

## PROFEEDBACK POLICY BRIEF

# SCIENCE DIPLOMACY FOR SUSTAINABILITY IN HIGH EDUCATION INSTITUTIONS IN EUROPE

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Sustainability and Science Diplomacy in High Education Institutions (HEIs) in Europe, is prepared under the Virtual Mobility Grant of Cost Action CA20112. It presents an empirical argument for the EU policies related to the unexplored field of science diplomacy and the contribution of HEIs in this aspect. It highlights the relevance of this subject, and its role for strengthening international collaboration and knowledge exchange between science, policy, and diplomacy. The policy brief highlights the importance of integrating sustainability and science diplomacy in HEIs. It concludes with implication for policy changes to enhance the role of universities in addressing sustainability challenges. The Virtual Mobility grand through a process of collaboration between two experts, contributes to strengthening the cooperation in this COST Action members and creates the basis for further collaboration. The insights can be further advanced and used for future work in this subject. Based on this, Cost community can conduct further analyses and studies in this subject.

### **1. Background of Science Diplomacy in the Context of Sustainability Challenges**

The scientific discourse around sustainability and Science Diplomacy(SD) has gained prominence as global challenges become increasingly interconnected and urgent, emphasizing the need for interdisciplinary approaches, where science, policy, and diplomacy converge to address critical issues like climate change, energy security, and global health, etc. As Higher Education Institutions (HEIs) are primary drivers of innovation, the integration of sustainability and science diplomacy into their frameworks is crucial. This enhances their role in global governance, shaping future leaders to navigate complex international relations with a science-based, cooperative mindset.

There is no clear definition for Science Diplomacy, understood in different ways by practitioners. Nevertheless, it is not just a merge of two disciplines, but rather a holistic interexchange of knowledge and methodologies between them (Ruffini, 2017). It is a rapidly expanding field of research, education, and practice focused on strengthening the links between science, technology, and international relations to address both national and global challenges (Ruffini, 2020). The three main categories such as: 1) Science in Diplomacy- informing foreign policy objectives with scientific advice; 2) Diplomacy for Science - facilitating international science cooperation; 3) Science for Diplomacy- using science cooperation to improve international relations between countries, were first conceptualized by the Royal Society and the American Association for the Advancement of Science (AAAS) in 2009. These categories highlight the intersection of science and international relations, for specific niches such as science diplomacy, climate diplomacy, education diplomacy, water diplomacy, cyber

diplomacy, tech-plomacy etc. (Melchor et al. 2020).

Science Diplomacy in the European Union grounded in the EU's objectives of unity, innovation, and global partnership, has developed into a structured approach that promotes sustainable development, resilience, and the advancement of European values on the international stage (European External Action Service, 2024). For example, German science diplomacy is effective due to strong connections between scientific institutions and diplomatic bodies, fostering extensive collaboration. Many scientific organizations have embraced the principles of science diplomacy, including the German Research Foundation (DFG) which has integrated these concepts into its international strategies. Additionally, Germany has deployed over 50 science diplomats across embassies worldwide to facilitate global scientific partnerships (Müller, et al. 2021).

The EU accounts for almost a quarter of global science and technology production and SD approach to EU research and innovation is substantiated in three policy goals: Open Science, Open Innovation, and Open to the World (Lacunza, et al. 2020). The first science diplomacy cluster for regional science diplomacy in the EU is formed by three Horizon 2020 projects—EI-CSID, InsSciDE, and S4D4C, which offer governance frameworks, strategic insights, and training programs for diplomats and scientists, (Elorza, et al. 2021). In this framework, the EU Science Diplomacy Alliance was launched to further develop joint research projects, capacity building and training activities (such as open online courses, summer schools, trainings, etc.) ([The European Union Science Diplomacy Alliance](#)).

The EU as a leader in addressing global sustainability challenges, through the European Green Deal, which involves policy implementations across many fields: energy, industry, agriculture, mobility, environment, financing, etc., is aiming to become the first climate-neutral continent. Addressing these challenges requires a multi-facets approach, and integration of science, policy, and international cooperation, especially when global commitments for sustainability and the 17 Sustainable Development Goals-SDGs, and issues that they represent (such, climate change, biodiversity loss, reduction of consumption, pollution, etc.) were undermined by COVID-19 pandemic (Shulla and Leal, 2022).

SD can play a crucial role in fostering international collaboration on scientific and environmental issues, yet it is often discussed in fragmented ways (Turchetti and Lalli 2020). The interlinkages between sustainability and science diplomacy are underexplored. Science, technology is increasingly intertwined with international relations on cross-border issues such as climate change or global pandemics, but there is a necessity to bridge the gap between the scientific and diplomatic

communities. The 2030 Agenda for Sustainable Development can be a useful framework in this context. It is adopted by all United Nations Member States in 2015, and it a transformative global framework. The 2030 Agenda comprises 17 Sustainable Development Goals (SDGs), 161 Targets and 234+ indicators, aimed at eradicating poverty, reducing inequality, combating climate change, and ensuring sustainable economic growth and social inclusion. The 17 SDGs aim to measure the world's most pressing issues, more specifically related to: No poverty (SDG 1); Zero Hunger (SDG 2); Good Health and Well-being (SDG 3); Quality Education (SDG 4); Gender Equality (SDG 5); Clean Water and Sanitation (SDG 6); Affordable and Clean Energy (SDG 7); Decent Work and Economic Growth (SDG 8); Industry, Innovation and Infrastructure (SDG 9); Reduced Inequalities (SDG 10); Sustainable Cities and Communities (SDG 11); Sustainable Consumption and Production (SDG 12); Climate action (SDG 13); Life Below Water (SDG 14); Life on Land (SDG 15); Peace, Justice and Strong Institutions (SDG 16) and Partnerships for the Goals (SDG 17). The 2030 Agenda emphasizes a collaborative approach, calling for partnerships among governments, civil society, academia, and the private sector. It highlights the interconnectedness of economic, social, and environmental dimensions of development, ensuring no one is left behind. By fostering innovation, mobilizing resources, and promoting global solidarity, the 2030 Agenda aspires to create a more sustainable and equitable world for present and future generations. The 2030 Agenda has enhanced the need for science-advice in policy making, and scientifically informed decision making, although with a limited political impact on global national and local governance (Biermann, 2022). Combining the SDGs with Science Diplomacy in the HEIs, would contribute to the collective commitments for sustainability.

