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Pursuing the Paradoxical Phase of Science Diplomacy

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Science diplomacy is entering a paradoxical phase: the very knowledge systems that connect nations are becoming instruments through which nations compete. The future of science diplomacy may depend less on resolving this contradiction than on learning how to govern it.

For decades, science was valued in international relations partly because it could operate beyond the immediate turbulence of geopolitics. Scientists collaborated across borders even when governments disagreed. Universities and laboratories created enduring people-to-people connections. Shared research on climate, health, oceans and space demonstrated that some challenges were simply too consequential to be contained within national boundaries.

The premise was powerful: science could build bridges where politics built walls. That premise still holds. But it increasingly coexists with another reality: science and technology are becoming instruments of strategic statecraft.

AI, semiconductors, quantum technologies, biotechnology, critical minerals, space systems and data infrastructure are no longer viewed only as domains of scientific and economic progress. They are increasingly associated with national security and technological sovereignty, with varying degrees of geopolitical influence. International research collaboration is consequently being evaluated not only for its scientific value but also for questions of intellectual property (IP) ownership, technology leakage, technology dumping, supply chain resilience and strategic dependence.

The result is an unusual paradox: the global scientific system is simultaneously being asked to become more open for discovery and more guarded for security.

The shift is visible across major scientific powers. The United States, for instance, has articulated a doctrine of both "promotion and protection"—advancing technological leadership while strengthening research security, protecting IP and controlling access to sensitive technologies. Its 2026 National Security Science and Technology Strategy explicitly treats science and technology leadership as a national security objective.

But this is not simply an American story. Research security frameworks, export controls, trusted technology partnerships, and strategic industrial policies are emerging across global jurisdictions. Science itself is becoming part of the vocabulary of strategic autonomy.

And therein lies the deeper question: can strategic autonomy coexist with the fundamental interdependence upon which modern science depends?

No country possesses all the capabilities required to lead across every technological frontier. Scientific progress depends on international talent, data, supply chains, specialised infrastructure and

complementary expertise. Even technologically advanced states remain deeply interconnected. Perhaps, therefore, strategic autonomy in the twenty-first century will not mean autonomy *from* interdependence, but the ability to exercise strategic choice *within* interdependence. This is already reshaping science diplomacy.

The India-US TRUST Initiative, for example, combines collaboration in AI, semiconductors, quantum, biotechnology, energy, and space with an emphasis on verified technology vendors, sensitive technology protection, and resilient supply chains. The India-UK Technology Security Initiative similarly places technologies such as AI, quantum, biotechnology, semiconductors, advanced materials and critical minerals within a framework that explicitly combines technological collaboration with security considerations.

These developments point towards a new model of international scientific cooperation: trusted interdependence. But trusted by whom? This is where the paradox becomes consequential.

If international collaboration increasingly depends upon being part of a "trusted" ecosystem, could science diplomacy unintentionally contribute to the fragmentation of the global scientific commons? Could research networks become increasingly organised around geopolitical alignment rather than scientific merit? And if access to advanced computing, datasets, fabrication facilities, biotech infrastructure, or critical materials becomes increasingly restricted, what happens to countries that remain outside these technology networks? The concern is particularly important for emerging nations with techno-economic ambitions to address their developmental needs.

The world cannot simultaneously argue for a more distributed global innovation system and construct barriers that make participation in frontier science increasingly conditional. Excessive restrictions could constrain precisely the scientific mobility, knowledge exchange and capacity building that developing research ecosystems need. Yet the opposite extreme is equally problematic. The assumption that all knowledge should remain unrestricted is increasingly difficult to sustain when fundamental research can rapidly acquire commercial or military applications. The boundary between basic science and strategic technology is becoming porous.

The challenge, therefore, is not to choose between open science and research security. It is to determine how much openness is appropriate, where safeguards are necessary, who defines those boundaries, and how often they should be reconsidered. This calls for a more nuanced architecture of graduated openness.

Fundamental research should remain as open as possible. Sensitive dual-use research may require proportionate safeguards. Commercially strategic technologies may warrant targeted protection. Truly security-critical capabilities may require tighter controls.

But "security" cannot become an elastic justification for permanently closing scientific borders. This raises several pressing questions for contemporary science diplomacy.

- Where should the boundary between scientific openness and strategic vulnerability be drawn?
- Who decides what constitutes sensitive science: the state, the scientist, the university or industry?
- Can research security protect scientific ecosystems without creating a culture of suspicion that undermines international collaboration?
- Can strategic autonomy be achieved without technological isolation?
- And perhaps most importantly, can frameworks of 'trusted technology partnerships' remain genuinely inclusive, or will they gradually produce competing scientific and technological blocs?

These are not abstract questions. They will shape who participates in the next generation of scientific discovery, who controls critical technologies and who benefits from them. They also demand a rethinking of the purpose of science diplomacy itself.

Traditionally, science diplomacy has been understood largely as using science to build diplomatic bridges. Its emerging role may be more complex: diplomacy will increasingly have to help determine where those bridges remain open, where they need safeguards, and how they can remain accessible without ignoring legitimate security concerns.

This is particularly important for countries such as India. The objective should extend beyond joining existing technology blocs to helping shape the rules of emerging technological cooperation through co-development, research mobility, shared infrastructure, standards, capability-building and inclusive innovation.

The future of science diplomacy should therefore not be defined by the choice between openness and sovereignty. It should seek sovereignty without isolation, and openness without naivety.

The paradox is unlikely to disappear. Indeed, it may become the defining condition of twenty-first-century science diplomacy. Science will continue to be one of humanity's most powerful bridges. But those bridges now carry strategic traffic. The real task is to manage strategic competition while preserving the openness that makes science capable of connecting us in the first place.

Perhaps the ultimate test of contemporary science diplomacy is therefore not whether science can remain outside geopolitics. It cannot. It is whether we can build a global scientific order that is strategic yet open, secure yet inclusive, and competitive yet collaborative.

That is the paradox we must learn not to eliminate but to govern.

The Fourth Dimension of Science Diplomacy*

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In a previous contribution, we highlighted how growing geopolitical tensions were beginning to challenge the principles of openness and international cooperation that have long characterised science.[1] The increasing relevance of research security, trusted research, technology sovereignty and cooperation among like-minded countries has transformed the landscape of scientific cooperation. Consequently, the traditional openness of science can no longer be taken for granted.

This is no longer merely a theoretical concern. As early as 2017, Rania Mokhtar, a Sudanese recipient of the OWSD–Elsevier Foundation Award for Early-Career Women Scientists, was unable to receive the award in person at the AAAS Annual Meeting due to visa restrictions.[2] Although a relatively specific instance, the episode highlights how objectives that the international scientific community regards as fundamental can become subordinated to security considerations.

This evolving context requires broader reflection on science diplomacy itself, beyond solely preserving existing collaborations. The challenge is to ensure that the global scientific system remains resilient when access to knowledge, infrastructures and technological capabilities is increasingly shaped by geopolitical and economic factors.

Even an open scientific system would remain structurally vulnerable if advanced scientific capacities continue to be geographically and economically concentrated. The future of science diplomacy requires not only defending scientific bridges but also strengthening the foundations upon which global scientific cooperation depends.

For over half a century, science diplomacy has fostered international cooperation. During the Cold War, the European Organisation for Nuclear Research (CERN) maintained scientific contacts across the Iron Curtain, and the International Centre for Theoretical Physics (ICTP) bridged between developed and developing countries[3], reflecting the conviction that science could preserve channels of communication beyond conventional diplomacy.

During this period, international mobility expanded, major research infrastructures became increasingly accessible, and the globalisation of science seemed both irreversible and beneficial. The experience of SESAME demonstrates how a shared scientific infrastructure can foster dialogue among countries divided by conflict.[4,5] Today, this vision, reflected most clearly in UNESCO's 2021 Recommendation on Open Science, which places international collaboration and equitable access at the centre of global science policy,[6] is under unprecedented pressure.

Strategic competition among major powers, the wars in Ukraine and the Middle East, and the growing

* This article is dedicated to the memory of the late Prof. Rogelio Rodríguez-Talavera.

importance of AI, quantum technologies, biotechnology, strategic and advanced materials have altered the relationship between science and international politics.

Protecting genuinely sensitive technologies is legitimate. The concern arises when measures intended to protect specific areas reshape the broader culture of scientific cooperation, sometimes with apparent contradictions: CERN took the controversial decision not to renew the cooperation agreements with Belarus and Russia, and one year later, renewed the cooperation agreement with the Joint Institute for Nuclear Research (JINR) located in Dubna near Moscow.[7]

Restrictions on scientific mobility, often justified by conflicting internal policies, tighter controls on international collaborations, expanded export regulations and political scrutiny of universities are becoming familiar features of the international research landscape.[8]

This new vocabulary reflects a profound change: the guiding principle of scientific cooperation moves from openness towards emphasis on security, sovereignty and strategic alignment.

This represents more than a semantic evolution: it reflects a profound shift in priorities, intrinsically linked to the fact that many strategic technologies require investments measured in tens of billions of dollars.

This concentrates advanced scientific capabilities in a limited number of countries and institutions, while governmental priorities increasingly influence research funding and international scientific cooperation, making access to frontier science progressively shaped by geopolitical considerations rather than scientific merit alone.[9]

These developments are unfolding within a broader weakening of multilateralism. International organisations and institutions struggle to maintain the influence they exercised only a decade ago, while new geopolitical coalitions and transactional alliances increasingly shape global agendas.[10]

Science diplomacy, once widely regarded as an effective instrument for maintaining dialogue across political divides, has become progressively less visible in international decision-making.

The situation in Gaza illustrates this challenge. Different actors have approached the crisis with different priorities, including security concerns, governance arrangements and competing visions of reconstruction. These differences reflect distinct objectives and expectations, and even the concept of reconstruction is not understood the same way by all actors. Yet, beyond these differences, one element should become a shared priority: rebuilding universities, research institutions and scientific capacity. Scientific institutions should not be regarded as a luxury to be restored only after political solutions have been achieved; they are among the foundations upon which long-term recovery and durable peace depend.

This example highlights a deeper challenge: the resilience of international science is more than maintaining existing collaborations: it also means ensuring that, if weakened or disrupted, scientific capacity be rebuilt and developed.

The globalisation of research rested on an implicit assumption: although advanced scientific infrastructures would remain concentrated in relatively few countries, they would remain broadly accessible. Synchrotron light sources, neutron facilities, astronomical observatories, high-performance computing centres, and genomic platforms increasingly functioned as global scientific resources, while international mobility compensated for their unequal geographical distribution.

That assumption can no longer be taken for granted. As geopolitical considerations increasingly influence scientific cooperation, dependence on infrastructures located elsewhere becomes a structural vulnerability.

This is particularly true for countries in the Global South. Their scientific development has depended on access to facilities abroad and participation in international research networks. If access to these infrastructures becomes conditioned by geopolitical considerations, scientific inequalities may deepen even without any formal exclusion from international collaboration. This dimension has received surprisingly little attention within discussions of science diplomacy.[11]

The objective of preserving bridges between scientific communities separated by political differences

remains essential for science diplomacy, but in the present geopolitical environment, bridges alone are no longer sufficient. They require strong foundations at both ends.

During the globalisation era, unequal access to research infrastructures was mitigated by the openness of scientific networks and the mobility of researchers and knowledge. If these access mechanisms become less reliable, the geographical concentration of advanced facilities poses a systemic vulnerability to global science.

Open Science, therefore, requires more than open publications, open data, and international collaboration. It requires a broader distribution of advanced scientific infrastructures, technological capabilities and research ecosystems. Openness without active participation risks becoming an aspiration rather than an operational principle.

From this perspective, Big Science infrastructures acquire a significance that extends well beyond their scientific output. ICTP demonstrated that building scientific capacity could narrow the scientific divide between North and South. SESAME demonstrated that a shared research infrastructure could itself serve as an instrument of diplomacy. More recently, Sirius in Brazil[12] and initiatives such as the projects of an African[13] or a Greater Caribbean Light Source[14-15] illustrate a broader evolution: the development of regional Big Science infrastructures in the Global South is becoming an essential condition for a more open, resilient and sustainable global scientific system.

These initiatives should not be interpreted as steps toward scientific fragmentation or self-sufficiency. Their purpose is precisely the opposite. Indeed, African Light Source (AfLS) and Greater Caribbean Light Source Initiative (GCLSI) are part of a broader project for the Global South aimed at strengthening participation in global science, recognised by UNESCO as one of the projects of the Decade of Science for Sustainable Development.[16] GCLSI has also been identified as one of the three most significant emerging scientific infrastructure projects in Latin America.[17]

A more balanced geographical distribution of scientific capacity and infrastructure makes international cooperation less vulnerable to geopolitical tensions and allows partnerships to develop on a more equal basis. This evolution also suggests that the traditional conceptual framework of science diplomacy warrants reconsideration.

Establishing regional research infrastructures, multinational centres of excellence, and long-term scientific training programs should become explicit objectives of science diplomacy, rather than simply desirable outcomes of successful diplomatic relations.

Preserving international science will therefore require not only defending existing collaborations but also reducing the structural vulnerabilities created by the unequal geographical distribution of advanced scientific capacities. Investing in shared Big Science infrastructures, particularly across the Global South, is no longer simply a matter of scientific development; it is becoming a prerequisite for a resilient international scientific system and a fourth dimension of science diplomacy itself.

