



SCIENCE DIPLOMACY: AN UNDERESTIMATED TOOLKIT OF SOUTH KOREA'S FOREIGN POLICY

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Abstract

Science diplomacy is becoming increasingly popular in foreign policy. Branching out of public diplomacy, science diplomacy is a sophisticated and knowledge-based toolkit to secure and promote foreign policy objectives. Unlike the U.S., the best example of how effective science diplomacy can be, South Korea does not recognize science diplomacy as a source of soft power. This paper looks at ways to incorporate science diplomacy into Seoul's foreign policy agenda, the benefits from which will further its goals in advancing South Korea's image as an attractive, cooperative, and influential country. Building South Korea's reputation as among the core of scientifically developed countries will not only enhance commercial benefits, but also help address the current security dilemma, shape future geopolitical outcomes in a multi-polar world, and accelerate Korea's participation in emerging scientific endeavors such as space exploration.

Key Words: *science diplomacy, public diplomacy, foreign policy, Republic of Korea, East Asia*

Introduction

Against the backdrop of the increasing urgency of the North Korean security issue and the return of great power politics between the U.S. and China, strengthening South Korea's influence regionally and internationally is greatly needed. On the North Korea nuclear crisis, South Korea (hereafter, Korea) is squeezed between Beijing and Washington, the former leveraging economic interdependence for its own security interests and the latter, Korea's key strategic ally, overshadows Seoul and has threatened to launch a military operation against North Korea.

The Moon Jae-in administration's proactive strategy to bring diplomacy to the forefront of dealing with the Kim regime found success at the 2018 PyeongChang Olympics and subsequent announcements of inter-Korean and U.S.-North Korea summits, but it is still unclear if this will be sustained. Beyond the peninsula, the U.S.-China rivalry also places constraints on Korea as it is party to neither China's Belt and Road Initiative (BRI) nor the Quadrilateral Security Dialogue, which might be considered the BRI alternative. The confluence of these factors puts Korea in a situation where maintaining proactive policy and skillful diplomacy are key to gaining international influence. Emphasizing the development of diplomacy, both traditional and public to include fostering a stronger academic-practitioner community, can strengthen Korea's voice.

For Korea, becoming a significant regional power revolves not only around political and economic issues such as promoting its economic development model, trade integration, and leadership in regional and global initiatives,¹ but its capacity to generate soft power from public diplomacy. Soft power is the ability to affect others by attraction and persuasion rather than through the hard power of coercion and payment.² Soft power comes from civil societies and, if properly utilized by official public diplomacy efforts, is effective in building a country's positive image domestically and abroad. Efforts to establish and grow Korea's soft power is the "third pillar" of the Ministry of Foreign Affairs (MOFA), along with political and economic affairs. MOFA utilizes public diplomacy to promote Korea's foreign policy agenda, improving its image and prestige on the international stage through the arts, knowledge sharing, media, language, and aid.³

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In Korea's 2016 diplomatic white paper, the inclusion of public diplomacy was limited to two areas: (1) *cultural diplomacy*, focusing on the continuous promotion of Hallyu (the Korean wave), K-pop dance classes, Hansik (Korean food), and opportunities to try on Hanbok (traditional Korean garment);⁴ and (2) *sports diplomacy* that traditionally relies on taekwondo tournaments and, in 2018 specifically, the PyeongChang Olympic Winter Games. Although Korea's attempts to engage the world with its cultural industries are increasingly effective,⁵ the lasting effects of cultural and sports diplomacies have their limitations. Therefore, more attention should be put to other branches of public diplomacy as that of science diplomacy.

In Korea, the position of ambassador for science exists,⁶ but science diplomacy has neither been officially mentioned in any of MOFA's white papers nor has any strategy or methodology been officially adopted otherwise. A branch of public diplomacy, science diplomacy is becoming increasingly popular in developed countries' foreign policies because of the benefits from improved diplomatic relations facilitated by governments, intergovernmental and non-profit organizations, as well as individual scientists.⁷ The intersection of science and diplomacy is such that they can be incorporated in a state's foreign policy as: *science in diplomacy* (informing foreign policy objectives with scientific advice), *diplomacy for science* (facilitating international science cooperation), and *science for diplomacy* (using science cooperation to improve international relations between countries).⁸ Each direction has distinguishing features, yet they all may overlap with one another to ultimately foster positive international relations and support international science.

