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Task Force 06

STRENGTHENING MULTILATERALISM AND GLOBAL GOVERNANCE

Science Diplomacy - A Pathway for Achieving the Sustainable Development Goals

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Abstract

To achieve the United Nations 2030 Agenda for Sustainable Development, science and cutting-edge technology are crucial. However, recent challenges like the Russia-Ukraine crisis, Israel-Palestine conflict, US-China tech rivalry, and COVID-19 highlight competition over collaboration in S&T advancement, along with limitations of existing multilateralism. The significance of S&T in multilateralism has risen. Science diplomacy has emerged as a vital tool for cooperation and informing diplomacy negotiations. It can serve as a means to advance foreign policy objectives and a catalyst for fostering peace and sustainable development. Therefore, this policy brief focuses on the need for mainstreaming science diplomacy to foster global cross-sectoral partnerships and collaboration. It can be accomplished by disseminating information, best practices, and policy recommendations among stakeholders. The main objective is to explore how science diplomacy can support the G20 in building a strategy that could enable countries to achieve SDGs. The policy brief discusses approaches for applying science diplomacy to enhance their efforts towards sustainable development and contribute to attaining the SDGs. Science diplomacy is recognised for its role in evidence-based decision-making and fostering Science, Technology and Innovation. It promotes collaboration, knowledge-sharing and capacity-building among nations. Cross-border cooperation and partnership in science and technology can enable the transfer of knowledge and expertise to countries, exchange of best practices and innovative approaches, and nurture technological advancements towards achieving the SDGs. This approach promotes equitable development and effective implementation of the SDGs globally by supporting countries with limited resources or capacity.

Keywords: Cooperation and Collaboration, Global Goals, Science & Technology, Science Diplomacy, Sustainable Development Goals

Diagnosis of the issue

1. An introduction

In 2015, the global community adopted the United Nations 2030 Agenda for Sustainable Development. They committed to a comprehensive framework encompassing health, education, the environment, peace, justice, security, and equality through an ambitious set of interlinked Sustainable Development Goals (SDGs). At the halfway point of the Decade of Action for the 2030 Agenda, progress is far off track (GSDR, 2023). Projections show that the world will not achieve the SDGs by 2030 (BMGF, 2022). Recent geopolitical tensions, global economic instabilities, natural disasters, and the COVID-19 pandemic have severely hampered progress towards achieving the 2030 agenda (GSDR, 2023).

The *Global Sustainable Development Report* (GSDR) *2023* also underlines the need for accelerated transformative action, emphasizing the role of science in driving sustainable pathways. This underscores the limitations of existing multilateralism and emphasizes the need for enhanced collaboration and cooperation in science and technology (S&T) advancements. Science diplomacy has emerged as a crucial tool for promoting scientific and technological cooperation, informing diplomatic negotiations, aligning foreign policy objectives, and advancing peace and sustainable development (UNESCO, 2017).

There is merit in mainstreaming science diplomacy to facilitate global cross-sector partnerships and collaborations. By disseminating information, sharing best practices, and providing policy recommendations, stakeholders can harness the power of science diplomacy to advance the 2030 Agenda for sustainable development. Through specific examples and references, this brief explores how science diplomacy can support the G20

in developing strategies for SDGs achievement, outlining practical approaches for leveraging science diplomacy to enhance sustainable development efforts.

2. Understanding science diplomacy

There has been renewed interest in science diplomacy from the early years of the present century. The Royal Society and the American Association for the Advancement of Science (AAAS) 2010 report - 'New Frontiers in Science Diplomacy', proposed a three-dimensional definition of science diplomacy. It includes:

- informing foreign policy objectives with scientific advice (*Science in Diplomacy*);
- facilitating international science cooperation (*Diplomacy for Science*);
- using science cooperation to improve international relations between countries (*Science for Diplomacy*).

These dimensions form the basis for today's theoretical and practical understanding of science diplomacy. However, the existing literature primarily focuses on science diplomacy initiatives and practices concerning the Global North. The understanding essentially has an element of 'soft power' (Siddhartha, 2019). The Global South has been severely under-represented in the science diplomacy discourse (Polejack et al., 2022). Despite a growing commitment to diversity and inclusion, the Global South is largely viewed more as a science diplomacy target than an actor. Their role has been considered primarily in their participation in the Intergovernmental Science Organisations, which constitute an important science diplomacy arena for the participating countries (Ruland et al., 2023).

3. Role of science diplomacy in achieving the SDGs

Understanding the connection between the SDGs and science diplomacy is crucial, as science diplomacy can significantly contribute to implementing the SDGs. International scientific collaborations facilitate the exchange of knowledge, data, and research findings, thus enhancing evidence-based decision-making and promoting innovation. A robust science-policy interface enables scientific research to translate into actionable outcomes that inform SDG policy decisions. Bridging the gap between science and policy through an efficient science advice mechanism enables policymakers to make evidence-based choices.

