, integrity and reproducibility issues have emerged, open access data and big data are changing the nature of science, science publication is moving from traditional patterns, the public engagement with science is qualitatively different, peer review is in trouble, mission led science is becoming more normative especially in small countries, the changed nature of public–private sector engagement in public science has its supporters and detractors and so forth. Key elements of countries’ science systems are changing but given the globalized nature of science in practical areas like peer review, academic CV development and assessment and grant assessment, we need an integrated approach across all countries. Because structures differ between countries in where policy about these matters are made, a global science council is not the forum for resolving these matters, indeed there is no forum that does this and it is indeed needed.

Without it transnational research may become more rather than less difficult. While the Carnegie Group has some features that might allow progress to be made, we like many other science intensive countries are not at the table.

Perhaps a better forum could be what may flow from the meetings being held tomorrow. The issue is that while there are many global science meetings, most are technical and few impact on policy. Yet whether we look at the science system issue specifically or at many of the global science issues we face, there is certainly a need for a science-policy dialogue. Further what does happen now largely leaves small countries aside. Yet as the Global Research Alliance shows, a small country like New Zealand can and do make a major contribution. In many ways our size makes us the canary in the mine to see how science and innovation systems are evolving and the challenges they face. Indeed this is why larger countries and the OECD are taking such an interest in this initiative.

As I will discuss tomorrow, science advice to governments is now very much focused on post-normal issues which are characterized by 1) the urgency and nature of the problem 2) the incomplete nature of the science understanding and 3) is the high and often factionalized public interest in the problem. Not surprisingly, many of these same types of issues drive high diplomatic interest as well.

For instance, national interests are clearly at stake in developing a global climate change mitigation strategy as each country positions itself according to the pressures faced within its own borders; this is indeed complex. While the science continues through the IPCC process continues to become increasingly clear, the challenge of how governments promote their national interests while avoiding a potential tragedy of the commons has come to the forefront. Both the science community and the diplomatic community have faced a number of new experiences and approaches during this journey and the difficulties of finding a solution remain painfully and abundantly clear.

These kinds of issues are only going to get more common and possibly more complicated. Whether it is weighing the risks and benefits of geo-engineering, or attending to the quietly urgent issues of antibiotic resistance or honey-bee colony collapse disorder, there is a growing list of societal challenges that need a trans-national policy perspectives that are grounded in science, while accounting for national social values and economic imperatives. As this list grows, this is also highlighting an important weakness that we all must consider: that is the somewhat inchoate relationship between national science advisory systems (themselves with varying degrees of maturity) and those of transnational organizations, which in general are not particularly explicit. This is a topic to be discussed at length at the meeting on scientific advice to governments starting tomorrow.

Science and diplomacy are inevitably intertwined. Soem foreign ministries, such as those of the UK and US, have now appointed their own science advisors at a very high level. I suspect that over time these roles will become quite common within many foreign services.