This paper argues that science diplomacy is an effective and sophisticated tool which MOFA should recognize and utilize in not only promoting Korea's image, but securing its foreign policy agenda domestically and abroad. Science diplomacy should be included in Korea's institutional and political vocabulary, especially considering the tremendous potential for its success, based on Korea's scientific excellence with well-known applied technologies and its middle power diplomacy.⁹ Science diplomacy is a long-term strategy that requires a specific diplomatic toolkit to use science for building a country's profile. In one of the most seminal books in the field, Pierre-Bruno Ruffini asserts that attraction, cooperation, and influence are the fundamentals of science diplomacy.¹⁰ Korea is successfully undertaking the first—and the second to some extent—by pursuing the image of an attractive, scientifically and technologically-developed country in

the fields of robotics and electronics. However, Korea's ability to generate knowledge-based soft power from science diplomacy and enhancing international influence is rather underdeveloped.

This paper emphasizes how science diplomacy is relevant to Korea's foreign policy objectives and can help to build up the country's profile. Understanding national mode along with identifying the tools of science diplomacy in the interplay between diplomats and scientists, including the establishment of science diplomacy centers, may eventually influence the decision-making structure in the pursuit of Korea's broader diplomatic and scientific goals. Korea is a latecomer in public diplomacy, although it is a fast learner. The turn towards science diplomacy can be accomplished quickly and effectively.

The Mode of Korean Science Diplomacy

How a country should incorporate science diplomacy is dependent on its distinct diplomatic style and the specifics of its scientific development. Understanding the historical and contemporary context in which diplomatic style has been formed and has evolved as well as considering ways in which modern science has been implemented are significant components that help to identify the mode of Korean science diplomacy. A country's unique style, or its mode, provides insight into the capacity for a country to generate soft power through science diplomacy.

Despite the widespread acceptance of a universal diplomatic culture and the universalism of science, there are distinct national styles both in diplomacy and science. National diplomatic style and ways of "doing science" derive from community standards, historical and cultural backgrounds, and institutional structures. Korean diplomatic style has deep roots and has been formed and continuously affected by Confucianism and historical geography as a periphery country squeezed between China and Japan. The core characteristics of Korean diplomatic style on the one hand include a sense of estrangement and alienation from international society, emotionalism, and an emphasis on hierarchy among the older generation of diplomats. On the other hand, however, younger diplomats are more receptive to outside ideas and are more cosmopolitan.¹¹ Ways of "doing science" are similarly impacted. Cognitive and social styles exist in science affecting creativity and community values.¹² They can equally be used to explain the success or failure of an individual, institution, and national scientific endeavor. Style plays a role in the emergence and perpetuation of scientific ideas, institutions, and ideologies.



Korea's scientific development has only started quite recently, yet has reached remarkable achievements in highly-advanced applied technologies. In the 1960s and 1970s, Korea focused on learning about and absorbing foreign technologies. In the 1980s and 1990s, policy shifted to developing domestic scientific and technological capacity in high-tech sectors to close the large gap between advanced countries and Korea.¹³ As a result, Korea became a fast follower, making massive investments in semiconductors, electronics, steel, and chemicals.

The Confucian social model heavily influences the Korean way of “doing science.” Confucianism’s focus on collectivism, patriarchy, and seniority prioritizes joint collective efforts rather than individual ones. Korea’s long history with these values have led its way of “doing science” to be top-down oriented and commercialized, mainly within Korean conglomerates known as chaebols, rather than focused on theoretical and fundamental sciences traditionally researched at academic institutions and universities. Currently, Korea concentrates on applied research, a process which involves bringing a technology to maturity and commercializing it, which then restarts the cycle on a new technology. This process was well suited to facilitate Korea’s catch up development last century and explains why Korea has industry-leading cars and smart devices, but more theoretical research is necessary to fuel Korea’s economic growth this century.