References

1. Castaño VM, Violini G (2025) Science diplomacy is in trouble. *Nature Physics*, 21: 1030.
2. TWAS News (2017) Women honoured with OWSD-Elsevier Awards. https://twas.org/article/women-honoured-owsd-elsevier-awards
3. Salam A (1970) The International Centre for Theoretical Physics. *Nature*, 228: 1091–1092. https://doi.org/10.1038/s41567-025-02911-y
4. Brumfiel G (2012) Clashing nations back SESAME. *Nature*, 483: 385. https://doi.org/10.1038/483385a
5. Nature (2016) Middle East X-ray factory is a source of hope. *Nature*, 539: 468. https://doi.org/10.1038/539468a
6. UNESCO (2021) UNESCO Recommendation on Open Science. SC-PCB-SPP/2021/OS/UROS, UNESCO, Paris, 2021.

7. Koller F (2024) Despite warnings from Kiev, CERN maintains its cooperation with Moscow. *Le Temps*, June 24, in French.
8. Ambrose M (2024) US Lawmakers Propose Barring Chinese and Russian Citizens from DOE Labs. APS News. https://www.aps.org/apsnews/2024/07/barring-chinese-russian-citizens-doe
9. American Physical Society (2024) APS comment on Office of Management and Budget proposed rule for federal financial assistance. 8 July 2024.
10. UNESCO (2025) Withdrawal of the United States of America from UNESCO: Statement by Audrey Azoulay, Director-General. 22 July 2025.
11. Violini G (2024) Science; science policy vs political science; science diplomacy vs diplomacy: A developing countries point of view [Preprint]. Research Gate. https://doi.org/10.13140/RG.2.2.28570.04802
12. Liu L, Neuenschwander RT, Rodrigues ARD (2019) Synchrotron radiation sources in Brazil. *Philosophical Transactions of the Royal Society A*, 377(2147): 20180235. https://doi.org/10.1098/rsta.2018.0235
13. Connell SH et al. (2024) The African Light Source: history, context and future. *Journal of Synchrotron Radiation*, 31(1): 1–9. https://doi.org/10.1107/S1600577523009682
14. Castaño VM, de Córdoba PF, Sans JA, Violini G (2024) Big science in Latin America: accelerate particles and progress. *Nature*, 627(8002): 32–34. https://doi.org/10.1038/d41586-024-00598-4
15. Castaño VM, Lomelí-Vanegas L, Margaritondo G, Mejía-Casco V, Pellegrini C, Violini G (2026) Cities of knowledge and big science in developing countries: Luxury or investment? The GCLSI Case [Preprint]. arXiv. https://doi.org/10.48550/arXiv.2605.11297
16. Violini G (2025) The Global South Synchrotrons Project. Conference on Metrics, Policy, and Diplomacy for Research Infrastructures in the Global South. https://www.researchgate.net/publication/395389050_
17. Diferencias de gastos en ciencia entre países de Latinoamérica impactan en desarrollo productivo. https://actualidad.rt.com/video/508984-diferencias-gastos-ciencia-paises-latinoamerica, 2024

Science Diplomacy for Strengthening Global Biosecurity in the Age of Emerging Technologies: From Scientific Communities to Multilevel Cooperation Mechanisms

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Introduction

The global pandemic, together with the advent of emerging technologies such as synthetic biology, gene editing and AI, has pushed biosecurity to the centre of the international agenda. At the same time, it has also reshaped biosecurity from a relatively traditional disarmament & non-proliferation issue into a cross-cutting governance challenge spanning from health, ecology, development, national security to technological innovation. These transformations reveal a growing deficit in global biosecurity governance and underscore the urgent need for governance innovation, for which science diplomacy has emerged as an important mechanism.

These transformations can be characterised by multiple dimensions, each of which calls for different forms and levels of science diplomacy. First is the Collingridge dilemma: the rapid development of emerging technologies generates significant knowledge gaps and regulatory uncertainties, while existing governance regimes often struggle to adapt quickly enough to address their evolving impacts.[1,2] Second, the nature and sources of biosecurity risks have become increasingly diverse in the age of "science at large"; lower barriers and multiplying actors make biological risk more decentralised and harder to govern through purely state-centric frameworks.[3] Third, these developments have exacerbated tensions among fragmented governance frameworks operating across different issue areas and levels of governance. Finally, states face a fundamental dilemma that they may address biosecurity arising from emerging technologies as a global crisis/public good while simultaneously competing to develop and maintain strategic advantages in these technologies. This tension is further reinforced by regimes of action driven by the logic of sovereignty or like-minded groups.[4]

Against this background, science diplomacy should be understood as a diverse set of practices rather than a single, uniform mechanism. It is not limited to formal intergovernmental consultation or the translation of scientific knowledge into evidence-based policy, but also mainly facilitates problem identification, knowledge exchange, trust-building, stakeholder engagement and solution exploration under uncertainty. From the perspective of the global biosecurity policy process, four sites of science diplomacy can be identified: scientific communities, multistakeholder and transnational networks, scientific advisory in multilateral institutions, and regional or bilateral cooperation. Together, these forms respond to the different challenges posed by emerging technologies.

1. Embedding Responsibility into Innovation: Science Diplomacy in Scientific Communities

The first site of science diplomacy to strengthen biosecurity begins within the scientific communities

themselves. The Collingridge dilemma captures the fundamental challenge for governing emerging biotechnology; its impacts are hard to foresee when a technology is new, yet costly to control once they become apparent. Thus, scientists are increasingly positioned not only as producers of knowledge but also as early identifiers of potential risks and explorers of innovative solutions.

The well-known Asilomar Conference in 1975 has been regarded as a precedent for self-regulation; it is also a notable example of science diplomacy. It demonstrated how collective reflection among scientists could generate adaptive safeguards for emerging genetic engineering research. The Ethical, Legal and Social Implications (ELSI) Program, which emerged alongside the Human Genome Project, subsequently provided a more institutionalised approach to anticipating the broader consequences of frontier research. In the age of synthetic biology and AI, these approaches can be further extended by incorporating biosecurity considerations into research design and experimentation. Practices such as DNA synthesis screening[5], responsible AI×Biodesign[6], and early discussion of gene-drive[7] or mirror biology research[8] illustrate how scientific communities can identify and address risks before they become fully institutionalised.

Communication and collaboration among scientific communities worldwide can therefore contribute to anticipatory biosecurity governance. Transnational research networks can provide channels for identifying emerging threats and sharing risk assessments, facilitating the diffusion of responsible research practices and norms. These are also important complements to the formal governance structures.

2. Building Networks: Science Diplomacy for Connecting Multiple Stakeholders

The second site of science diplomacy involves building agile governance networks capable of responding to the challenges brought about by the democratisation of science and technology. Emerging technologies, particularly those accelerated by advances in AI and synthetic biology, have expanded access to frontier scientific knowledge and lowered the barriers to conducting research and technological projects. As a result, relevant biological capabilities are no longer confined to major research institutions but are increasingly distributed among biotechnology companies, start-ups, individual researchers, and even do-it-yourself (DIY) communities. This diffusion creates a mismatch between the increasingly distributed nature of biological capabilities and the predominantly state-centric and territorially bounded nature of regulation. It therefore calls for a more adaptive and distributed governance approach that extends beyond formal regulation and engages actors across the broader innovation ecosystem.

Science diplomacy can facilitate the development of such governance networks by connecting governments, scientific communities, industry, funders, and other non-state actors, thereby distributing both responsibility and governance capacity across multiple levels. Emerging initiatives formed through cross-sectoral collaboration illustrate different dimensions of this networked approach. The International Biosecurity and Biosafety Initiative for Science (IBBIS), launched by the Nuclear Threat Initiative in 2024, represents a multi-stakeholder approach to strengthening global biosecurity norms through international standards, regional policy dialogues, and industry best practices.[9] The International Gene Synthesis Consortium (IGSC) similarly demonstrates how industry-led standards can contribute to DNA synthesis screening beyond the reach of individual national regulatory systems.[10] Similarly, the International Bio Funders Compact illustrates how funders can incorporate biosecurity considerations into research investment and help shape responsible innovation.[11]

Science diplomacy plays a dual role in this process: it can inform formal regulation and policymaking while also facilitating the formation of new organisations, partnerships, and transnational networks. These flexible governance arrangements can respond to emerging risks with greater agility while building capacity for biosecurity governance.

3. Bridging Fragmentation: Scientific Advisory in Multilateral Mechanisms

The third site concerns the fragmented institutional landscape of global biosecurity. It involves a complex of overlapping international regimes and institutions but lacks an overarching authoritative governance

structure. These include the Biological Weapons Convention (BWC), the World Health Organisation (WHO), the Convention on Biological Diversity (CBD), the Pandemic Agreement, and various regional frameworks. Their mandates and logics do not always align, creating challenges in addressing emerging biosecurity risks.

Emerging technologies increasingly expose these limitations. For example, digital sequence information (DSI), enabled by advances in genomics and synthetic biology, intersects with multiple governance domains, including biodiversity conservation, access and benefit-sharing, health preparedness and response, and biosecurity. Different regimes may therefore address closely related issues according to different principles, creating overlaps, inconsistencies or governance gaps.[12]

Science diplomacy can help bridge this fragmentation by strengthening scientific advisory and coordination mechanisms across multilateral institutions. Many experts simultaneously serve on multiple science and technology advisory groups, positioning them to identify emerging technological developments, clarify uncertainties, and assess implications across domains. Such expertise can help policymakers recognise connections that remain invisible within institutional silos. The objective is not to create a single comprehensive regime, but to achieve coherence through information exchange, joint assessments, and communication among institutions. In this way, scientific advisory mechanisms can serve as an institutional bridge between fragmented governance regimes, helping them adapt to rapidly changing technologies.

4. Paving the Path: Regional, South–South, and Bilateral Cooperation

The fourth site concerns regional, South–South, and bilateral cooperation. The coexistence of cooperation and strategic competition will likely remain a defining feature of emerging-technology governance. Science diplomacy should therefore neither assume that geopolitical competition can be eliminated nor conclude that cooperation is impossible. Instead, it should identify areas where shared interests make practical cooperation feasible.

South–South cooperation is particularly important because developing countries face the dual challenge of strengthening biosecurity while gaining access to emerging technologies for development. Science diplomacy can connect these objectives through collaborative research, capacity building, joint training, and regional knowledge sharing. Regional or group initiatives can provide practical platforms for such cooperation while connecting biosecurity to broader regional governance frameworks. The Tianjin Declaration of the Shanghai Cooperation Organisation in 2025 highlights opportunities to enhance biosecurity cooperation and develop institutional mechanisms to strengthen biological security governance.[13] Similarly, the ASEAN Leaders' Declaration on Strengthening Regional Biosafety and Biosecurity in 2024 demonstrates growing regional efforts to strengthen cooperation in this area.[14]

Moreover, science diplomacy can create additional channels for making progress in bilateral cooperation when agreement in broader multilateral settings is particularly difficult to achieve. Such bilateral initiatives can provide more flexible spaces for experimentation, confidence-building, and problem-solving, allowing breakthroughs to be achieved on specific issues and potentially catalysing broader progress. The Tianjin Biosecurity Guidelines, developed through Track II engagement among Chinese and US experts, demonstrate how scientific dialogue can continue despite tensions in other fields.[15] Similar opportunities may exist in areas such as DNA synthesis screening, AI×Bio risk reduction, and other shared biosecurity challenges, including antimicrobial resistance (AMR).

Conclusion

The transformation of biosecurity in the age of emerging technologies demands a corresponding transformation in science diplomacy. The four sites discussed above represent an exploratory classification rather than an exhaustive typology, but they demonstrate how science diplomacy can connect knowledge, actors, and governance levels in responding to emerging and uncertain risks. Rather than treating science diplomacy as a routine diplomatic practice, it calls for researchers and other actors

across the innovation system to play more active roles in bridging knowledge and institutional gaps, building trust across geopolitical boundaries, and enabling practical cooperation. Science diplomacy should therefore be understood not simply as a tool for supporting biosecurity governance, but as part of the governance architecture itself.

