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A Scientist Serves on the Front Lines of U.S. Diplomacy

Sutyajeet I. Soneja

Growing up, I excelled in math and science and have spent the last 15 years as a public health scientist and engineer with an eye towards working on some of the major challenges we face. Being technically oriented, I once viewed solutions to the largest problems through a quantitative lens. Need to address climate change? Reduce our consumption of CO₂. Need to prevent the spread of diseases? Increase vaccination rates and develop new antibiotics. How about cleaning up our oceans? Just make less plastic. But these solutions are not standalone. As I advanced in my career, I began to recognize the importance of policy for having an impact at scale, and in 2017, I welcomed the opportunity to conduct science diplomacy firsthand as an Embassy Science Fellow with the U.S. Department of State.

The front lines of international diplomacy are our U.S. diplomatic missions, which include embassies. The public may think of embassies as providing services to American citizens abroad or issuing visas for foreigners. But they do a great deal more. Staffed by U.S. citizens in the Foreign Service (known as Foreign Service Officers) and local staff, they keep their finger on the pulse of their host country. By tracking the economic and political situation, Foreign Service Officers help

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to inform Washington-based policy decisions and advance American interests through the relationships they build with local counterparts. The Embassy Science Fellowship enables any scientist employed by the U.S. government to support Foreign Service Officers as an on-hand expert at an embassy. By providing scientific advice and working to improve bilateral ties between the host country and the U.S., scientists can contribute to solving some of the most pressing issues facing our world while also engaging in international diplomacy.

Science and diplomacy are not necessarily always recognized as being interconnected. Science diplomacy is defined as “the use of scientific interactions among nations to address the common problems facing humanity and to build constructive international partnerships.”¹ The 21st century is a time of major threats to global health and prosperity, including the spread of infectious disease (e.g., COVID-19, dengue, Ebola),² increasing resistance to antibiotics,³ adverse impacts of climate change on disease burden and transmission,⁴ and the potential for major biodiversity loss and ecosystem collapse.⁵ Addressing these challenges requires rapid innovation in science and technology, mass behavioral change, and increased cooperation between nations. In our interconnected global society, the U.S. needs strong diplomatic relations to cooperate with other countries against threats that know no political or cultural boundaries and may not be able to be addressed by any one nation. Science diplomacy can bring together allies and adversaries. For instance, using a language all countries speak – the language of science – enables parties to operate from a common set of facts and principles, share information and lessons learned, as well as create policies rooted in evidence.

In 2017, the Italian government served as the host nation for the G7, an intergovernmental group made up of the seven countries with the largest economies in the world. The G7 presidency rotates every year and each year, the G7 heads of state select themes for the conference. In November 2017, the G7 Health Ministerial summit was held in Milan, focused on 1) the impact of environmental factors on health, 2) gender perspectives in health policies and rights for women, children, and adolescents, and 3) antimicrobial resistance.⁶ Given my relevant background in public health, I had the privilege of serving as an Embassy Science Fellow at the U.S. Embassy in Rome during the fall of 2017.

As part of the fellowship, I had many opportunities to learn about and participate in science diplomacy. For instance, before attending the G7 Health Ministerial⁷ as a member of the U.S. delegation, I had not understood the structure of such meetings, who attended, or the meeting’s objectives. In the lead-up to and during this summit, I learned that career government officials from the G7 nations are engaged months in advance, working with their counterparts to craft the agenda and their countries’ respective positions. They also develop a

joint statement, or communiqué, which provides direction for focusing collective efforts most effectively. The summit itself is the culmination of months of endless wrangling and negotiation over the language in the communiqué and includes scientific experts presenting on the chosen topics.⁸ Witnessing firsthand the scientific expertise that went into the meeting preparation and the participation by the career staff from all parties taught me how important it was for people with scientific expertise to engage in these kinds of processes.