## 2. High Education Institutions Contributions to Science Diplomacy for Sustainability

The global commitments to sustainability objectives, such as the 2030 Agenda for Sustainable Development, Paris Agreement, the recently adopted the UN Pact for the Future, etc. have increase the importance of science diplomacy for sustainability for universities. Yet, science diplomacy lacks a formal educational path and training opportunities remain limited. There is mainly no structured involvement of SD, in the curricular and extracurricular activities of universities. Global sustainability issues and the SDGs have to be involved in teaching modules, so the young generation can have the needed knowledge and the encouragement to solving these issues (Mauduit and Gual-Soler, 2020).

Universities engagement for science diplomacy is a multi-facet approach, for example by connecting local, national, and international levels in cross-border scientific collaborations and building good neighborhoods relations; contributing to SDGs implementation; through research, teaching, and community leadership; connecting students, professors and researchers globally, providing resources to governments and organizations; offer physical spaces (e.g., laboratories, conference halls) for science diplomacy activities. Furthermore, HEIs can foster a SD culture, train future science diplomats, contribute in a global knowledge sharing and advocate for open science (UFM, EU, 2024). However, HEIs are largely absent in both science diplomacy literature and practice. There are initiatives that may contribute to the field (e.g. summer schools and workshops on science diplomacy). On a global level, some universities, such as Georgetown, Harvard, Rockefeller, and MIT, have already pioneered programs that merge science and international relations (Elorza, et al. 2021). The EU funded programs such as, Erasmus+, Horizon Europe, etc.), foster academic exchanges and build long-term research partnerships in sustainability and science, but they have to assure greater participation and engagement especially to the countries that aspire to join the EU.

Sustainable Development Goals (SDGs) can be a tool for universities that can foster inter-cooperation between scientific communities enforcing a sense of commitment. The 2030 Agenda for Sustainable Development has formed a community of young science diplomats around the world, seized by the UN Pact for the Future, Youth and future generations (Chapter 4) adopted in September 2024, by UN member states. [Can Summit of the Future Support Sustainability Science Diplomats? – SDG Knowledge Hub \(iisd.org\)](#). Scientists and students involved in SDGs research are expected to have opportunities to interact with policy-makers, politicians, diplomats and national and international government organizations, as well as with media and/or industry as active agents of Science Diplomacy (UNIDO 2022). Including the SDGs goes beyond research and education, because universities are centers of partnerships with cities, local and regional organizations, government and ministries, and innovators and businesses to solve sustainability issues (Luedert, 2024). Despite an increase in involvement of the SDGs in HEIs, main challenges for their implementation are related to lack of connection between the courses and the goals, lack of knowledge in how to conduct teaching on the SDGs, no sufficient support from the administration, lack of materials or resources and sometimes no interest or motivation from students (Leal et al. 2024). Nevertheless, universities can scientifically back up the implementation of the SDGs, by improving knowledge for the SDGs; conducting systematic analyses and modelling for the identification of interlinkages between the SDGs. They can contribute to informed decision-making for defining future strategies and areas of transformation; inventing

new technologies to address sustainability challenges; Universities can conduct 'Voluntary University Reviews' for the SDGs, including teachers and students in the process, to increase awareness in these institutions and incorporate the SDGs in teaching and learning (Shulla and Leal, 2022). A structured engagement of the universities for the SDGs would also contribute to the field of Science Diplomacy.

### 3. Implications for Policy and Practice

Science Diplomacy it's a new growing field of research that requires evaluation. This policy paper gives an overview of the concept and highlights the importance of improving policies related to HEIs engagement in science diplomacy with focus on sustainability. This can facilitate regional development, promoting innovation, and addressing global challenges through collaborative research initiatives, knowledge exchange and mobility among researchers. The policy brief highlights the importance of a structured involvement of Science Diplomacy for Sustainability in the HEIs, suggesting the SDGs as useful tool in this aspect.

Several implications for policy and practice are recommended which can contribute to policy changes and enhance the role of universities in addressing sustainability challenges, and the overall role of EU in global science diplomacy outreach. These include:

- Including Science Diplomacy in the curricula in HEIs, in the context of global sustainability objectives;
- Including Science Diplomacy for Sustainability in extra-curricular activities in HEIs, in connection to a wide ecosystem of actors, for fostering knowledge exchange between scientists, policymakers, and diplomats;
- Prepare the ground for capacity building and next generation of sustainability-science diplomats, considering the UN "Pact for the Future";
- Increasing funding for research and exchange in Science Diplomacy for Sustainability;
- Preparing teaching modules and methods for including the SDGs in the curricula and Extracurricular activities as a tool for Science Diplomacy;
- Exploring 5.0 Society and Industry (which provides a vision of industry that aims beyond efficiency and productivity as the sole goals, and reinforces the role and the contribution of industry to society) for expanding the ecosystem of actors around HEIs;
- Highlight Science Diplomacy in the "EU Strategy for Universities", and in the sustainability strategies of HEIs.

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