

## Science and Diplomacy: A Conceptual Framework

The relationship between science and diplomacy can be articulated as three concepts that depend on the goals of the relationship – diplomacy for science; science in diplomacy; and science for diplomacy (or simply “science diplomacy”). Within this framework, science is considered in its broadest sense to encompass not only scientific research but also the whole range of international scientific cooperation activities including education and capacity building and the people involved in the enterprise. Diplomacy is also considered broadly to include both informal (i.e., people-to-people) and formal (governmental) relationship-building between the countries. Moreover, science for the purpose of achieving development goals sits outside this framework.

*Diplomacy for science.* Diplomacy is a mechanism for advancing a scientific goal, particularly extensive and expensive research programs that need to leverage the participation of multiple countries. Examples include:

- International Thermonuclear Experimental Reactor
- European Organization for Nuclear Research (CERN)
- FutureGen

*Science in diplomacy.* Science is necessary for the conduct of diplomacy or informs issues of diplomatic concern. This includes the capacity of diplomats and diplomacy institutions to understand scientific and technical knowledge as related to bilateral and multilateral issues such as cross-border public health and food safety. Examples include:

- Arms control agreements (Anti-Ballistic Missile Treaty, Comprehensive Test Ban Treaty)
- International environmental agreements (Montreal Protocol on Substances That Deplete the Ozone Layer, Framework Convention on Climate Change)
- Capacity building within the U.S. Department of State through the creation of the Science Adviser to the Secretary of State position

*Science for diplomacy (or science diplomacy).* Science is a mechanism for enhancing or building bridges between countries (i.e., diplomatic purposes). Science diplomacy is especially relevant in helping develop positive engagement between countries that have strained, limited, or non-existent relationships. Examples include:

- Cooperation between American and Soviet atomic scientists during the Cold War
- Enhanced scientific cooperation between the United States and Japan in the 1960's, including the establishment of the Tokyo NSF office
- U.S.-China umbrella S&T agreement signed by President Carter and Vice Premier Deng in 1979 following establishment of formal diplomatic relations

Any particular international science cooperation activity (e.g., capacity-building, joint research projects, science student fellowships, scientific conferences, faculty exchanges with developing country universities) can be described by one or more of these concepts. For example, CERN exemplifies both a case where diplomacy was utilized to build European physics and where the physics brought together former World War II antagonists in a process of post-conflict European integration.