References

1. Rotolo D, Hicks D, Martin BR (2015) What Is an Emerging Technology? *Research Policy*, 44(10): 1827–1843.
2. Collingridge D (1982) The social control of technology. Pinter, St. Martins Press.
3. Namdeo SK, Zhang JY (2024) Rethinking science diplomacy and global biosecurity: challenges, emerging practices and the way forward. *International Affairs*, 100(6): 2623–2635. https://doi.org/10.1093/ia/iiae187
4. Doulet JF (2025) Science Diplomacy in 2035: Action Regimes for a Changing Geopolitical Landscape. *Science Diplomacy*, 9(1): 1–4.
5. Maurer SM (2017) Self-Governance in Science: Community-Based Strategies for Managing Dangerous Knowledge. Cambridge University Press. https://doi.org/10.1017/9781316771044
6. Responsible AI x Biodesign (2024) Community Values, Guiding Principles, and Commitments for the Responsible Development of AI for Protein Design. https://responsiblebiodesign.ai/
7. Carter SR, Friedman RM (2016) Policy and Regulatory Issues for Gene Drives in Insects. J. Craig Venter Institute.
8. Adamala KP *et al*. (2024) Confronting risks of mirror life. *Science*, 386(6728): 1351–1353. https://doi.org/10.1126/science.ads9158
9. IBBIS (2025) International Biosecurity and Biosafety Initiative for Science. https://ibbis.bio/about/
10. IGSC (2017) International Gene Synthesis Consortium. https://genesynthesisconsortium.org/
11. Nuclear Threat Initiative (2026) International Bio Funders Compact. https://www.nti.org/about/programs-projects/project/bio-funders-compact/
12. Sett S *et al.* (2024) Harmonize rules for digital sequence information benefit-sharing across UN frameworks. *Nature Communications*, 15(1): 8745. https://doi.org/10.1038/s41467-024-52994-z
13. SCO (2025) Tianjin Declaration of the Council of Heads of State of the Shanghai Cooperation Organisation. The Shanghai Cooperation Organisation. https://chn.sectsco.org/20250901/1962287.html
14. ASEAN (2024) ASEAN Leaders' Declaration on Strengthening Regional Biosafety, and Biosecurity. https://asean.org/asean-leaders-declaration-on-strengthening-regional-biosafety-and-biosecurity/
15. Wang L, Song J, Zhang W (2021) Tianjin Biosecurity Guidelines for codes of conduct for scientists: Promoting responsible sciences and strengthening biosecurity governance. *Journal of Biosafety and Biosecurity*, 3(2): 82–83. https://doi.org/10.1016/j.jobb.2021.08.001

Arctic Science Diplomacy: Adapting and Surviving Through Regional Consensus

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Abstract

Science diplomacy (SD) has emerged as a critical discourse at the intersection of its epistemological foundations and practical application. However, the current geopolitical climate demonstrates that SD lacks a unified, holistic approach and remains a developing phenomenon. It increasingly operates through distinct regional frameworks. This regional dimension is nowhere more pronounced than in the Arctic these days, where diplomatic strains have led to fractures within the scientific community. This commentary argues that rather than signalling the demise of Arctic SD, these hurdles are forcing its constructive transformation. It posits that while science is inherently holistic, its diplomatic and decision-making practice is rooted in regional particularities. The Arctic case reveals how SD is demonstrating remarkable institutional flexibility. By examining current adaptations—from informal networks, connections, and dialogues to specific formal stand-alone cases—this paper concludes that Arctic SD is not disappearing but adapting and surviving in various forms. It offers recommendations for scientists and policymakers to foster resilient cooperation under constraint.

Science Diplomacy and its Regional Peculiarities

SD, being an urgent discourse, is currently traversing profound and complex changes against a backdrop of global geopolitical challenges that go far beyond those encountered during its epistemological maturation. As members of the scientific community, researchers bear a responsibility to critically examine and document this transforming landscape, furnishing essential historiographic evidence for SD as a discipline.[1]

A key observation is the growing regionalisation of SD. While science itself aims for universal truths, the practice of diplomacy through science and decision-making is deeply influenced by geography, history, and immediate political interests.[2] SD is not a monolith; it is a multifaceted practice shaped by spatial, administrative, and epistemic scales. National and regional approaches differ markedly, influenced by physical geography (access to resources, shared ecosystems) and human geography (cultural ties, historical relationships).[2]

The Arctic Case: A Crucible of Regionality and Fragmentation

The Arctic has long been held up as a prime example of peaceful scientific cooperation, a 'zone of peace'. However, the post-2022 geopolitical shifts have fundamentally disrupted this narrative. The suspension of formal cooperation with Russia within the Arctic Council, the primary intergovernmental forum, created a

clear rift, leading many to declare the end of 'Arctic exceptionalism' and the emergence of a 'fragmented' or 'broken' Arctic.[1] This fragmentation is arguably the starkest example of SD's regional vulnerability. In parallel, several prominent organisations—including the University of the Arctic and the International Arctic Science Committee—have formally suspended or restricted their collaborative structures. Consequently, the scientific community has witnessed the emergence of more cautious mechanisms, informal modalities of communication and joint engagements.

One such mechanism is known as *"track-two diplomacy"*—an unofficial, non-governmental dialogue that allows individuals and groups to interact outside official state channels, as opposed to the primary '*track-one diplomacy*'.[3] The goal of such is to create a safe space for participants to explore ideas, build trust, and develop innovative solutions to complex problems without the constraints of official state positions.[4] In the Arctic context, these interactions have been instrumental for maintaining scientific collaboration on issues like permafrost thawing and climate monitoring.[5] Unlike the formal government-to-government track, these informal networks provide a space to develop trust and explore joint solutions, even when official relations are strained.

Focusing solely on fragmentation overlooks a more nuanced and critical story: Arctic science dialogue is transforming, not disappearing.[6]

Signs of Adaptation and Survival:

1. **Institutional (organisational) flexibility:** While formal, state-led cooperation is stalled, other channels are thriving. Informal networks, professional associations such as the International Arctic Science Committee (IASC), and some university-led collaborations are stepping in to fill the void.[6,7] These 'track-2' dialogues are pivotal for risk reduction and confidence-building.[8] One vivid example is the International Science Initiative in the Russian Arctic (ISIRA), an advisory group of the IASC, which continues to preserve open community meetings and official-level discussions.[9]
2. **Techno-diplomacy and shared challenges:** Focus has shifted to pressing, non-political issues where cooperation is indispensable. Initiatives on resilient infrastructures in the Arctic (such as roads, buildings, pipelines, power lines, ports), permafrost thaw, and sustainable energy are creating new platforms for *techno-diplomacy*.[10] The shared existential threat of climate change acts as a strong catalyst for continued interaction.
3. **Global and regional synergies:** New, more inclusive frameworks are emerging to strengthen scientific cooperation and engagement across regions and the Global South. For instance, UNESCO's International Decade of Sciences for Sustainable Development has endorsed initiatives such as "From the Arctic for the Arctic: Science Diplomacy for a Sustainable Future of the Region and Its People" (FORAS), led by researchers at the Kola Science Centre (Russian Academy of Sciences). This project aims to foster open dialogue among BRICS and SCO countries, creating a platform that transcends the current geopolitical impasse by including diverse Arctic and non-Arctic stakeholders.[11,12] The FORAS project is an example of institutional adaptation through new alliances within global organisations such as UNESCO.
4. **Redefining practices and navigating narratives:** There is a growing consensus that Arctic SD must be redefined. The ICARP IV process (The Forth International Conference on Arctic Research Planning)7 highlights the need for research cooperation that is resilient to political shocks and inclusive of all stakeholders. Crucially, there is an increasing (though still insufficient) emphasis on centring the rights and knowledge systems of Arctic Indigenous Peoples, moving beyond a purely state-centric model.[13] Another instructive example lies in the strategic reconfiguration of the language itself (navigating narratives). Current geopolitical fissures and divergent national restrictions have compelled researchers to adopt more flexible narrative frameworks. In instances where explicit "cooperation" is restricted, "coordination" has emerged as a pragmatic substitute, preserving substantive interactions to continue, while mitigating legal and political risks.

What's the future of Arctic SD?

The future of Arctic SD lies not in attempting to restore a pre-2022 status quo but in embracing adaptive models of cooperation under constraint.[6] The 'regional shortcuts'—bilateral (small-scale) and individual collaborations, Indigenous knowledge co-production, joint infrastructure projects—are the most viable routes for sustaining scientific exchange. These pathways acknowledge the holistic nature of scientific inquiry while respecting the inescapable reality of regional politics. On the other hand, the international polar science community is currently preparing and refining its scientific agendas in anticipation of the upcoming Fifth International Polar Year (IPY) 2032–2033—an event that will mark 150 years of multinational polar science cooperation in pursuit of a shared, peaceful future. Historically, the IPY initiative has evolved considerably since its inception in the 1890s, shifting from a paradigm centred on geographical discovery and territorial conquest to one emphasising international unity and scientific cooperation, as exemplified by the Fourth IPY in 2007–2008.

Conclusion and Recommendations

The Arctic case demonstrates that SD is an adaptive phenomenon. The current pressures are not destroying it but are forcing it to evolve, become more flexible, and find creative workarounds. While it may have lost its 'holistic' facade at the high political level, it is gaining resilience, diversity, and practical relevance at the regional and grassroots levels. The consensus on Arctic cooperation is shifting from passive stability to active, strategic resilience. Arctic SD is not dead; it is adapting to survive and will likely emerge more robust for the next challenges, including the Fifth International Polar Year (IPY) in 2032.[6]

In light of the preceding analysis, several practical recommendations are proposed for those actively involved in Arctic science diplomacy.

For Scientists:

1. Embrace 'Shareable/Open' Science: Differentiate between basic research data, which can be openly shared, and higher-risk outputs. Practices that separate these can enable partial collaboration even under restrictive conditions.[8]
2. Invest in Informal Networks: Prioritise professional networks and trust-building at individual and institutional levels. These 'track-two' connections are vital for maintaining dialogue when state-level relations are strained.
3. Integrate Indigenous Knowledge as a Norm: Actively and equitably co-create knowledge with Indigenous Peoples, moving beyond tokenism to genuine partnership. This is not just ethical but analytically essential.[13] The integration of Indigenous Knowledge into Arctic science is perhaps the most profound example of epistemological adaptation in SD. It contests the traditional hierarchy of knowledge and suggests that SD must be pluralistic, which is especially important during times of tension.

For Policymakers:

1. Protect Scientific Exchanges: Design exemptions for scientific cooperation and data sharing, recognising it as a matter of global public good and a tool for long-term stability, not just a foreign policy lever.
2. Support Flexible Funding Mechanisms: Create funding streams that can accommodate political changes, supporting non-governmental and interdisciplinary initiatives that can operate independently of state-level tensions.
3. Champion Science as a Bridge: Actively use international research forums and science envoys (ambassadors) to create and maintain channels for dialogue. SD should be acknowledged as a strategic investment in resilience, not a reward for good behaviour.[14]

References

1. Szkarłat M (2025) Securitisation of scientific cooperation: The Case of the Arctic. *Polish Polar Research*, 46(1): 5–15. https://doi.org/10.24425/ppr.2025.153919
2. Müller AP, Schmitz S, Josten M, Young M, Rungius C, Aukes E (2020) Which thematic and regional approaches of science diplomacy exist? In: S4D4C European Science Diplomacy Online Course. Module 5 [Internet]. Vienna: S4D4C. https://www.s4d4c.eu/wp-content/uploads/2019/12/S4D4C-EU-SciDip-Online-Course-Module-5-March2022.pdf#6#1
3. Kotelis A (2006) Cognitive and relational outcomes of track- two initiatives and transfer strategies used: the cases of the Greek- Turkish forum and the Greek- Turkish journalists' conference (Master's thesis). Sabanci University. https://research.sabanciuniv.edu/id/eprint/8358/1/kotelisandreas.pdf#14#2
4. Jones P (2021) Track Two Diplomacy at Sixty. CIPC blog. Ottawa: Centre for International Policy Studies, University of Ottawa. https://www.cips-cepi.ca/2021/01/07/track-two-diplomacy-at-sixty/
5. Flood A (2025) Arctic Experts Highlight Importance of Track 2 Cooperation Between US and Russia. Russia Matters. 15 Jan 2025. https://www.russiamatters.org/blog/arctic-experts-highlight-importance-track-2-cooperation-between-us-and-russia#1
6. Handegard NO (2026) Arctic collaboration is not disappearing but transforming. Bergen: Academia Europaea Bergen Hub, University of Bergen; 9 Mar 2026. https://aebergen.w.uib.no/arctic-collaboration-is-not-disappearing-but-transforming/#content
7. ICARP IV (2026) ICARP IV Research Priority Team 4 Final Report: Arctic Research Cooperation and Diplomacy. International Arctic Science Committee. https://icarp.iasc.info/publications/publications-icarp-iv
8. Conway C (2026) Arctic Technical Cooperation Amid Geopolitical Fragmentation: Lessons from the Cold War. Belfer Center for Science and International Affairs, 8 June 2026. https://www.belfercenter.org/research-analysis/arctic-technical-cooperation-amid-geopolitical-fragmentation-lessons-cold-war
9. Zaika Y (2025) Considering the societal relevance of the ICARP IV process and future Arctic research priorities and development towards IPY-5. *Polar Record*, 61: e22. https://doi.org/10.1017/S0032247425100077
10. UNU-INWEH (2026) Science Talk: Advancing Arctic Techno-Diplomacy. United Nations University. https://unu.edu/inweh/event/science-talk-advancing-arctic-techno-diplomacy
11. Commission of the Russian Federation for UNESCO (2025) Initiative of Polar Scientists Receives UNESCO Project Status. https://unesco.ru/en/news/300925-04/#site-content-contain
12. FORAS project website (2025) From the Arctic for the Arctic: science diplomacy for sustainable future of the region and its people. Kola Science Centre of the Russian Academy of Sciences; 2025-2028. https://www.ksc.ru/en/conf/unesco-2025/
13. Burkins MB (2025) Rethinking the Practice of Arctic Science Diplomacy. In: The Routledge Handbook of Arctic Governance. London: Routledge, p.204–222. https://doi.org/10.4324/9781003371885-14
14. National Research Council (2025) Arctic Circle Assembly 2025: Italy's commitment to science and diplomacy. https://www.cnr.it/it/nota-stampa/n-13849/arctic-circle-assembly-2025-italy-s-commitment-to-science-and-diplomacy#1

Greece 2040: Science Diplomacy, Foresight and Inclusive Transformation

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Abstract

Science diplomacy has the potential to support an inclusive transformation of Greece toward 2040 by improving its Science, Technology, and Innovation (STI) system. Greece's overall strategic goal should be to become a knowledge-producing nation that generates, transfers, and utilises knowledge to create wealth, foster social cohesion, and elevate its autonomous position. For Greece to achieve this transformation, it is essential that Research and Development (R&D), Innovation, and Education be integrated into a unified knowledge triangle, with foresight as a key tool for governance. The article demonstrates how the Special Secretariat for Foresight in Greece has incorporated forward thinking into policy-making and long-term planning. Furthermore, it explores how Science Diplomacy can facilitate connections between Greek national interests and European and global networks on issues such as climate resilience, the blue economy, AI, talent mobility, and open science. By connecting Foresight, STI Policy, and International Cooperation, Greece aims to convert scientific excellence into public value, regional opportunities, and democratic resilience.