As a science diplomat, I represented the U.S. Embassy at a series of events that highlighted scientific cooperation between the U.S. and Italy, including one program driving path-breaking scientific research on the origins of the universe. To celebrate this partnership, I attended the inauguration of the Cryogenic Underground Laboratory of Rare Events experiment (CUORE) at the Gran Sasso National Laboratory in Assergi (a small town near Rome), the largest underground research center in the world. The CUORE project is a cooperative effort between Italian and U.S. scientists that is an experimental search for neutrinoless double beta decay.⁹ Observing this phenomenon could help scientists explain why neutrinos have mass and why matter prevails over antimatter in the universe. This is what physicists believe makes the creation of stars and planets possible. Present at this event to celebrate our joint partnership were officials from the U.S. Department of Energy's Office of Nuclear Physics, the Italian National Institute of Physics, the University of California at Berkeley, and the Gran Sasso National Laboratory. Following up on the inauguration, I authored an internal policy memo that was brought to the attention of the Director of the U.S. National Science Foundation, highlighting how such international diplomatic cooperation has benefitted our collective future.

In my efforts to improve bilateral ties, I shared information about U.S. programs working in the areas highlighted during the health summit. After meeting with nearly a dozen officials at the *Istituto Superiore di Sanità* (Italy's version of the National Institutes of Health) and Italy's National Research Council over several weeks, I created policy memos to share with these officials that described how the U.S. is addressing both the impacts of climate change on health and the threat of antimicrobial resistance. I gave an overview of the U.S. Centers for Disease Control and Prevention program that is working to prepare communities for climate change-related health challenges. Regarding antimicrobial resistance, I described CARB-X (Combating Antibiotic-Resistant Bacteria Biopharmaceutical Accelerator),¹¹ a U.S. program that subsidizes the cost of developing necessary new antibiotics. I also took an opportunity to inform the public about this topic and the importance of international science cooperation. In partnership with the Italian Ministry of Health, I wrote an op-ed for the Rome-based newspaper *Il Messaggero* highlighting World Antibiotic Awareness Week and the shared commitment of the

U.S. and Italy in addressing this threat.¹² I also sought to learn from Italians about their own efforts to address such issues. My relationships with colleagues at these institutes will serve as a foundation for ongoing collaboration.

Scientists and engineers need to engage in international cooperation and diplomacy. We are trained to examine a problem logically, ask questions, and develop solutions. The challenges we face require individuals with quantitative backgrounds to engage with international partners and hone their soft skills. Teaching scientists to speak the language of diplomacy and providing them with opportunities to engage in this realm can create pathways to address the threats we collectively face. Serving as an Embassy Science Fellow enabled me to gain firsthand knowledge of how scientists can inform national and foreign policy initiatives, witness how diplomats use science to advance U.S. policy, and better understand the role of science in advancing international cooperation. Moreover, it opened my eyes to the importance of keeping dialogue open between countries and how science can serve as a common language despite differences in ideology.

The COVID-19 pandemic has highlighted longstanding inequities and other weaknesses in health systems, as well as the need for a coordinated response and reliable information. Moreover, it has shown that science diplomacy must be front and center in a deeply interconnected world. Addressing these weaknesses requires coordinated technical assistance between nations, the sharing of accurate information, and an ability to communicate technical information to a wide audience that includes government officials and the public. Reflecting on my experience in Italy and relating it to the response to COVID-19, I see many parallels and missed opportunities. To improve our ongoing response and prepare for similar scenarios in the future, we must invest in science diplomacy by engaging multilaterally, better funding coordination bodies, and providing technical assistance where appropriate.

As a public health scientist and engineer, I will continue to seek ways to inject evidence into policy decision-making processes and remain firmly committed to using science diplomacy to develop international collaborations. I encourage my fellow scientists to seize opportunities to use their expertise to further cooperation among nations in order to advance policies rooted in evidence. Furthermore, I urge policymakers to continue to support the U.S. diplomatic corps and expand programs that enable scientists to engage in public service. **SD**

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