Remarks prepared for the
2nd Annual Neuriter Roundtable on Science Diplomacy
18 December 2013, Washington DC

On the Role of Science Diplomacy in the 21st Century

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Diplomacy is the tactical pursuit of foreign policy. Therefore one aspect of diplomacy is using science to advance foreign policy aims, which should be part of larger national strategy and goals. The areas to which I will comment are derived from the national security realm, where science and technology has a long history. In his inaugural address, in which the formation of a North Atlantic Security Pact (NATO) was first mentioned, US President Harry S Truman asserted as one of the last of four major foreign policy goals of his administration that "we must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas." In addition to being part of the plan for rebuilding Europe, science and technology were intrinsic to economic development and defense goals. Scientific exchanges remains are core area of NATO and can be seen through many other defense-oriented diplomatic agreements, such as the bilateral, trilateral, and multi-laterals Memoranda of Understanding (MOU).

The instruments of science diplomacy include tools like MOUs and other official government to government interactions: the classic tools of traditional Track I diplomacy. Science diplomacy has perhaps made the biggest impact in foreign policy as a part of Track II diplomatic efforts: informal diplomacy between individuals who are not officially empowered to act on behalf of the state but are acting in accordance with a state's foreign policy goals interact through dialogue, exchanges, cooperative programs, or other means as part of increasing cooperation and transparency or decreasing conflict among states. Track II efforts with nuclear physicists and other scientists during the Cold War are legendary. In many ways, nuclear diplomacy of the Cold War may be argued as the pinnacle of Track II science diplomacy. Overall, Track II science diplomacy has been an under-utilized tool since then, which may be ironic considering that since the early 1990s, the world has become increasingly technologically-dependent and technology has enabled the spread, at an unprecedented rate, of scientific knowledge, capabilities, and materials globally.

Initiated following the end of the Cold War, a core component of Cooperative Threat Reduction (CTR) efforts aimed at redirecting the offensive or weapons-based knowledge and skill set of scientists in former Soviet states to defensive or peaceful aims includes Track II science diplomacy. CTR has traditionally focused on reducing the risk from nuclear, biological, and chemical weapons. One can envision a role for science diplomacy beyond the former Soviet states and beyond those weapons as part of pro-active 21st Century Cooperative Threat Reduction; for example, one might imagine a program in partnership with Russia to engage Pakistani and Indian scientists and engineers for cooperative threat reduction from misuse of nanotechnology or synthetic biology.

In the 21st Century major barriers to effective science diplomacy include three major risks: not being relevant, not being strategic, and not being at the table. Science is increasingly complicated and complex. The ability to translate and make relevant the role and importance of science to foreign policy aims is critical. While there are notable exceptions, often this is not best accomplished by active research scientists. It's also not often accomplished well by traditional Foreign Service Officers. In the global information age, there is a critical need for champions and for a cohort of individuals who can bridge across technical and foreign policy arenas. In the US, the former is institutionalized and supposed to be embodied in the Science and Technology Advisor to the Secretary of State (STAS).

With respect for the need to be strategic, this potential barrier reflects the need for effective science diplomacy to reach outside of science. Rarely does science itself drive foreign policy; the potential security, economic, or other national-level consequences of the application of science to human endeavors is where science intersects with policy predominantly. Science (& technology) can be causal, intervening, or determinant factors. The ability to recognize, communicate, and identify nodes for intervention, change, or influence are strategic requirements for effective science diplomacy.

Science is a strategic asset for American diplomacy. It is our most valued soft power asset. The latest data from the Pew Global Attitudes Project survey from March 2013 shows that more than anything "US science and tech advances" are viewed positively, e.g., ranging from 61% positive in Argentina to 85% in Kenya & Senegal. This should be an area to leverage for diplomacy. If one analyzes the data specifically among "Middle-East/Conflict Area," (Egypt, Pakistan, Turkey, Uzbekistan), it's even more dramatic: "Tech/Science Advances" are cited by 86% as a "reason for liking the US." More than anything else. It's 73% cited across all Islamic states, i.e., Egypt, Pakistan, Turkey, Uzbekistan, Bangladesh, and Indonesia. To pre-emptively counter the criticism that one sometimes encounters: it's not about 'other countries liking us'; it's about leveraging what is most effective, efficient, and likely to be enable paths forward. It's what we do awesomely! In a good way! Let's use that!