Introduction

The transition from being peripheral tools of economic development to central components of nations' overall strength, democracy, together with strategic position, represents both a major threat and an equally important opportunity for Greece. On the one hand, it poses a risk if Greece does not successfully adopt a model that generates new knowledge and new forms of innovation along with public value domestically, rather than continuing to absorb knowledge and innovation produced by other nations. On the other hand, it also offers Greece the opportunity to create a historical model that produces knowledge, innovation and public value internally. Therefore, whereas the challenges facing Greece are certainly numerous, they do not centre on making Greece more digital or competitive. Rather, the real challenge for Greece will be to develop a truly inclusive transformation* process that unites researchers, educators, innovators, local communities, and international partners and connects each actor's domestic efforts with their respective roles in the global community. Science Diplomacy has the potential to make a vital contribution to this effort.

Historically, science diplomacy has been conceptualised through three primary lenses: (i) science in diplomacy, (ii) diplomacy for science, and (iii) science for diplomacy.[1] Science supports foreign policy decisions; diplomacy facilitates collaborative research; and scientific cooperation fosters mutual trust and understanding. Today, however, science diplomacy must do more. With rising levels of geopolitical uncertainty, technological competition, and climate disruption, it must also help nations align internal

* In this article, inclusive transformation is understood as the capacity of STI policy to generate broad-based social value by ensuring that the benefits of knowledge, technology and innovation reach regions, citizens, institutions and communities across society.

transformation with external positioning. For Greece, this means using science diplomacy to promote Greek research excellence, attract cross-border collaborations, engage the diaspora, and influence EU and regional agendas in areas where Greece has a comparative advantage.

Envisioning a Knowledge-Based Society for All

By 2040, the envisioned future for Greece is that of a knowledge-producing state: a nation capable of creating, distributing, and applying knowledge to enhance citizens' welfare, foster social cohesion, and provide an independent base for sovereign autonomy. Achieving this vision requires more than investment in laboratories, start-ups, or digital platforms. It requires a coordinated and integrated national system connecting knowledge production with societal needs and public policy priorities. STI should therefore be viewed as one component of greater state capacity: the capacity to anticipate change, attract talent, manage technological disruptions, and engage in international scientific networks.

Foresight is crucial in achieving this goal. Greece's Special Secretariat for Foresight[2] shows that anticipatory capabilities are not simply technical exercises; they require embedding anticipation within public administration and policy design. Foresight helps institutions detect early warning signs, map emergent threats, create alternative futures, and integrate science with strategic decision-making. It allows STI policy to move from a reactive paradigm toward a more proactive and mission-oriented one. For Greece, this means using foresight to assess the long-term consequences of artificial intelligence, climate adaptation, biotechnologies, quantum technologies, cybersecurity, energy systems, and ocean governance.

The Research-Innovation-Education Nexus

At the centre of this change lies the research-innovation-education nexus. Greece is moving toward an integrated knowledge triangle that connects universities and research centres with businesses, public institutions, and society. In this context, Prime Minister Kyriakos Mitsotakis' proposal for a dedicated ministry that brings together higher education, research, and innovation represents an important institutional step toward overcoming fragmentation and building a unified research and innovation space.[3] Research produces new knowledge; innovation translates it into solutions; and education cultivates the talent needed to sustain long-term transformation. When these three functions operate separately, knowledge remains fragmented. When they are connected by common strategic priorities, shared infrastructure, coherent evaluation mechanisms, and stronger pathways for technology transfer, they can foster productivity, social mobility, and institutional learning. This nexus is therefore not only an administrative reform but also a cornerstone of Greece's transition toward a knowledge-producing state.

Science Diplomacy can help Ensure Inclusive Transformation in Greece

To ensure that STI creates economic and social value for all regions, small and medium-sized enterprises (SMEs), public administration, and citizens, it is essential to develop new national-level policies. As part of its 2021–2027 Smart Specialisation Strategy (SSS)[4], Greece has begun linking national priorities to regional specialisation processes through an entrepreneurial discovery process that involves the private sector, research organisations, public administrations, and civil society.[5] A Greek science diplomacy initiative could further strengthen these SSS regional ecosystem connections with European Mission initiatives and global research networks.[6]

Several areas have been identified as potential priority areas for a Greek science diplomacy program. Climate and Civil Protection Science Diplomacy would give Greece the opportunity to use scientific knowledge to issue early warnings about wildfires, heat waves, flooding, earthquakes, and island vulnerabilities. Blue Economy Science Diplomacy would leverage Greece's maritime position, long-standing shipping tradition, island ecosystems, and extensive coastlines to support international cooperation on ocean governance, marine conservation, innovative ports, resilient coasts, and the development of a blue

economy. Responsible Digital Transformation and Artificial Intelligence Science Diplomacy would allow Greece to engage in international discussions on trustworthy artificial intelligence, cybersecurity, data management, and ethical innovation, while assuring that technology boosts societal benefits rather than replacing them. Talent Circulation Science Diplomacy would convert Greece's historical "brain drain" into a strategic network of researchers working together on collaborative projects, including joint laboratories, fellowships, doctorate programs, start-ups, and policy advisory networks. Open Science should become an integral component of Greece's democratic STI policy, making publicly funded scientific knowledge more accessible, reusable, and socially beneficial, consistent with UNESCO's principles of collective benefit, equity, diversity, and inclusiveness.[7]

Conclusion

Science diplomacy could provide much more than a vision of "Greece 2040" - it could make knowledge resilient, innovation inclusive, and foresight a form of state capacity. The future of Greece will be defined not only by which technologies are adopted, but also by how institutions are built, who is empowered, and what partnerships are created. With science diplomacy and foresight guiding a knowledge-producing Greece, this transformation can benefit all members of society while giving Greece a greater sense of its place within Europe and the wider region.

References

1. Royal Society & American Association for the Advancement of Science (2010) New frontiers in science diplomacy. London: Royal Society. https://www.royalsociety.org/news-resources/publications/2010/new-frontiers-science-diplomacy/
2. Special Secretariat of Foresight (n.d.) Special Secretariat. Presidency of the Greek Government. https://foresight.gov.gr/en/special-secretariat/
3. Prime Minister of the Hellenic Republic (2025) Prime Minister Kyriakos Mitsotakis' conversation with the co-founder of BioInnovation Greece, Nikos Kyrpides, at the Bio3 Forum 2025. Athens: Prime Minister of the Hellenic Republic; 2025 Sep 15. https://www.primeminister.gr/en/2025/09/15/36936
4. ESPA (n.d.) Research and Innovation Strategies for Smart Specialisation (RIS3). https://www.espa.gr/el/Pages/RIS3.aspx
5. Greece 2.0 (n.d.) The complete plan. https://greece20.gov.gr/en/the-complete-plan/
6. European Commission (2026) Country report: Greece. https://economy-finance.ec.europa.eu/economic-surveillance-eu-member-states/country-pages-including-country-reports/country-report-greece_en
7. UNESCO (2021) Recommendation on open science. https://www.unesco.org/en/legal-affairs/recommendation-open-science

Before Science Crosses Borders, Evidence Must Cross the Room: Lessons from Seeds of Science Asia

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I began my career in genetics, but I soon became increasingly drawn to the ecosystem around science: how research is explained, how knowledge moves beyond the laboratory, and how (or whether) its significance is understood. That interest eventually took me into science diplomacy. Over the past sixteen years, I have worked on scientific relationships across conflict and national borders, in the Middle East, Europe, the USA, and now across Asia and the Pacific.

For much of that time, the most visible (and least permeable) border in my work was represented by a line on a map. But currently, I'm focused on another boundary: the one between those who produce evidence and those responsible for acting on it. It has no geographical, political or spatial border, but, as many on either side of that mysterious line will tell you, it can be remarkably difficult to cross.

Take Australia's now-famous *Wolbachia* dengue-control programme. On the face of it, the idea was a hard sell: release mosquitoes to stop dengue. But Professor Scott O'Neill and his colleagues had done their homework. In 2009, they showed that *Wolbachia* could be introduced into *Aedes aegypti* mosquitoes, making them far less able to carry the dengue virus.[1,2] By 2011, they had shown that another strain, *w*Mel, could block dengue in the laboratory and establish itself in wild mosquito populations near the city of Cairns.[3,4] The papers were published. The evidence was all there, and it was compelling.

Unsurprisingly, this "evidence" alone did not immediately authorise the release of *Wolbachia*-carrying mosquitoes across Townsville.[5] Before the city-wide deployment began in October 2014, Professor O'Neill and his team had to march right across the formidable science–policy border. They were armed with powerful science, sure, but also with a very different set of skills: those of science-to-policy translation. The programme secured regulatory approval and used surveys, public meetings, channels for responding to concerns and a community reference group to test and build public acceptance. The results are a frequently-cited example of science-to-policy translation in the Australian context.[6]

The scientists had asked whether the method worked, but government and community actors asked entirely different questions: What was at risk? Who had the authority to approve it? Would it affect people's lifestyles? How would concerns be answered? On what terms should it be deployed? *Was it worth it?*

Recognising that both sets of questions were essential helped turn promising evidence into city-wide implementation. The approach has since become part of a much bigger disease-control story.[7]

This example is, of course, not the norm. It is very common to see the reverse scenario play out, and for the scientific evidence to be shelved for a host of reasons. Often, these reasons are extremely sound policy considerations. Sometimes, however, the evidence is simply lost in translation.[8,9]

Scientists have historically lamented what they saw as the limited uptake of evidence they painstakingly produce. But policymaking is not a conveyor belt onto which evidence is loaded, processed and converted into a decision. What scientists call "evidence" enters a world of institutional responsibilities, political commitments, resource constraints and competing values. Perhaps policymaking is less a science than an art—policymakers weave together competing factions, paint realistic but hopeful pictures of the future, design intricate delivery plans and architect a careful balance of risk and reward. And they do all of the above while considering whether today's decision will build—or exhaust—the public trust and political capital needed to continue to create change.

I have been struck by the recent shift in science-policy parlance from calling for "evidence-based" policymaking to the more reasonable "evidence-informed" policymaking. It's a subtle shift in language, but it belies an increasing recognition that the threads of evidence supplied to policymakers are part of a much broader tapestry. (Of course, the alternative interpretation is the denial of the significance of expertise, but, having participated in many of these conversations in the region, I am resolutely optimistic).[10,11]

That modest rapprochement notwithstanding, scientists and policymakers are often at odds. Fundamentally, the scientific endeavour seeks to reduce uncertainty. Scientists test and retest hypotheses, and they collate robust data and evidence to get closer to the provable and tangible. Policymakers are motivated by different objectives, and in the face of complex pressures, they often act while uncertainty remains. Even when decisions have significant implications, policymakers can sometimes have little time to seek certainty. Effective advice mechanisms, therefore, depend not only on the quality of the evidence but on the quality of the relationship. And that's precisely what we set out to explore.

What Seeds of Science is Testing

Seeds of Science Asia works in this complex space. Run by our team at the International Science Council Regional Focal Point for Asia and the Pacific, in partnership with the International Network for Governmental Science Advice in Asia, it supports locally designed workshops, training, focused advocacy and other practical forms of science–policy engagement, accompanied by expert mentorship. These are not conventional research grants. They deliberately pair a research applicant with a policy, government or civil-society partner who has influence or ownership in the relevant area, such that the evidence producers and the evidence consumers are on the same team from inception.[12]

The first round supported ten projects across Asia on subjects ranging from urban resilience and agriculture to open science and energy communication. The second supports thirteen projects across ten countries, six of which involve Australian partners.[13,14] Across these varied subjects lies one question: what becomes possible when locally based scientists and policy actors have the means to work on the relationship between evidence and decisions?

The grants are deliberately modest. They create an opening: a reason to meet, a shared problem around which to organise and an opportunity to learn how the other side works. And they almost necessitate co-investment—we're asking participants for modest buy-in.

Translation Must Begin Before the Evidence is Finished

One lesson from Seeds of Science is that translation is extremely difficult at the final stage of research. If scientists complete their work and only then "export" it for policymakers, the question, timetable and output have already been fixed. The evidence may be rigorous, but it can be poorly aligned with approaching decisions, meaning that productive engagement begins earlier.

The assumption that "translation" of science is some form of simplification of scientific language for a "lay" audience misses the point. Scientists need to understand what decisions are possible, who holds authority and what constraints exist. Policymakers need to grasp the strengths, uncertainties and limitations of science. Often, the first step is to ensure that everyone is trying to solve the same problem.