Although Seoul may not have an official stance on science diplomacy, Korea has had a number of experiences with science diplomacy in practice. Bearing in mind the separate characteristics of Korean science and diplomacy, examining past events generated by their nexus can help identify the mode of science diplomacy, and thus lay the groundwork for a future strategy. For Korea, the following examples all demonstrate the (a) necessity of diplomatic assistance for scientific cooperation; (b) scientific capacity and capability to partake in science projects and programs; (c) a potential of gaining economic and commercial benefits; and (d) a long-term strategy in building the high profile of an attractive and scientifically influential country.

Korea is a member of the Soviet Union-initiated and the U.S. and other developed countries-supported International Thermonuclear Experimental Reactor (ITER) program, which creates large-scale multinational experimental platforms.¹⁴ The mission of ITER is the peaceful use of nuclear energy. Together with the US, Korea is also one of the founding parties for the International Science and Technology Center (ISTC). ISTC helps scientists from the former Soviet Union who worked on the

production of chemical, biological, and nuclear weapons find jobs in Korea to redirect their talents to peaceful activities.¹⁵ Additionally, Korea was among five countries to have applied for the headquarters of the General Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). The IPBES, which is an international group of biodiversity experts, brings together scientific expertise to better inform government decisions. Hosting a headquarters is prestigious, yet the Korean bid, which proposed an annual \$3 million contribution for the Secretariat budget and for programs in developing countries, was not successful. Korea lost to Germany, which is located closer to other UN agencies and above all else offered a total of \$8.5 million per year, far exceeding what other bidders were able to offer.¹⁶ Yet, Korea successfully launched the Global Green Growth Institute (GGGI) in 2012, transforming it from a domestic think tank into a treaty-based intergovernmental organization. This was a visionary foreign policy initiative.¹⁷

These examples are just a few which show the complexity of intergovernmental cooperation on science initiatives. Korea’s fundamental comprehension of the importance of international programs, its scientific and financial capacity to partake in them, and full governmental support demonstrate it has the basics for science diplomacy to proceed. While Korea may not be a key international science diplomacy player yet, the potential for it to be one is massive. Building up a high science diplomacy profile is complicated and requires long-term strategies. Although the commercial benefits of any program may not come right away, developing a science diplomacy strategy as part of its foreign policy will allow Korea more room to maneuver in spite of constraints from great powers.

Unlike the U.S., Korea’s scientific attractiveness is lacking. Scientific attractiveness includes many factors, among which is a country’s education system. The U.S. successfully attracts hundreds of thousands of students from all around the world and has done so for decades. Scientific attractiveness also includes opportunities for start-up projects and entrepreneurship. “Silicon Valley” is a household name for effective scientific innovations. In the case of Korea, it is a paradox that the most technologically advanced country could do much more to create international scientific networks and improve its scientific attractiveness. It might be that the historical memory of alienation and estrangement, emphasis on status and seniority, a traditional system of education,¹⁸ and the research structure resulting from Korea’s quick economic development affects the mode of science diplomacy. Korean government initiatives to make the country



more scientifically attractive, such as the “creative economy” during the Park Geun-hye administration and “innovative growth” under the current Moon administration, struggle against these factors to promote the effective use of human resources, especially that of foreign entrepreneurs.¹⁹ Trying science diplomacy as an additional part to or a possible extension of Moon’s “innovative growth” agenda might contribute to its successful results.

The mode derived from historical occurrences should rather be bypassed, the image of Korea as a periphery country and a catch-up developer does not help now. In contrast, building national reputation and creating an image of a distinct, independent, and self-sufficient country and a scientific trendsetter should be embraced. Achieving that is a possibility through (1) adopting a high-profile for science diplomacy, (2) wider inclusion of non-state actors and ultimately developing public diplomacy as a whole, and (3) creating centers of science diplomacy using the network of embassies, consulates and high commissions overseas.

Diplomacy of Influence: Building a Strong Profile

High-profile for science diplomacy

The bottom line of diplomacy for Korea is securing strategic stability in the decades ahead, maintaining strong economic cooperation, and an ability to generate soft power. If Korea adopts a high-profile role for science diplomacy, the country will benefit from fair, cooperative, and collaborative bilateral and multilateral scientific cooperation completing the nexus of science and diplomacy.