Interestingly the view (data) from the US basically the inverse; only 32% perceive "Tech/Science Advances" as a major reason for liking the US, which I think that goes far to explain much of the focus and emphasis in international cooperation that one sees. Because we don't value/see it, we assume the rest of the world thinks the same.

The repercussions of ignoring aspects of science (including its limitations) and scientific developments in formulation, implementation, and execution of foreign policy are often hard to anticipate but may have the biggest impact on the specific foreign policy issues or superficially unrelated ones. For science diplomacy to be effective, the practitioners need to not only be conversant (preferably proficient) in science but also understand strategic drivers of foreign policy and the budgetary processes. The latter enables ones to more efficiently understand and identify domestic, inter-agency, and institutional levers and interests as well as limitations. For all that is possible in the globalized information age of the early 21st Century, this is also an age of austerity with respect to budgets and appropriations.

Being invited to the metaphorical – and often literal – table where decisions on foreign policy are made (or at least getting a seat in the second row along the wall) is the third critical piece to effective science diplomacy. This requires individuals who can bridge the realms of science and policy. It also requires institutional means by which such individuals can gain access, e.g., the AAAS S&T Policy Fellows enables individuals to spend one or two years placed in the State Department as temporary employees. It is the means by which doctoral level scientists are literally able to get there feet in the door of the State Department and beyond the visitor's center unescorted. Being familiar conveys opportunity, advantage, credibility, and trust.

While technically-trained individuals have made their way to foreign policy, a single program in the US has been most effective in developing and sustaining the transition of high-performing scientists and engineers to the foreign policy: the American Association for the Advancement of Science (AAAS) Science and Technology (S&T) Policy Fellows program. This forty-year old program has enabled over 2,000 individuals with doctoral level degrees in a scientific or engineering field to spend a year or two working within the Executive or Legislative Branch of the US Government. Among the fifteen federal agencies in which AAAS S&T Policy Fellows may spend their time, the State Department and U.S. Agency for International Development (USAID) have two of the strongest and most established programs. They also have become an effective and valued means by which doctoral level scientists become practitioners of Track I science diplomacy as permanent US State Department employees. The current STAS, Dr. William Colglazier, was AAAS Congressional Science Fellow in 1976; the Science and Technology Adviser to the head of USAID, Dr. Alex Dahgren, was a 2003-2005 AAAS Diplomacy Fellow; and Dr. Jason Rao, most recently Senior Policy Advisor for Global Science Engagement in the White House,

Office of Science and Technology Policy, was a 2002-2003 Diplomacy. I was a 2005-2007 AAAS Defense Fellow serving as Science and Technology Advisor in the Office of the Secretary of Defense and, more recently, I served as advisor to the Chief of Staff of the Army as a Fellow on his inaugural Strategic Studies Group (SSG). Those are just a few of the many individuals who have contributed in substantive ways via that first step enabled by the AAAS S&T Fellows Program.

In the global information age, the most technologically advanced military power no longer guarantees national security. Globalization and the information revolution, including the Internet and other communication leaps – have led to much greater visibility into the availability and potential for science and technology. Science is and will continue to enable new technological developments becoming accessible and affordable to a larger number of nations and within the grasp of non-state actors: advanced technology is no longer the domain of the few. Understanding these changing paradigms and the implications for foreign policy in the 21st Century starts with an awareness of the factors driving the capabilities, understanding the underlying science and the challenges of foreign policy, considering the changing nature of technological progress and the changing nature of conflict, and the relationship between science and security domestically and internationally. Communication of those new discoveries is occurring faster than ever, meaning that the unique ownership of a piece of new scientific discoveries and technology is no longer a sufficient position, if not impossible. The importance of scientific diplomacy is increasing; the challenges are organizational, strategic, and enabling the right people to implement and execute it.