In Bangladesh, the project "Science for Safer Cities: Co-Designing Urban Resilience with Local Governments through Inclusive Science Communication in Bangladesh" was designed to bring scientists, local government officials and communities together around urban climate resilience.[13] Early engagement with the Department of Environment, under the Ministry of Environment, Forest and Climate Change, sharpened the focus of the whole project: the immediate policy problem was not an absence of site-specific climate information, as first thought, but the difficulty of turning it into planning tools that local authorities could use. The project consequently moved beyond a conventional workshop to co-design a science-based, locally validated framework for addressing flood risk and extreme heat in Dhaka.

The Bangladesh example captures the point. The challenge was not simply one of explaining science more clearly or producing more data. Existing scientific data had to be connected to a decision framework that local authorities could deploy within existing policymaking systems. Early engagement changed the activity itself—from a workshop about climate information to the co-design of a practical planning framework. This is what it means for translation to begin before the evidence is finished: not simplifying the answer but making sure everyone is asking the same question.

Small Can Be an Advantage

Large international programmes are essential, but their scale can make experimentation difficult. A small grant can create a different space: convening people who do not routinely meet, testing a locally appropriate format and supporting repeated contact around a concrete task.

The first result may be modest: an official who knows whom to call; a researcher who understands when advice is needed; a reframed question; or an invitation to continue the conversation. None is a policy transformation, but each can support better decisions.

In South Korea, the project "Enhancing Sustainability in Digital Infrastructure: From Local to Eco-system" convened experts in AI governance, semiconductor infrastructure, energy policy and environmental law—fields that use different vocabularies and often analyse only one part of the system. The January 2026 seminar used the proposed Yongin Semiconductor Cluster as a common case through which participants could examine resource capacity, energy supply, environmental assessment, community acceptance and procedural fairness.[15] A single seminar could not resolve those contested questions. It did, however, create a space in which they could be considered together rather than in separate professional silos.

Small-scale work should not be romanticised, however. We've all been to many a workshop, and we know that they can be forgotten, that a relationship can disappear when people change roles, and that a policy window can close. Mentorship and follow-up matter because an event alone is rarely enough.

Local Ownership Is Not a Courtesy

Asia's diversity makes a single model neither possible nor desirable. A regional organisation cannot know which question is most urgent in situ, who has the authority to act or what form of engagement will be legitimate. Local teams understand their political, cultural and institutional context in ways an external funder cannot.[16] Our role is therefore to fund, mentor, connect and learn—not to prescribe the question or import a preferred solution.

In Labangka village in East Kalimantan, Seeds of Science supported a project that combined scientific expertise with local knowledge from farmers to explore the potential of converting palm oil waste into biofertilizers. This project was designed around local agriculture realities and combined locally available materials with indigenous knowledge. These hyperlocal insights could not have been accurately described by regional organisations. The outcome was both the empowerment of communities for sustainable agriculture and the incorporation of the biofertilizer initiative into formal village planning and resource allocation. And just like that, the "evidence" crossed into policy.[17,18]

Measuring What Remains

What should count as success? Attendance figures and completed workshops tell us little about whether the boundaries have become more permeable. Immediate policy change is also not a reliable measure, as policy processes are long and influenced by many factors; so, as much as we might like to attribute decisions to Seeds of Science meetings, that is probably unrealistic.[19]

Early indicators of success may instead be relational and institutional. For instance, did participants meet again, did a policymaker seek advice before the next decision, was a question reframed to address an identified policy need, or did an institution create an advisory process or channel for evidence? Signals like these show whether a one-off activity has planted the seed (pun very much intended!) of a continuing capability.

The natural corollary is that international cooperation rests on both domestic and institutional foundations. Transboundary challenges cannot be managed if researchers and decision-makers within countries lack ways to work together. Science diplomacy begins inside science systems, where knowledge becomes options and scientists and policymakers learn enough of one another's worlds to act together.

The focus and the commitment of the extraordinary Seeds of Science participants have shown that moving evidence within a room can often be a necessary first step toward sharing knowledge globally. The boundary between the cultures of science and policymaking is not dissolved by work like this, nor should it be. But it's crossed. And it's crossed locally, repeatedly and in both directions.

References

1. McMeniman CJ *et al.* (2009) Stable Introduction of a Life-Shortening *Wolbachia* infection into the Mosquito *Aedes aegypti*. *Science,* 323(5910): 141–144. https://doi.org/10.1126/science.1165326
2. Moreira LA *et al.* (2009) A *Wolbachia* Symbiont in *Aedes aegypti* Limits Infection with Dengue, Chikungunya, and *Plasmodium*. *Cell,* 139(7): 1268–1278. https://doi.org/10.1016/j.cell.2009.11.042
3. Walker T *et al*. (2011) The *w*Mel *Wolbachia* strain blocks dengue and invades caged *Aedes aegypti* populations. *Nature,* 476(7361): 450–453. https://doi.org/10.1038/nature10355
4. Hoffmann AA *et al.* (2011) Successful establishment of *Wolbachia* in *Aedes* populations to suppress dengue transmission. *Nature,* 476(7361): 454–457. https://doi.org/10.1038/nature10356
5. Servick K (2018) This scientist convinced an Australian city to become a haven for mosquitoes. *Science*, 1 August. https://www.science.org/content/article/scientist-convinced-Australian-city-become-haven-mosquitoes
6. O'Neill SL *et al.* (2019) Scaled deployment of *Wolbachia* to protect the community from dengue and other *Aedes* transmitted arboviruses. *Gates Open Research,* 2: 36. https://doi.org/10.12688/gatesopenres.12844.3
7. The Scientist (2026) How *Wolbachia* emerged as an ally in the fight against disease vectors. 24 August. https://www.the-scientist.com/how-wolbachia-emerged-as-an-ally-in-the-fight-against-disease-vectors-74909
8. Dinesh D *et al.* (2021) Learning from failure at the science–policy interface for climate action in agriculture. *Mitigation and Adaptation Strategies for Global Change,* 26: 2. https://doi.org/10.1007/s11027-021-09940-x
9. Watson RT (2005) Turning science into policy: challenges and experiences from the science–policy interface. *Philosophical Transactions of the Royal Society B: Biological Sciences,* 360(1454): 471–477. https://doi.org/10.1098/rstb.2004.1601
10. International Science Council, International Network for Governmental Science Advice (2022) Principles and Structures of Science Advice: An Outline. https://council.science/publications/principles-and-structures-of-science-advice/

11. OECD, European Commission (2025) Strengthening National Evidence-Informed Policymaking Ecosystems: Lessons from Seven European Countries. Paris: OECD Publishing. https://doi.org/10.1787/855c5286-en
12. International Science Council Regional Focal Point for Asia and the Pacific, International Network for Governmental Science Advice Asia (2025) Call for Applications: Seeds of Science, Asia 2025. https://council.science/wp-content/uploads/2025/06/Guideline_Seeds-of-Science-Asia-3.pdf
13. International Science Council (2025) Ten new science–policy projects to shape sustainable futures across Asia. 6 November. https://council.science/news/asia-seeds-of-science/
14. International Science Council (2026) Thirteen science–policy projects to shape sustainable futures across Asia–Australia. 5 August. https://council.science/news/seeds-of-science-asia-2-recipients/
15. INGSA-Asia (2026) SOSA Workshop—Seminar on the Future of Sustainable Digital Infrastructure in the AI Era—South Korea. 23 April. https://ingsa.org/event/sosa-workshop-seminar-on-the-future-of-sustainable-digital-infrastructure-in-the-ai-era-south-korea/
16. Rahman MF *et al.* (2023) Locally led adaptation: promise, pitfalls, and possibilities. *Ambio,* 52: 1543–1557. https://doi.org/10.1007/s13280-023-01884-7
17. Universitas Balikpapan (2026) Dua Dosen Uniba Berikan Pelatihan Pupuk Organik dan Strategi Pemasaran Bagi Petani Sawit di Babulu. https://uniba-bpn.ac.id/Dua-Dosen-Uniba-Berikan-Pelatihan-Pupuk-Organik-dan-Strategi-Pemasaran-Bagi-Petani-Sawit-di-Babulu.html
18. Sipahutar MK, Indrayani I, Kansip K (2026) Empowering Palm Oil Smallholders through Biofertilizer Innovation and Policy Integration in Babulu, East Kalimantan. *Abdimas Universal,* 8(1): 272–278. https://doi.org/10.36277/abdimasuniversal.v8i1.2848
19. Morton S (2015) Progressing research impact assessment: A 'contributions' approach. *Research Evaluation,* 24(4): 405–419. https://doi.org/10.1093/reseval/rvv016

Planting Evidence Where Policy Happens: The Role of INGSA-Asia from Grassroots Awards to Seeds of Science

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Science advice becomes meaningful only when evidence can enter the places where public decisions are actually made. In Asia, these places range from national ministries and academies to municipal councils, community organisations and small enterprises. The diversity of political systems, languages, development conditions and institutional capacities across the region means that no single advisory model can serve every setting. INGSA-Asia was founded in 2017 to strengthen regional capacity by connecting policy practitioners and scientists from across Asia, supporting training, and encouraging practical research on advisory processes, principles and practices.[1] Its Grassroots Science Advice Promotion Awards, and the expanded Seeds of Science, Asia programme that followed, translate this mandate into local action. Together, the initiatives show how seed funding, structured mentorship and regional networking can turn a local policy problem into a functioning evidence-to-policy relationship.

Why Grassroots Science Advice Matters

Formal science advice is often associated with chief scientific advisers, national academies, expert councils and ministerial committees. These institutions remain essential, but many policy problems first appear at a more immediate level, where citizens, local officials and practitioners confront issues related to waste management, disease, food security, climate risks or technology transitions. Evidence can fail to reach these settings because researchers may not understand policy constraints, local contexts, cultural norms and officials may lack trusted access to relevant expertise. Grassroots science advice addresses this gap through a bottom-up approach by creating an organised space for scientists, decision-makers and affected communities to define a problem together, examine evidence and identify feasible actions through local, actionable policies. It is, therefore, not a diluted form of national science advice. It is a practical entry point through which advisory capability, trust and demand for evidence can grow from the ground upwards.

The Grassroots Science Advice Promotion Awards began as a deliberately accessible mechanism. The award program was launched in 2019 and has since provided opportunities for scientists, researchers, academics and practitioners in Asia to share their knowledge and insights on science advice with fellow members of the scientific community and policymakers in their home countries across the Asian region. In 2021, recipients received seed grants of EUR 500 and mentorship from members of the INGSA-Asia Steering Committee to organise workshops in their home countries.[2] The grant increased to EUR 1,000 in 2022 and CAD 1,000 in 2023, while collaboration with the International Science Council Regional Focal Point for Asia and the Pacific enabled awards of up to AUD 10,000 in 2024.[3-5] Across the four rounds from 2021 to 2024, 23 projects were selected in eight countries. Their subjects included open science,

disaster management, climate policy, marine plastics, women in science leadership, childhood disorders, antimicrobial resistance, zoonoses, biodiversity, science journalism and waste governance. This range demonstrates that science advice is an enabling practice that can improve decisions across many sectors.

The Role of INGSA-Asia

The central contribution of INGSA-Asia is not limited to distributing grants. The Chapter acts as a regional broker that identifies capable local leaders, connects them with experienced mentors, and gives their work legitimacy within a wider science advice network through capacity building. Mentorship helps recipients move beyond conventional academic seminars by clarifying the policy question, identifying relevant decision-makers, designing participatory sessions and producing usable outputs. The regional network allows lessons from one setting to be adapted rather than copied into another. This function is particularly important in Asia, where advisory systems range from highly embedded government structures to more plural and arm's-length arrangements.[6] INGSA-Asia therefore provides both proximity to local realities and connection to international experience.

The programme also creates a two-way learning process. Scientists learn that good advice requires more than presenting accurate findings; it requires timing, communication, awareness of institutional incentives and respect for implementation constraints. Policymakers learn how evidence is generated, where uncertainty remains and how expertise can support rather than replace political judgement. Communities and civil society organisations contribute experiential knowledge that may be absent from formal datasets. Through this exchange, a workshop can become a temporary advisory institution in which different forms of knowledge are tested against a real policy problem.

Evidence of Local Impact

Activities implemented under the 2024 awards illustrate the value of this model. In Pakistan, a workshop on science-policy integration in waste management convened more than 80 participants from academia, government, industry, non-government organisations and communities. Breakout groups on municipal, industrial and organic waste produced recommendations that were consolidated into a science-policy roadmap for relevant authorities.[7] In Bandung, Indonesia, a two-day programme brought together 150 participants and combined expert input with practical demonstrations of Black Soldier Fly technology for organic waste treatment.[8] The design linked a local environmental crisis with an accessible technological option, while bringing community members into direct contact with researchers, businesses and government agencies.

Other workshops revealed that science advice must include both products and relationships. A Malaysian initiative on reducing single-use plastics produced a practical toolkit for food vendors and event organisers, but it also identified limited participation from the vendors who would need to implement the recommendations.[9] This finding exposes a common weakness in public engagement: stakeholders may be discussed without being adequately represented. In Indonesia, a workshop for grassroots women in science generated recommendations, plans for an open-access training resource and a commitment to build a national network of women scientists involved in policy.[10] These examples show that the programme can generate immediate outputs, diagnose participation gaps and establish networks for longer-term influence.

