SCIENCE & DIPLOMACY

A quarterly publication from the AAAS Center for Science Diplomacy

"Science as an 'Energizer of the World': an Interview with Ambassador Thomas Pickering," *Science & Diplomacy*, Vol. 6, No. 2 (June 2017). http://www.sciencediplomacy.org/conversation/2017/thomas-pickering

Science as an 'Energizer of the World': an Interview with Ambassador Thomas Pickering

Thomas R. Pickering is a retired U.S. ambassador whose diplomatic career in government spanned more than four decades. He served as Ambassador of the United States to Russia, India, the United Nations, Israel, El Salvador, Nigeria, and Jordan. He also served as Under Secretary of State for Political Affairs and Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs. He holds the rank of Career Ambassador, the highest in the U.S. Foreign Service. Following his diplomatic roles, Pickering was senior vice president for international relations at Boeing from 2001 until 2006. He continues to be extremely active and involved on a wide range of diplomatic issues, and has been a forceful advocate for the role of science in supporting diplomacy. His advice is widely sought by governments and the private sector.

Ambassador Pickering spoke with E. William Colglazier, editor-in-chief of *Science & Diplomacy*, on the role of science diplomacy in international relations. His comments were included in a video keynote for the conference on "Science Diplomacy and Policy for the Americas" at the University of Arizona on February 22-24, 2017.

E. William Colglazier (Interviewer): *In your various roles in the Foreign Service and beyond, how have science and diplomacy evolved and made their way to the forefront of the international diplomatic sphere? What are some examples of successful synergies you've encountered during your career?*

Ambassador Thomas R. Pickering: Science is very much an energizer of the world and is increasingly important both internationally and domestically. How we make or fuse science and the world of diplomacy and governance will be one of the principal challenges for all of us in the days ahead.

Most importantly, we need to continue to find ways to use, integrate, and create synergies between science and diplomacy. From my early days in the American Foreign Service, beginning in the 1950s, I had the great opportunity to be associated with negotiations on—among other things—arms control and disarmament. During these negotiations, there was a clear and intimate knowledge of science brought by people who were vastly adept in this area, such as [geophysicist] Frank Press. He was able to provide the ideas and create the kinds of innovative solutions that were necessary to deal with everything from nuclear testing to the reduction of weapons of mass destruction, particularly on the nuclear side. Knowing how to fit the science together with the general directions in which we were moving back then was extremely important.

Another outcome of this is the fact that [nuclear] verification and monitoring in this area has increased many fold and has in many ways been a marriage of the knowledge of how science and technology could provide innovative ways to understand what was going on in a foreign environment on very sensitive questions with diplomatic answers. The task was in a balanced and reciprocal fashion the acceptance by each side of the kinds of obligations that were necessary to assure that their commitments to reduce weapons or stop testing were being carried out.

In this sense, the 2015 Iran nuclear arrangement is one of the latest of the innovative efforts to try to make effective this marriage of science and diplomacy in serving our national and world interest. For example, in that particular agreement a wide number of new technologies were implemented by the International Atomic Energy Agency to ensure real-time photographic and technical monitoring in a way that allowed the IAEA to know and understand what was happening on a regular basis—and to be the driver of regular visits to sites to assure 24/7 knowledge of what was going on in the Iranian nuclear program.

Colglazier: *How does the Iran agreement stand out to you as an example of fusing science and diplomacy while at the same time allowing for countries to continue developing nuclear energy for safe purposes?*

Pickering: In the Iran agreement, we had for the first time an opportunity to look at centrifuge production as a way to assure that the Iranians were abiding by the agreement, including the limitations they had accepted on their use and development of centrifuges. Additionally, the fact that the agreement included "cradle to grave" monitoring of uranium, from the mine to the disposition of the spent fuel, was very important in ensuring here was a solid basis for knowing and understanding precisely what the Iranians are continuing to do in the world of the enrichment of uranium. This in itself was subject to strict limitations, the importance of which we all understand.

Other innovative arrangements are also built on a science basis. These innovations and, indeed, these restrictions on uranium enrichment and similar arrangements with respect to plutonium production give us a new opportunity to begin to think about how and in what way we should make [the agreement] the "international gold standard" so that all countries enriching and using plutonium will have the opportunity to freely develop these particular facets of important activity for the future, but do so in ways that are transparent and keep us assured that they are not going to take off into military programs. This can help close a loophole in the [Nuclear] Nonproliferation Treaty that makes no restrictions on either enrichment of uranium or the separation of plutonium.

Colglazier: *When most people think of science diplomacy, they immediately think of international health cooperation—most recently the international response to Ebola and Zika, for example. How has science diplomacy helped reinforce research networks in health and other areas?*

Pickering: There are large questions regarding international health and how and in what ways science and medicine—a long and collaborative effort over generations—can help prepare the world to deal with man-made threats such as biological warfare, as well as evolving problems such as worldwide epidemics. Our recent experiences with Ebola and Zika have educated us on the need to move early and in a cogent and coordinated way. In contexts where the local health infrastructure is weak, we must move internationally to help reinforce the kinds of steps such as treatments to stop the spread, and ultimately bring an end to the impact, of epidemics.

Of high interest to me is international agriculture, which has successfully been promoted by a network of research institutions begun thirty or forty years ago

with the help of American foundations—for example, the development in the Philippines of the International Rice Research Institute and new varieties of rice and which led to the Green Revolution. I hope that we can expect this continuing contribution, which could bring us to a new level of revolution in agriculture. It would be useful to take a look at world health research and see if the same level of coordination and diversity achieved in agricultural research could be applied to the health world—especially in anticipating and delivering rapidly in the face of new viruses and epidemics that might affect mankind around the world.

Building the science and technology capacity of developing countries is extremely important. I had the experience of serving as an American ambassador in Central America in the midst of a very difficult time. But it is very clear to me that particularly in areas of high overpopulation, the basic need for education and the need to turn education toward the knowledge-based economy are ways in which these countries have a great opportunity of bootstrapping themselves ahead. We need to think about the ways in which they can make a contribution on the employment side.

Colglazier: *You've also had the opportunity to work in the private sector and see scientific research from a different perspective. How did your experience as an ambassador help you reframe your worldview regarding international partnerships in research?*

Pickering: I had the opportunity after I retired from government to spend some time at a major U.S. company manufacturing aircraft. That experience taught me a great deal about how and in what way scientific research can be applied to modern technological innovation in a creative and useful way. On one hand, that is not only important in terms of a major company maintaining a high level of technical excellence, but how in a very serious way it draws on international capacities. [Boeing] has supply chains around the world, many of which are devoted to technological research that could be useful in creating and building future products.

It was the ability to draw upon the knowledge base of the rest of the world that was important in helping to promote the creation of new jobs in the United States and overseas. Incidentally, it was not an inhibition in selling airplanes: countries that participated in the construction of [Boeing's] airplanes were interested in how and in what way they were going to play a role as potential customers for these airplanes. These are some of the significant questions and innovative issues that suggest how widely these questions can be applied internationally.

Colglazier: *From your long diplomatic career, what other examples have you encountered when science has directly helped address international challenges?*

Pickering: There are many other issues that we pay attention to and that we see in terms of the challenges. Science has helped us in places as different as Iran, Russia, and China. The United States' capacity to maintain the excellence of its science base is clearly supported by the fact that as a country we have continuously welcomed individuals, including scientists, of merit. Some estimate that up to fifty percent of our recent innovations are contributed by recent arrivals in the United States, who have come because they admire what we do and the opportunity to work here. They have made tremendous contributions to the development of a new knowledge base and new capacities for this country. Our future as a country depends upon the strength of our science. SD