Science diplomacy can act as both a means and a tool to foster international cooperation and build international partnerships to achieve Global Partnership for SDGs (Goal 17). It helps address common global challenges and other SDGs by leveraging science to build S&T capacity both nationally and globally. These partnerships facilitate the development of innovative, science-based solutions. Furthermore, science diplomacy can bridge countries with strained or no diplomatic relations, enabling a robust science-policy interface for evidence-based advice and actions. By doing so, it supports the monitoring and achievement of interconnected SDG targets worldwide. Thus, science diplomacy is essential for building and sustaining global partnerships for SDGs.

The science diplomacy narrative has to broaden its objectives from a mere soft power stance towards cultivating knowledge-sharing and capacity-building among nations. This can be achieved by promoting the exchange of best practices, innovative approaches, and technological advancements in various fields related to the SDGs. It involves fostering cross-border cooperation and partnership in S&T by facilitating the transfer of scientific knowledge and expertise to countries that may lack the necessary resources or capacity. Such an approach favours equitable development and achieving the SDGs. The SDGs

encompass economic, social, and environmental objectives to tackle wicked problems. They require extensive international cooperation for their successful implementation. This cooperation entails creating enabling policy environments, boosting human capacity, mobilising and effectively utilizing public funds, promoting trade, catalysing transformative change through science, research, technology, and innovation, mobilizing the private sector and capital, maximizing the benefits of migration, and overseeing accountability and review.

Recommendations for mainstreaming science diplomacy

International scientific collaborations are vital for pooling resources, expertise, and knowledge to tackle complex global challenges. These collaborations enable countries to leverage each other's strengths, resulting in more comprehensive and innovative solutions. Such a collaborative approach is exemplified in critical areas such as climate change mitigation and the transition to renewable energy. For instance, collaborative efforts among nations, facilitated by science diplomacy, can lead to the development and dissemination of clean energy technologies essential for reducing greenhouse gas emissions and combating climate change. The International Solar Alliance (ISA) serves as a prime example of how science diplomacy can promote solar energy adoption globally, fostering technological innovation, enhancing energy access, and contributing to SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action). Another prominent initiative is the Global Research Alliance on Agricultural Greenhouse Gases (GRA). It brings together over 60 countries to address the challenge of reducing greenhouse gas emissions from agriculture while ensuring food security.

Despite the potential benefits, inequities in scientific collaboration often persist, with developing countries frequently marginalized. Thus, it is essential to promote equitable partnerships where all parties have a say in setting research agendas and priorities. Ensuring that scientific collaborations are mutually beneficial can enhance the sustainability and impact of these initiatives (Mariani et al., 2022). An inclusive science diplomacy should ensure knowledge-sharing, capacity-building, and the transfer of scientific expertise, particularly to resource-constrained nations. Open access to scientific data and research findings can enable countries to leverage each other's strengths, resulting in more comprehensive and innovative solutions. International scientific

collaborations are vital for pooling resources, expertise, and knowledge to tackle complex global challenges and contribute to the collective benefit of humanity in achieving the SDGs. Mainstreaming science diplomacy would involve designing an inclusive framework that should:

- Prioritise the Global South Narrative: The AAAS/RS framework needs to be reviewed in light of the requirements of the Global South (Flink, 2022). Meanwhile, the diversities and differences between the countries of the Global South also need to be considered. The Global South narrative must go beyond mere participation in intergovernmental science organisations. Science diplomacy enables them to pursue a multitude of political and scientific objectives, ranging from capacity-building to breaking political isolation. The distinct role of the Global South in science diplomacy in terms of access, influence, S&T capacity building, and tackling national and common issues needs to be further studied and highlighted.
- Promote Multilateral Partnerships: Encourage governments, international organizations, and civil society to prioritize science diplomacy to achieve the SDGs, emphasizing inclusivity and equitable participation while leveraging mechanisms such as the technology facilitation mechanism to enhance accessibility and utilization of scientific advancements for sustainable development.
- Invest in Science Education and Research Infrastructure: Allocate resources to enhance science education and research infrastructure, particularly in developing countries, to build scientific capacity and facilitate meaningful participation in global scientific collaborations.
- Establish Knowledge Exchange Platforms: Create robust platforms and networks for sharing scientific expertise, data, and best practices among nations, focusing on areas relevant to SDG implementation. This would enhance collaboration and communication

among scientists, policymakers, and society, ensuring that scientific insights effectively inform policy decisions.

- Strengthen Science Diplomacy Training: Develop comprehensive training programs for diplomats, scientists, and policymakers to enhance their understanding of science diplomacy principles and practices, including negotiation and conflict resolution skills, fostering effective collaboration towards SDG attainment.

- Promote Inclusive Dialogue and South-South Collaboration: Ensure that discussions and decision-making processes within the G20 and associated forums are inclusive of low-income countries, fostering meaningful collaboration and exchange of ideas. Additionally, it encourages collaboration among low-income countries themselves, as well as with other developing and developed nations to share best practices, innovative approaches, and scientific expertise in addressing common development challenges.