From Grassroots Awards to Seeds of Science, Asia

The rebranding of the programme as Seeds of Science, Asia in 2025, represented an institutional expansion rather than a name change alone. The first round offered grants of up to AUD 9,500 and required a consortium comprising an applicant from an academic or research organisation and a policy-facing applicant from government, civil society, or a non-government organisation.[11] This requirement embedded co-production into the application structure instead of expecting researchers to seek policy engagement

after project design. Ten projects were selected across Indonesia, Bangladesh, China, Thailand, Malaysia, Pakistan, the Philippines, Bhutan, South Korea and Vietnam. Their themes extended from urban resilience and sustainable agriculture to open science, national fitness governance, digital infrastructure, methane reduction, seaweed farming, agri-food strategy and nuclear power communication.[12]

Seeds of Science, Asia 2.0, further expanded the model in 2026. The programme offered grants of up to AUD 15,000 for workshops, training, focused advocacy and broader activities at the institutional or national level, while opening participation to Australian collaborators.[13] This development strengthens the Asia-Australia science-policy landscape and supports comparative learning. It also shifts the programme from supporting isolated events towards cultivating portfolios of activity that can influence institutions, professional practices and national conversations. The metaphor of seeds is therefore appropriate: the purpose is not merely to finance an event, but to create conditions from which durable advisory relationships can grow.

A Form of Science Diplomacy from the Ground Up

The programme also contributes to science diplomacy. Conventional accounts often focus on negotiations among states or international agreements, but diplomacy also depends on networks that build trust before a crisis. Grassroots projects create horizontal relationships among scientists, communities, officials and organisations within countries, while INGSA-Asia and the International Science Council connect these actors across borders. Local experience can travel through the regional network, and international principles can be translated into locally legitimate practice. This movement in both directions is a form of science diplomacy from the ground up because it connects domestic evidence systems with regional cooperation without removing the authority of local actors.

The value of this distributed approach is especially clear in a region where science advice cannot be separated from the political context. Advisory systems differ in proximity to government, public trust, institutional continuity and the perceived neutrality of experts.[6] A regional platform cannot erase these differences, but it can help practitioners recognise them and choose suitable strategies. Some settings require close work with ministries, while others benefit from independent academies, civil society organisations, journalists or professional networks. By supporting multiple entry points, INGSA-Asia strengthens the resilience of the wider advisory ecosystem rather than relying on a single office or individual.

The next phase should retain three principles. First, every funded activity should begin with a clearly defined policy user and a decision that can realistically be informed by evidence. Second, mentorship should extend beyond event design to include policy briefs, follow-up meetings, stakeholder mapping, and institutional uptake. Third, the evaluation should examine not only attendance and satisfaction but also changes in relationships, advisory skills, policy demand, and the use of recommendations over time. These measures would preserve the accessibility of the grassroots model while improving evidence about impact.

INGSA-Asia has shown that regional science advice capacity can be built through carefully supported local action. The Grassroots Science Advice Promotion Awards created an entry point for practitioners who understood a problem but needed resources, guidance and policy connections. Seeds of Science, Asia has enlarged that foundation through stronger partnerships, larger grants, co-designed applications and wider regional reach. The enduring role of INGSA-Asia is to connect these local experiments, help them learn from one another and convert temporary engagement into lasting advisory capability. In a period of complex risks and fragmented trust, planting evidence where policy happens is not peripheral to science diplomacy; it is one of the most practical ways to sustain it.

References

1. INGSA-Asia (2021) Winners of Grassroots Science Advice Promotion Awards 2021. *International Network for Governmental Science Advice*.

2. INGSA-Asia (2022) Winners of Grassroots Science Advice Promotion Awards 2022. *International Network for Governmental Science Advice*.
3. INGSA-Asia (2023) Winners of Grassroots Science Advice Promotion Awards 2023. *International Network for Governmental Science Advice*.
4. INGSA-Asia (2024) Winners of Grassroots Science Advice Promotion Awards 2024. *International Network for Governmental Science Advice*.
5. Tan WH, Kunashankar A (2026) Strategy, advocacy and neutrality: reflections on the realities of science advice in Asia. *Frontiers Policy Labs*. https://doi.org/10.25453/plabs.32605203
6. INGSA-Asia (2025) Grassroots Workshop: Enhancing Science-Policy Integration in Waste Management, Pakistan. *International Network for Governmental Science Advice*.
7. INGSA-Asia (2025) Grassroots Workshop: Empowering Bandung through Black Soldier Fly Technology, Indonesia. *International Network for Governmental Science Advice*.
8. INGSA-Asia (2025) Grassroots Workshop: Empowering Food Vendors with Science Advice, Malaysia. *International Network for Governmental Science Advice*.
9. INGSA-Asia (2025) Grassroots Workshop: Science for Policy Workshop for Grassroots Women in Science, Indonesia. *International Network for Governmental Science Advice*.
10. INGSA-Asia (2025) Applications Open Now: Seeds of Science, Asia 2025. *International Network for Governmental Science Advice*.
11. INGSA-Asia (2025) Winners of Seeds of Science, Asia 2025. *International Network for Governmental Science Advice*.
12. INGSA-Asia (2026) Applications Open Now: Seeds of Science, Asia 2026. *International Network for Governmental Science Advice*.
13. International Science Council (n.d.) Seeds of Science, Asia. Available at: https://council.science/our-work/seeds-of-science-asia/

Collaboration, Competition and the Role of UK Universities in the Science Diplomacy Ecosystem

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Most global experts agree that scientists, policymakers, and other key decision-makers should work closely together to integrate science advice and research into policy decisions.[1,2] At the same time, research and higher education are becoming seen more and more as strategic and sovereign assets, with research security, talent flows and intellectual property now playing a central role in foreign policy debates.[3]

The manner in which science diplomacy is employed, whether competitively or collaboratively, is vital when navigating this complex landscape. In this environment, universities are becoming critical non-state actors, not only advancing science diplomacy but also handling the frictions that exist between scientific and foreign policy communities. For the UK, science diplomacy is not just a supportive tool, but a strategic lever to manage risk, show leadership and advance global interests.[4] The UK's ecosystem of non-state actors[5], particularly universities, helps anchor its science diplomacy efforts and spread its soft power globally.

Science Diplomacy in the UK

Greater attention is now being paid to science diplomacy as a practice in both the policy and academic spheres. The fact that recent parliamentary inquiries have been held into science diplomacy[6,7] and soft power[8] signals the UK's shift towards treating science as a strategic instrument of its foreign policy. More broadly, UK science, innovation and technology (SIT) is increasingly viewed as a source of economic strength, national security and geopolitical influence.[9] Under the new UK Government, the reorganisation of the civil service[10] further aligns SIT with trade, growth and international competitiveness, thus sharpening its contribution to national economic objectives[11] and strengthening projections of UK global leadership.

In this context, universities are part of a diverse network of science diplomacy enablers. They host international students, create long-term professional and institutional ties, and anchor global networks of researchers and research collaborations tackling global challenges.[6] Ultimately, universities draw authority from academic freedom and institutional autonomy. This underpins the qualities that can make universities useful in diplomatic settings: they can be effective conveners of science diplomacy activities through their global connections, host meetings that would otherwise be difficult to accommodate politically and have strong ambitions to tackle geopolitical issues.[8]

UK universities have an established history of putting science diplomacy into practice. With four of the top ten world-leading universities[12], including University College London (UCL), the UK has educated a significant number of current world leaders[13], which in turn has strengthened political and cultural connections to the country. Furthermore, university-led collaborations are also key to enhancing bilateral relations.

For example, UCL has more than 50 collaborations with Indian partners, including projects spanning health, engineering, environment and urbanisation.[1] In 2025, UCL's leaders visited India to strengthen partnerships with AIIMS and the Indian Institute of Technology Delhi, thereby promoting research collaborations and educational pathways on quantum computing, sensing, metrology and medical technologies. These bilateral, university-led partnerships create networks of researchers, students and policymakers, while also contributing to foreign policy objectives and improving diplomatic ties. Moreover, education and innovation are key pillars in the India-UK Vision 2035[1], which aims to deepen transnational education cooperations between UK and Indian universities. Here, scientific collaborations are enmeshed with diplomatic relations and exemplify both *science impacting diplomacy* and *diplomacy impacting science.*[14]

Broadening Participation and Perspectives into Science Diplomacy

Science diplomacy is largely dominated by Global North experiences[15,16], even though Global South approaches are becoming more influential despite facing more systemic scientific and political[17] barriers, including institutional disparities, developing SIT infrastructure, and regional complexities.[18] With unbalanced attention paid to the region's[19] science diplomacy activities, in hand with the downstream effects of global challenges being felt most acutely by the Global South – involving these perspectives is imperative.

Universities have a vital role to play in addressing this disparity. It is essential to give greater recognition (e.g. via academic research) to science diplomacy-related activities and to support the wider participation of Global South partners in international research collaborations.

Co-led by UCL and the University of Oxford, VaxHub Global[20] programme demonstrates this approach. By embedding partnerships with researchers, manufacturers and policymakers across low- and middle-income countries (LMICs), the programme helps Global South expertise shape research priorities, vaccine development and policy discussions.

VaxHub Global is focused on improving how vaccines are developed, manufactured and distributed to support global health needs with LMICs - supporting science diplomacy by:

Integrating diverse scientific perspectives into diplomacy by fostering partnerships across countries, enabling LMIC researchers/ institutions to shape global health priorities and collaborations.

Demonstrating how UK Official Development Assistance investment supports research, capacity building and collaboration in LMICs – delivering development outcomes and diplomatic dividends through long-term scientific partnerships.

Vaccine research and collaboration, being a mechanism of soft power, enhances the UK's international reputation as a leader in SIT and a trusted partner in science.

Demonstrating that science is a durable foundation for engagement, building resilient health infrastructure, strengthening trust and creating networks that endure beyond short-term political cycles.

Universities at the Centre of Collaboration and Competition

Yet, science diplomacy, and by extension, universities, are no exception to experiencing friction. The example of research security illustrates the tension within the science diplomacy ecosystem: even though openness and collaboration are essential to scientific progress, the fact that the same emerging technologies with dual-use capabilities and competition can exacerbate vulnerabilities and heighten insecurity between countries.

Universities are entrusted with institutional autonomy and are responsible for their own international research and innovation collaborations.[21] However, institutions increasingly find themselves managing these frictions and the practical realities (and scrutiny) of navigating research collaborations with global partners with national foreign policy decisions.

The UK adopts a model of secure openness, by means of initiatives like the Trusted Research Campaign and the Research Collaboration Advice Team, and has committed to delivering the UK's first Research Security Strategy. These measures help universities manage risks associated with international research partnerships, intellectual property theft, and foreign interference and further the two-way dialogue between policymakers and academics. These policies can strengthen the UK's reliability as a global research partner, reinforcing science diplomacy as a tool of soft power and international diplomacy.

For universities, it is necessary to strike a careful balance when dealing with the tensions between openness and security. Conducting due diligence, leveraging science diplomacy networks, opening dialogue with security/foreign policy officials, and strengthening academic awareness of geopolitical issues can guide open, yet secure scientific collaborations.

Can Science Stay Geopolitically Neutral?

Intensifying geopolitical competition can stymie science and research[22], for example, through scientific sanctions. Even though the number of sanctions has increased in recent times, science has simultaneously become more international. This paradox[23] creates challenges for both science and diplomacy, making it difficult for science (and universities) to stay geopolitically neutral.

Universities face compounding pressures when deciding whether or not to engage. This is affecting not only research but also funding, student recruitment, talent attraction and retention, and wider international partnerships. In the UK, the tightening of immigration policies and rise of anti-immigration rhetoric have had negative effects[24] on student visas and global scientific talent flow across borders.

Science diplomacy, when deployed collaboratively, can serve as a mechanism to both navigate and, where appropriate, work within the boundaries of these political constraints.[25] Currently, one-fifth of UK universities publicly embrace political neutrality[26] and many continue international scientific collaborations under intense geopolitical tensions, including working under scientific sanctions in North Korea.[27] The convening power and relative independence of universities are an asset in using science to pursue international relationships and continuing progress on global SIT issues where diplomatic channels are hindered by political pressures.

Universities and The Future of Science Diplomacy

As science becomes increasingly intertwined with economic competitiveness, national security, and geopolitical influence, universities are taking on ever more influential roles.

In an era of geopolitical disruption, protecting science also means supporting the institutions, partnerships and people who make international scientific collaborations possible. The role of UK universities is likely to evolve alongside global power dynamics. This will require greater awareness at both the individual and institutional levels of geopolitical issues, research security, and the impacts of the internationalisation of higher education. It is also necessary to protect the foundations that make science diplomacy effective: academic freedom, institutional autonomy, and the international exchange of people, ideas and knowledge.