For securing strategic stability, Korea has recently demonstrated how public diplomacy could help with North Korea through sports during the Winter Olympics, but science can also be a useful tool. *Science for diplomacy* with North Korea has the potential to be used as a universal tool to smooth the cultural gap between the two Koreas, thus securing the foreign policy objectives for both.²⁰ *Science for diplomacy* is an effective instrument that was successfully used during the Cold War between the US and Soviet Union. In those times when the geopolitical tensions reached their peak and cooling down the situation was a need, vaccine and space diplomacy helped to normalize relations between superpowers.²¹ If the U.S. and the Soviet Union could do that, so too could the two Koreas.

To strengthen economic cooperation worldwide, Korea should focus more on its ability to generate soft power. Even though

Hallyu and applied technology positively impact Korea’s nation branding, they have their limitations to secure or empower foreign policy objectives. Building up an image of a strong, capable, and reliable partner, Korea has already maintained its participation in intergovernmental organizations and treaties e.g. the World Health Organization, the United Nations, the Nuclear Security Summit, the Arctic Council, The Antarctic Treaty, etc. These further human prosperity and wellbeing, and address global challenges such as climate change and antimicrobial resistance. Awareness of the fundamentals of science diplomacy, scientific capability should bring Korea to the beginning of consulting debates that have to be publicly argued, both domestically and internationally.

For example, Korea could pay more attention to developing space technology. Penetration and commercialization of space is inevitable. Korea has attempted to close the gap in space technology with powerhouses of the US and Russia, but more can be done. Korea should expand international cooperation rather than pursue independent space strategy as it does not have the high technologies and skills.²² Cooperation with Russia is transactional. Russia simply provided services for launching the first Korean astronaut to the International Space Station (ISS) and assisted with building and launching the first Korean space rocket NARO-1.²³ Korea’s cooperation with NASA has been surprisingly limited and began to move forward in August of 2008²⁴ achieving a sustainable progress only under the Park Administration signing an agreement on space cooperation in 2016.²⁵

On a multilateral level, with U.S. research institutions playing a leading role and with Korea’s active participation, there are a couple of ambitious projects in observing cosmic rays. These are the Telescope Array²⁶ and the Extreme Universe Space Observatory which is attached at the ISS.²⁷ At this stage, this scientific cooperation might not directly be related to diplomacy or commercialization. Yet, when achieving results that might impact a state’s international influence and/or be profit-oriented, diplomacy will be needed and it is better be prepared now.

The Lunar Exploration program intended to be completed by 2030 is an example of Korea’s developing indigenous space technology.²⁸ Foreseeing potential obstacles to cooperation, inherent in talks about sensitive technological information, the government has emphasized that the project would be implemented alone. However, for Korea to achieve its goals on space exploration, there is no way to avoid the international



scientific community and it must do more to engage with other countries that have their own ambitious space projects such as the U.S., Russia, and the European Union. Signing future treaties will require Korean diplomacy to become more savvy and skillful. In this case, creating a high profile for science diplomacy, understanding *diplomacy for science* specifications can secure Korea's future foreign policy objectives and increase the possibilities for making space projects matters of commercial interest.

Inclusion of non-state actors

Emphasizing the importance and wider inclusion of non-state actors furthers a public diplomacy agenda. Bearing in mind Korea's mode of science diplomacy which emphasizes status and seniority, historical sense of estrangement and alienation, and catch-up scientific and technological development, MOFA has made significant progress in developing public diplomacy.

The first ever meeting of the committee on public diplomacy took place in August, 2017 at which a five year "master plan" was created. With the designation of the Korea Foundation (KF) as the public diplomacy overseer, the committee finalized the first basic plan for 2017-2021. The plan includes 410 billion won for public diplomacy projects.²⁹ The plan consists of 49 tasks in six fields, including policy, knowledge, and culture, with the biggest focus on culture. Science diplomacy is not officially acknowledged or recognized.

The plan also judges the success of public diplomacy through citizen participation, a strategy which MOFA had already undertaken. However, Korean citizens are the target group, which overlooks foreign communities to spread Korean influence internationally. For science diplomacy, foreign non-state actors are essential. These foreign communities might be represented by academic networks in foreign countries as well as foreign academics living and working in Korea. The inclusiveness of non-state actors for science diplomacy can build on Korea's nation branding from already well-known, different kinds of soft power (i.e. K-pop, electronics, autos, taekwondo) towards a more scientifically-relevant, academic image. Focusing on non-state actors for science diplomacy offers key advantages in the long-run and contributes to a higher profile.