Scenario of Outcomes

1. Challenges and opportunities in mainstreaming science diplomacy

Despite its potential benefits, mainstreaming science diplomacy faces several challenges, including political barriers, resource constraints, and ethical considerations. Geopolitical tensions and national interests may hinder scientific cooperation, while limited funding and infrastructure in some countries impede meaningful engagement in science diplomacy initiatives (Thompson, 2018). Additionally, disparities in research ethics standards across nations require mechanisms to ensure ethical conduct and equitable benefits from scientific collaborations. Addressing these challenges requires concerted efforts to foster trust, promote equitable access to resources, and establish frameworks for transparent collaboration in S&T globally.

However, opportunities exist to overcome these challenges and leverage science diplomacy to achieve the SDGs. The successful implementation of the SDGs at national, regional, and global levels can be enhanced through innovative systems and science diplomacy (Saner, 2015). Strengthening international partnerships and fostering inclusive collaboration can enhance the impact of science diplomacy initiatives. Investment in science education and research infrastructure, particularly in developing countries, can build scientific capacity and facilitate meaningful participation in global scientific collaborations. Moreover, establishing knowledge exchange platforms and networks can facilitate sharing scientific expertise, data, and best practices among nations, promoting evidence-informed policymaking and innovation. Therefore, it is imperative to prioritise and address these global challenges with the support of science diplomacy to effectively work towards achieving the SDGs.

2. Global health and pandemic preparedness: an example

The COVID-19 pandemic has underscored the importance of science diplomacy in addressing global health crises and pandemic preparedness. International scientific cooperation, facilitated by organizations such as the World Health Organization (WHO), has been instrumental in coordinating research efforts, sharing data, and developing vaccines. The WHO's COVAX program focussed on the equity of vaccines for all countries, particularly in 92 lower-income countries (Singh & Chattu, 2021). Throughout the pandemic, scientists and researchers from different countries collaborated on studying the virus, its transmission dynamics, treatment strategies, and vaccine efficacy. The Global Research Collaboration for Infectious Disease Preparedness facilitated data sharing and research collaboration, enabling a comprehensive understanding of COVID-19 and informing global response efforts.

By leveraging science diplomacy, nations can strengthen their collective responses to future health emergencies, contributing to SDG 3 (Good Health and Well-being) and SDG 17 (Partnerships for the Goals), among others.

3. Role of G20 in fostering science diplomacy

The G20, composed of developed and emerging economies, holds considerable potential in steering the course toward sustainable development. Representing nearly two-thirds of the global population, 75 per cent of global trade, and 85 per cent of the world's GDP (OECD, 2021), the G20 countries collectively wield significant influence. Additionally, they boast approximately 88.8 per cent of the world's researchers and contribute 93.2 per cent of research spending while producing 90.6 per cent of scientific publications (Schneegans et al., 2021). With such substantial resources at their disposal, the G20 nations bear the responsibility of addressing pressing global priorities, including

green development, climate finance, inclusive growth, digital economy, public infrastructure, technology transformation, and women's empowerment, to foster socio-economic progress.

The G20's commitment to sustainable development is evident through initiatives like the 2016 Action Plan and High-Level Principles, which contribute to implementing the 2030 Agenda and SDGs (G20, 2016). Stimulating innovation is recognized as vital for sustainable development, as reflected in agreements like the Blueprint on Innovative Growth (2016). The G20 also emphasizes cooperation on technology and knowledge-sharing to achieve SDGs, with science diplomacy as a crucial component in facilitating such collaborations. Since the adoption of the 2016 Action Plan, G20 Leaders have consistently recognized the G20's key role in contributing to the 2030 Agenda. Recent reports, such as Vivek et al. (2024), highlight the positive impact of international research collaboration among G20 countries on productivity and citations. The G20 has played, and will continue to play, an essential and unique role in progress towards the 2030 Agenda for Sustainable Development.

4. Way forward

The outlook for science diplomacy appears promising, with international collaborations emerging as a cornerstone of our progress. Through strategic partnerships with other nations and organizations, we can leverage our collective expertise to achieve SDGs that may elude individual efforts. By pooling resources and sharing knowledge, we have the potential to unearth solutions that benefit humanity on a global scale. Recognizing that the responsibility for achieving the SDGs extends beyond governments, action is required at all levels. International diplomacy, mediation efforts, and promoting shared interests can mitigate the impact of political tensions and create an enabling

environment for sustainable development initiatives. As we cultivate an atmosphere of creativity and cooperation across borders, the future of science diplomacy holds immense potential for transformative innovation. At the same time, it is essential to note that science diplomacy doesn't take place in a vacuum; the political context plays a critical role. Technological Sovereignty and Technonationalism have emerged as major trends in the post-COVID world and are impacting international relations in science and technology. These issues have led to the prevalence of competition over collaboration, adversely affecting science diplomacy and international science relations. It is crucial to take these factors into account and strengthen our efforts towards science diplomacy. It is also necessary to evolve a more robust, diverse, inclusive and pragmatic science diplomacy to achieve SDGs.

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