Policymakers and universities should develop a better appreciation of the strengths of academic institutions as dynamic agents for science diplomacy activities, integral linchpins of global scientific networks and places that facilitate progress toward scientific solutions amid growing geopolitical turbulence. Indubitably, as Hammond and Mauduit note:

"Science diplomacy is needed more now than at any time in history, given the scale of challenges the world faces... The first step towards protecting science diplomacy must be to protect science itself."[28]

References

1. Akerlof KL, Allegra A, Nelson S, Gonnella C, Washbourne C, Tyler C (2022) Global Perspectives on Scientists' Roles in Legislative Policymaking. *Policy Sciences*, 55: 351–367. https://doi.org/10.1007/s11077-022-09457-3
2. Su B, Mauduit JC, Momberg D, Voth-Gaeddert LE (2024) Strengthening links between science and technology experts and frontline diplomats to address science diplomacy challenges. *Global Policy*, 15(5): 928–936. https://doi.org/10.1111/1758-5899.13418
3. Rüland AL, Rüffin N, Wang R, Mauduit JC (2025) The implementation of research security policies in Germany: exploring policy narratives across governance levels. *European Security*, 1–23. https://doi.org/10.1080/09662839.2025.2591708
4. Van Vliet R (2026) Science Diplomacy in an Era of Global Change. Policy Impact Unit, University College London. https://doi.org/10.14324/000.rp.10227162
5. Van Vliet R (2026) Non-State Actors in the Science Diplomacy Ecosystem. Policy Brief. Department of Science, Technology, Engineering and Public Policy and the Policy Impact Unit, University College London. https://doi.org/10.14324/000.rp.10230065
6. UCL Department of Science, Technology, Engineering and Public Policy (STEaPP) (2025) STEaPP Consultation Response – Inquiry into Science Diplomacy. https://www.ucl.ac.uk/engineering/sites/engineering/files/2025-07/STEaPP%20Response%20-%20Science%2C%20Innovation%20and%20Technology%20Committee%20Inquiry%20-%20Science%20Diplomacy%20.pdf
7. House of Commons Science, Innovation and Technology Committee (2026) Science Diplomacy: Sovereignty, strategy, and the global race. Third Report of Session 2026–27. https://committees.parliament.uk/publications/54020/documents/301051/default/
8. UCL Department of Science, Technology, Engineering and Public Policy (STEaPP) (2025) STEaPP Response - Call for Evidence: Soft power: a strategy for UK success? https://www.ucl.ac.uk/engineering/sites/engineering/files/soft_power_-_a_strategy_for_uk_success_-_call_for_evidence_-_ucl_steapp_response.pdf
9. Department for Science, Innovation and Technology (2025) Science and Technology Framework. https://www.gov.uk/government/publications/science-and-technology-framework/science-and-technology-framework#introduction
10. Cabinet Office (2026) Machinery of Government changes: Fact Sheet. *News Story*. https://www.gov.uk/government/news/machinery-of-government-changes-fact-sheet.
11. Rees G, Wilsdon J (2026) Churn, not crisis, for UK science. *Science,* 393: 439–439. https://doi.org/10.1126/science.aek8701
12. QS World University Rankings (2025) Top global universities. https://www.topuniversities.com/world-university-rankings
13. Higher Education Policy Institute (2024) HEPI Soft Power Index 2024. https://www.hepi.ac.uk/reports/the-us-pulls-further-away-in-the-latest-soft-power-index-while-the-uk-stands-still-and-france-slips-back/
14. The Royal Society and AAAS (2025) Science diplomacy in an era of disruption. Report. https://

royalsociety.org/-/media/about-us/international/science-diplomacy/science-diplomacy-in-an-era-of-disruption.pdf.

15. European Union Science Diplomacy Alliance (2025) Meeting report on 3rd meeting on Science Diplomacy and Global South: Latin American and the Caribbean countries. https://www.science-diplomacy.eu/media/Meeting-report-Science-Diplomacy-and-Global-South-Latin-America-and-the-Caribbean-May-2025.pdf
16. Ruffini PB (2017) Science and diplomacy. A new dimension of international relations. Springer Cham. https://doi.org/10.1007/978-3-319-55104-3.
17. Rüland AL, Rüffin N, Cramer K, Ngabonziza P, Manoj S, Skupien S (2023) Science diplomacy from the Global South: the case of intergovernmental science organizations. *Science and Public Policy*, 50(4): 782–793. https://doi.org/10.1093/scipol/scad024.
18. Jarquin ME, Mauduit JC (2021) Institutional Capacity for Science Diplomacy in Central America. *Frontiers in Research Metrics and Analytics*, 6: 663827. https://doi.org/10.3389/frma.2021.663827
19. Soler MG (2021) Science Diplomacy in Latin America and the Caribbean: Current Landscape, Challenges, and Future Perspectives. *Frontiers in Research Metrics and Analytics*, 6: 670001. https://doi.org/10.3389/frma.2021.670001
20. VaxHub Global (n.d.) https://vaxhubglobal.com/
21. Council of the European Union (2024) Council Recommendation of 23 May 2024 on enhancing research security (C/2024/3510). *Official Journal of the European Union.* https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C_202403510
22. Hammond JOS, Mauduit JC (2025) Global geopolitics should not stall science - 5 ways to push back. *Nature*, 645(8080): 312–314. *https://doi.org/10.1038/d41586-025-02814-1*
23. Hammond J (2023) Science and Sanctions: Lessons Learned from Twelve Years of Collaboration with the DPRK (North Korea). *Science & Diplomacy*. https://doi.org/10.1126/scidip.adl2187
24. Russell Group Students' Union UCL (2025) Written Evidence to Education committee. Higher education and funding: The threat of insolvency and international students. https://committees.parliament.uk/writtenevidence/144874/html/
25. Hammond JOS, Mauduit JC (2025) Global geopolitics should not stall science - 5 ways to push back. *Nature*, 645 (8080): 312–314. *https://doi.org/10.1038/d41586-025-02814-1*
26. Times Higher Education (2026) Fifth of UK Universities publicly embrace 'political neutrality'. https://www.timeshighereducation.com/news/fifth-uk-universities-publicly-embrace-political-neutrality.
27. Hammond JOS (2023) Science and Sanctions: Lessons Learned from Twelve Years of Collaboration with the DPRK (North Korea). *Science & Diplomacy, https://doi.org/10.1126/scidip.adl2187.*
28. Hammond JOS, Mauduit JC (2025) Global geopolitics should not stall science - 5 ways to push back. *Nature*, 645 (8080): 312–314. *https://doi.org/10.1038/d41586-025-02814-1*

MoUs Signed

ICAR and Seychelles Sign MoU to Advance Agricultural Research and Capacity Building

The Indian Council of Agricultural Research (ICAR), Government of India, and the Agriculture Department, Ministry of Fisheries, Agriculture and Blue Economy, Republic of Seychelles, signed a Memorandum of Understanding (MoU) on 1 July 2026 to strengthen bilateral cooperation in agricultural research and education. Signed during the Prime Minister's official visit to Seychelles, the MoU establishes a framework for collaboration in joint research, exchange of scientists, researchers and students, capacity building, and technology transfer. A five-year Work Plan (2026–2031) was also signed to operationalise the agreement, with a focus on climate-smart agriculture, horticulture, post-harvest management, livestock development, and sustainable food and nutritional security. The partnership seeks to strengthen institutional linkages, enhance agricultural productivity, promote innovation, and build technical capacity while addressing emerging challenges, particularly climate change and food security. The MoU further reinforces India's engagement with the Global South and ICAR's commitment to advancing sustainable agricultural development and global food and nutritional security through international cooperation.

India–New Zealand Partnership to Advance Food Technology and Innovation

The National Institute of Food Technology Entrepreneurship and Management, Kundli (NIFTEM-K), under the Ministry of Food Processing Industries, Government of India, has signed an MoU with Massey University, New Zealand, on 2 July 2026, to strengthen academic and research cooperation in food technology, food processing, innovation and higher education. The agreement provides a framework for collaborative research projects, joint applications for third-party funding, participation in seminars and academic meetings, faculty and researcher exchanges, and student mobility programmes. Dedicated coordinators from both institutions will facilitate the implementation of joint initiatives. Valid for five years from the date of the last signature, the MoU may be renewed by mutual consent and safeguards the intellectual property rights of both parties. The non-binding agreement is expected to promote international academic collaboration, facilitate knowledge exchange, advance innovation in food processing, and create enhanced opportunities for students, researchers and faculty members. The partnership reinforces India's commitment to strengthening global cooperation in food technology and sustainable food processing.

India and Brazil sign MoU to Strengthen Bilateral Cooperation in Telecommunications and ICTs

India and Brazil have signed an MoU on 21 August 2026 to strengthen bilateral cooperation in telecommunications and Information and Communication Technologies (ICTs), on the sidelines of the BRICS ICT Track Meeting in Pune. The agreement establishes a comprehensive framework for the exchange of information, experiences and best practices, while promoting collaboration based on equality, mutual benefit and mutual respect. Key areas of cooperation include telecommunications policies and regulations, Artificial Intelligence, 5G and 6G, Open RAN, Internet of Things, Direct-to-Device connectivity, Low Earth Orbit satellites, Non-Terrestrial Networks, spectrum management and digital infrastructure. The MoU also encompasses cybersecurity, universal and meaningful connectivity, digital inclusion, consumer protection, private networks, digital transition and reducing the environmental impact of ICTs. The partnership aims to advance digital innovation, strengthen technological capabilities, promote capacity building and foster international cooperation. It marks an important step towards deepening India–Brazil relations in strategic and emerging technologies, supporting resilient digital infrastructure and inclusive digital development.

Announcements

DUO-CIMEA/Italy Fellowship Programme
Submission deadline: 31 October 2026

Further information at:
https://www.ugc.gov.in/pdfnews/8894026_DUO-CIMEA---Call-for-Application-Letter.pdf

New Publications

Afrifa DA, Del Valle AC (2026) **The Scientific African Diaspora in the Nordic Region: Policy Perspectives on Strengthening Africa-Nordic Technology Collaboration.** *Frontiers in Research Metrics and Analytics*, 11: 1815969. https://doi.org/10.3389/frma.2026.1815969

Alijeva L, Gore T, MacDonald S, Rofe JS, Stahlberger M (2026) **Knowledge Diplomacy: Regional perspectives and future trends.** Manchester University Press, ISBN: 9781526189950. https://books.google.co.in/books?id=Q332EQAAQBAJ

Ayee JRA (2026) **Geopolitics and Internationalization of Universities in Ghana: The Case for Globalization for Sustainability?** In: Governing and Managing Ghana's Universities for Sustainability. Sustainable Development Goals Series. Springer, Cham. https://doi.org/10.1007/978-3-032-26884-6_9

Bolshakov SN (2026) **China's Territorial and Global Narratives in the Arctic Region. Russia and the World:** *Scientific Dialogue*, 3: 80–97. https://doi.org/10.53658/RW2026-4-3(21)-80-97

Buyuktanir Karacan D, Tapia Takaki D (2026) **From brain drain to geopolitical talent competition: scientific diasporas and the future of Global South development.** *Frontiers in Research Metrics and Analytics*, 11:1898634. https://doi.org/10.3389/frma.2026.1898634

Costa Ribeiro L, Nogueira De Paiva Britto J, Da Motta E Albuquerque E (2026) **Emergence of a global innovation system: an inter-temporal analysis through a network of networks**. *Innovation and Development*, 1–23. https://doi.org/10.1080/2157930X.2026.2704293

Csenkey K, Graver A, Ng I (2026) **Quadruple Helix Connections between Quantum Technology Clusters.** *International Journal: Canada's Journal of Global Policy Analysis*, 81(1): 33–64. https://doi.org/10.1177/00207020261425202

Dalla Vecchia Gueter D, Loss de Araujo F, Ramos Coelho A, de Marca França R, Cunha Parro V (2026) **Science diplomacy in the Global South: a case study of Brazilian participation in the PLATO mission**. *Frontiers in Research Metrics and Analytics*, 11: 1856162. https://doi.org/10.3389/frma.2026.1856162

Douglass JA (2026) **The Neo-Academic Cold War: Political Traumas and Transnational Paranoia**. *Higher Education Policy*. https://doi.org/10.1057/s41307-026-00465-z

Durmaz MF (2026) **The Quiet Architects of Türkiye's Arctic Engagement: The Rise of an Emerging Epistemic Community.** https://nordicbaltic.institute/articles/the-quiet-architects-of-tuerkiye-s-arctic-engagement-the-rise-of-an-emerging-epistemic-community

Dutta A, Borah Hazarika O, Bhuyan Gogoi R (2026) **India's digital public infrastructure diplomacy in Africa: Development goals, co-creation and structural frictions.** *South African Journal of International Affairs*, 1–18. https://doi.org/10.1080/10220461.2026.2731646

Echeverría-King LF, Bonilla K, Pantović B, Bámaca-López E, Carneiro AM, Buyuktanir Karacan D (2026) **Editorial: Linking knowledge across borders: science diasporas and global south development.** *Frontiers in Research Metrics and Analytics*, 11: 1979687. https://doi.org/10.3389/frma.2026.1979687

Echeverría-King LF, Pantović B, Bonilla K, Moreno Garcia D, González-Sarmiento E (2026) **The Venezuelan scientific diaspora as a transnational actor: knowledge circulation, STI cooperation, and development.** *Frontiers in Research Metrics and Analytics*, 11: 1870192. https://doi.org/10.3389/frma.2026.1870192

Erokhin D (2026) **Climate Dialogue as Functional Peacebuilding in South Asia: Environmental Cooperation as a Contributor to Regional Peace.** *Islamabad Policy Research Institute Journal*, 26(1): 25–45. https://doi.org/10.31945/iprij.260102

Freire-Fierro A, Pareja-Mejía D, Diele-Viegas LM, Castillo-Briceño P, Martinez-Bengochea A, et al. (2026) **Brain drain or brain circulation? a perspective from Latin American scientists.** *Frontiers in Research Metrics and Analytics*, 11: 1852571. https://doi.org/10.3389/frma.2026.1852571

Fung FM, Borges J, Souto M (2026) **Science Diplomacy in 2026: Why the EU's New Framework Matters for Chemical Safety.** *ACS Chemical Health & Safety*. https://doi.org/10.1021/acs.chas.6c00074

Gaglioti M (2026) **Perspective Chapter: The Mediterranean Sea in a Changing Planet – Combining Field Observations with Emerging Technologies.** In: Marine Biology and Ecological Oceanography. IntechOpen. https://doi.org/10.5772/intechopen.1016372

Gluckman P, Higgins A (2026) **The Science-Diplomacy Interface – Has It Changed?** *Science Diplomacy*, 9(4): 1–4.