Creating science diplomacy centers

Establishing a network of science diplomacy centers under MOFA's supervision may also enhance Korea's ability to generate soft power. These centers were first proposed in a report by

the Asia Institute³⁰ which has been submitted for MOFA's consideration.³¹ The following recommendations build on the recommendations of this report.

Centers of science diplomacy should become centers of excellence and be operated within the network of Korean embassies and consulates abroad. The role of embassies and consulates has shifted from pursuing only intergovernmental contacts to connecting with a wide range of non-state actors such as companies, various institutions, and individual professionals. This expanding network is a potential tool to promote Korea's science diplomacy objectives. However, the main objectives of the centers will be promoting and emphasizing Korea's image as an attractive and scientifically developed country, thus gaining deserved recognition and influence.

The centers might also affirm a democratic, knowledge-based model with a balance between economic growth, political development, social justice, and human security. The centers can be enclaves to coordinate joint scientific projects and diplomatic negotiations and to monitor research opportunities for long-term sustainability. Thus, by building goodwill and influence, these centers could become strategically autonomous based on science policy.

Science diplomacy centers would not be distinct organizations, but should function under MOFA. Diplomats should be able to conduct science diplomacy when necessary and make adjustments depending on a project, country, and target audience. A relevant example of successful science diplomacy practices while using the network of embassies and high commissions as innovation hubs can be found in the United Kingdom.³² First, the UK's network of embassies is used by British scientists looking to build international partnerships. Second, this network mobilizes and coordinates international scientific action on specific cross-border issues that are of strategic significance to the UK. Third, Britain's scientific prowess is a huge part of the British brand being promoted worldwide.

In sum, Korea certainly should adopt a strategy of building up a high science diplomacy profile. Paving the way for public diplomacy essentials, MOFA is off to a good start in mobilizing Korea's soft power, which science diplomacy can continue to enhance. This focus on science diplomacy should include: (1) awareness and a broad implementation knowledge-based policy as a national endeavor; (2) direct involvement of external academia-related non-state actors into diplomatic affairs; (3) adapting the network of embassies and consulates abroad as



centers of science diplomacy. These might increase efficiency of traditional diplomacy, enhance scientific cooperation, and ultimately, allow Korea to shape its future as an important geopolitical player.

Conclusion

Korea faces a security dilemma that requires an update to its national image that emphasizes its capabilities to pursue cooperation in an increasingly sophisticated diplomatic environment. To get there, it must embrace areas beyond traditional diplomacy. Current public diplomacy approaches are promising but they can be greatly improved. Korea has successfully generated soft power through cultural and sports diplomacy, though the impact of these areas may be limited and is rarely helpful in directly securing foreign policy objectives when dealing with security threats. Korea should work on building on its strengths as a middle power to maintain its sovereignty amidst the return of great power politics, an endeavor to which science diplomacy can greatly contribute. Constructing a high-profile for science diplomacy should be a core focus in realizing a stronger international reputation as an attractive, influential, and cooperative country.

Pursuing the historical memory of estrangement and alienation as well as strictly adhering to hierarchy risks limiting and even diminishing Korea's public diplomacy capacity. Overcoming the obstacles structuring the national mode of Korean science diplomacy is a must in remaking and strengthening Korea's image on the international stage as a significant regional power. Korea already has the tools to officially incorporate science diplomacy into foreign policy—including developed technologies, a strong academic record, and democratic principles—but it must consciously mobilize these factors in a coherent way to maximize their potential.

A good first step for Korea would be to increase participation in intergovernmental scientific organizations and projects that further global stability and use science to address global challenges, even if the commercial benefits might not be obvious in the short-term. Adopting a high profile for science diplomacy, involving a broad array of international non-state actors from scientific communities abroad and foreign academics living and working in Korea, and using embassies and consulates as innovation hubs can pave the way for Korea to reshape the emerging multi-polar geopolitical landscape to find the well-respected place it deserves.

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