González-Vargas P (2026) **The Abyssal Frontier: Vertical Sovereignty and the Ethics of Ocean Governance**. *Science Diplomacy*, 9(4): 15–17.

Hadley L, Ben Miled S, Clapham HE, Djaafara BA, Dyson L, et al. (2026) **How understanding the diversity of perspectives and systems in governments can increase the impact of scientific research**. *Communications Health*, 1: 13. https://doi.org/10.1038/s44528-026-00009-2

Hall RA, Tan AC (2026) **Maritime Security and the Blue Economy in Southeast Asia.** World Scientific Publishing Co. Pte. Ltd., Singapore. ISBN. 9789819831241

Heymann M, Achermann D (2026) **The epistemology and politics of climate science.** *The British Journal for the History of Science*. https://doi.org/10.1017/S000708742610209X

Hidayadi T, Zuhdi ML, Yasin HR (2026) **The strategic economic and soft-power value of Indonesia–China educational cooperation**. *Policy Reviews in Higher Education*, 1–24. https://doi.org/10.1080/23322969.2026.2705837

Homei A, Onuki J (2026) **Gender in Science Diplomacy beyond Global North and South: From Pasts toward Empowered International Politics.** *The Hague Journal of Diplomacy,* 21(2): 279–283. https://doi.org/10.1163/1871191X-bja10251

Jabbarinasir H, Khadem Makhsous Hosseini L (2026) **The Model of Applying Soft Power of Higher Education in Science Diplomacy: A Fundamental Strategy for Solving Global Challenges.** *Journal of Iranian Cultural Research*, (), e589. https://doi.org/10.22035/jicr.2026.3627.3839

Juknevičienė V, Vanagienė S (2026) **Integrating anticipatory governance and evidence-informed policymaking in frameworks for governance in European states**. *Administrative Sciences*, 16(8): 379. https://doi.org/10.3390/admsci16080379

Karacan DB (2026) **When Science Meets Geopolitics: US Policy Shifts, Talent Reconfiguration, and the Rise of South–South Collaboration**. *Science Diplomacy*, 9(4): 5–9.

Kim H, Shim M (2026) **Reconfiguring Arctic Governance: Law, Identity, and Europe - Korea Cooperation.** Janus.net, e-journal of international relations. Thematic Dossier – Geopolitics of Anxiety: Ideology, Identity, and (Un)Bordering in Contemporary Europe and Asia, 17 (1), TD3: 83–98. https://doi.org/10.26619/1647-7251.DT0626.5

Li Y, Long T (2026) **EU–China research cooperation under a "de-risking" framework: the securitisation of knowledge in EU science policy (2021–2025)**. *Asian Review of Political Economy,* 5: 13. https://doi.org/10.1007/s44216-026-00080-0

Liberatore A (2026) **Can science diplomacy help safeguard science as a global public good? Reflections on strategy, data and people**. *Royal Society Open Science*, 13(8): rsos260721. https://doi.org/10.1098/rsos.260721

Limon O, Gürdal Limon E (2026) **Arctic governance through discourse: Arctic and Arctic council observer states.** *Polar Geography*, 1–29. https://doi.org/10.1080/1088937X.2026.2699096

Limon O, Gürdal Limon E, Caymaz E, Demirayak O, Dal A, Özsoy B (2026) **Polar science diplomacy of Türkiye: the Second International Polar Year case**. *International Politics*. https://doi.org/10.1057/s41311-026-00807-z

Lüdert J, Wählisch M (2026) **The Palgrave Handbook of Science Diplomacy.** Cham: Palgrave Macmillan; 2026. https://doi.org/10.1007/978-3-032-29473-9

Malik OK (2026) **The importance of science diplomacy in agriculture for the Global South: A case study of Pakistan**. *Journal of Public Policy Practitioners*, 5(1): 1–23.

Mata F, Jesus M, Santos J (2026) **Food Safety Standards, Regulatory Paradigms, and International Trade Between the European Union, the United States, and Other Major Commercial Blocs**. *Sci*, 8(7): 166. https://doi.org/10.3390/sci8070166

McBride M (2026) **Battery Geopolitics: Balancing Industrial Power in the Race to Store Energy**. *Carnegie Endowment for International Peace*. https://www.jstor.org/stable/resrep80288

Mejia C (2026) **Science Diplomacy**. In: Komiyama H, Kajikawa Y, Mejia C, Elsamani Y, Fukushi K (Eds) AI, Innovation, and Beyond. Springer, Singapore. https://doi.org/10.1007/978-981-95-7020-1_11

Mesquita R, Lira Brito R (2026) **Tech Diplomacy**. In: Cyber, Digital, and Tech Diplomacy. Springer Briefs in International Relations. Springer, Cham. https://doi.org/10.1007/978-3-032-22423-1_5

Mickler D, Isike C (2026) **Interrogating Australia-Africa academic partnerships: Does marginality create space to rethink and innovate practice?** *Globalisation, Societies and Education*, 1–18. https://doi.org/10.1080/14767724.2026.2710682

Naisbitt A (2026) **A Soft Power 'Middle-Man': Exploring the Gendered Nature of British Council Science Programmes in the First Development Decades, 1960s–1970s**. *The Hague Journal of Diplomacy*, 21(2): 328–340. https://doi.org/10.1163/1871191X-bja10231

Okolo CT (2026) **Institutionalizing AI diplomacy in Africa.** *Science*, 393: eaei7835. https://doi.org/10.1126/science.aei7835

Oomen J, Hajer MA (2026) **The Script of the Science–Policy Interface: Performative Routines in Climate Politics.** *Global Environmental Politics*, 1–19. https://doi.org/10.1162/GLEP.a.784

Pantović B, Echeverría-King LF, Bonilla K, Moreno Garcia D (2026) **Rethinking scientific diaspora engagement models in fragile contexts: the Venezuelan case**. *Frontiers in Research Metrics and Analytics*, 11: 1864434. https://doi.org/10.3389/frma.2026.1864434

Polizzi GL (2026) **EU Science Diplomacy in the Middle East: A Comparative Study of Jordan, Israel, and Saudi Arabia.** *United Nations University Series on Regionalism.* Springer Nature. https://doi.org/10.1007/978-3-032-23392-9

Pourrashidi Alibigloo H (2026) **Science Diplomacy as an Intercultural Communicative Sphere: A Conceptual Model of Representation and Interaction.** *Journal of Iranian Cultural Research*, (), e591. https://doi.org/10.22035/jicr.2026.3623.3835

Quirion R, Allen K, Morissette C, Corbeil L (2026) **Two Ways That Science Advice Underpins Science Diplomacy**. Frontiers Policy Labs. https://doi.org/10.25453/plabs.32781393.v1

Quirion R, Corbeil L, Morissette C (2026) **Making Science Diplomacy (SD) Work: A SD Network in Québec to Impact International Scientific Policies**. Frontiers Policy Labs. https://doi.org/10.25453/plabs.33350871

Rees G (2026) **Arctic science diplomacy after Exceptionalism**. https://doi.org/10.17863/CAM.133097

Rhouma A (2026) **From Science Diplomacy to Sustainable Agri-Food Innovation: Assessing Multidimensional Contributions of the PRIMA Programme in the Mediterranean Region.** *Journal of the Knowledge Economy*. https://doi.org/10.1007/s13132-026-03473-x

Riordan N, Machoň M, Csajková LK (2026) **Space Diplomacy Toward a Legal Regime for Space Resource Activities on the Moon.** In: Bhat BS, Variath A (eds) Legal Responses to Space Resource Utilisation. Space Law and Policy. Springer, Singapore. https://doi.org/10.1007/978-981-95-8864-0_7

Rüland A, Rüffin N (2026) **Uncertainty and de facto policy design from below: the case of research security.** *Policy Design and Practice*, 1–11. https://doi.org/10.1080/25741292.2026.2699506

Saccone M, Bruschi D, Sprocati M, Stilo AM (2026) **Research Infrastructures and the Open Science Roadmap: European and Italian Strategies and Policies.** In: Cerulli G, Reale E (eds) Research Infrastructures for Open Science in Social Science Research. Springer, Cham. https://doi.org/10.1007/978-3-032-29575-0_2

Salles-Filho SLM, Pacheco CA, De Negri F, Vonortas N, Brito Dias RD (2026) **Brazilian science, technology and innovation policy: conceptual context and historical trajectories.** *Annals of Science and Technology Policy*, 10(2): 73–206. https://doi.org/10.1108/ASTP-12-2024-0035

Sharma A (2026) **The Determined Human: Science Diplomacy in the Age of the Algorithm.** *Highlights in High-Energy Physics*, 2(2): 8. https://doi.org/10.53941/hihep.2026.100008

Sharma J (2026) **India's RDI Fund and the New Imperative of Science Diplomacy.** *Science Diplomacy*, 9(4): 18–22.

Šime Z (2026**) The Aspiration towards Centrality in the European Research Area: The European Interest in Bringing the Southern Neighbourhood into the Picture**. *Studia Politicae Universitatis Silesiensis*, T. 42, s. 91–121. https://doi.org/10.31261/spus.23205

Tripalupi RI, Wulantika L (2026) **Strengthening global research networks in Asia: strategies, challenges, and an integrative literature review on sustainable development.** *Serumpun International Conference Proceedings*, 2(1): 221–229. https://iesrjournal.com/index.php/serumpun/article/view/877/477

Tsogbadrakh K (2026) **Navigating Science Diplomacy in a Multipolar World: Analyzing Mongolia's International Research Partnerships through Clark's Triangle of Coordination.** *Bulletin of Science, Technology & Society*, 1–22. https://doi.org/10.1177/02704676261468214

Val-do-Rio A, Tinkasimile A, Teo Y et al. (2026) **World Health Summit Academic Alliance Declaration: health and peace in a world in turmoil.** *The Lancet*. https://doi.org/10.1016/S0140-6736(26)01760-5

Vallejo Jr BM (2026) **Science Diplomacy, the Blue Economy, and Fisheries.** *Maritime Security and the Blue Economy in Southeast Asia*, 39–67. https://doi.org/10.1142/9789819831241_0003

Van Vliet R (2026) **Science Diplomacy in an Era of Global Change.** Policy Impact Unit, University College London. https://doi.org/10.14324/000.rp.10227162

Van Vliet R (2026) **Non-State Actors in the Science Diplomacy Ecosystem.** Policy Brief. Department of Science, Technology, Engineering and Public Policy and the Policy Impact Unit, University College London. https://doi.org/10.14324/000.rp.1023006

Vanackère F, Boggio A, Escher G, Evrard M, Faude B, et al. (2026) **Building a data-driven and complexity-aware digital infrastructure for effective multilateralism.** *Science in Diplomacy Lab Policy Report No 1. Geneva, Switzerland.* https://eprints.gla.ac.uk/389470/1/389470.pdf

Vieira L, Figueirôa SFdM (2026) **Turning Domestic Science Learning into International Cooperation Strategies: Branca de Almeida Fialho and the Maison du Brésil in Paris in the 1940s.** *The Hague Journal of Diplomacy*, 21(2): 285–299. https://doi.org/10.1163/1871191X-bja10246

Wei Y, Yao Y (2026) **Drawing boundaries of pursuit and response of digital rise: TikTok as a friction space of techplomacy**. *Journal of Information Technology & Politics*, 1–15. https://doi.org/10.1080/19331681.2026.2710653

Whitney KM, Peters RM, Mishra A, Blum AG, Oddo PC, Brauman KA, Gutierrez AL, Bolten JD, McCarthy MJ, Sánchez A (2026) **Integrating science for water security governance.** *Global Environmental Change*, 100: 103222. https://doi.org/10.1016/j.gloenvcha.2026.103222

Zhang J (2026) **Chinese Women Diplomats in Science and Technology Diplomacy: Historical Narrative and Gender Discourse.** *The Hague Journal of Diplomacy*, 21(2): 300–314. https://doi.org/10.1163/1871191X-bja10237

Forthcoming Events

The Anticipation Summit 2026

Date: October 14-15, 2026

Further information at:

https://www.gesda.global/geneva-science-diplomacy-anticipation-summit/

The Role of Research & Technology Infrastructures in Science Diplomacy

Date: October 28, 2026

Further information at:

https://www.guestbooster.be/sesame-symposium/index.php

Reinventing Science Diplomacy in a Changing World

Date: November 9, 2026

Further information at:

https://ingsa.org/divisions/fmstan/fmstan-10/

Fourth Chief Science Advisors Roundtable

Date: November 10, 2026

Further information at:

https://www.unesco.org/en/articles/fourth-chief-science-advisors-roundtable-trusted-advice-world-plural-knowledge

Science Forum South Africa 2026

Date: December 2-4, 2026

Further information at:

https://www.esastap.org.za/science-forum-south-africa-2026/