

## SCIENCE DIPLOMACY FOR ENVIRONMENT: GLOBAL OUTLOOKS AND GREEN DIGITAL DIPLOMACY AS A NEW APPROACH IN THE EU ENVIRONMENTAL DIPLOMACY

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### Abstract

The interaction between the environment and the digital world is close. In the international context, environmental sustainability is a working track within the Internet Governance Forum at the UN. Addressing environmental and digital issues together is also demonstrated at a regional level by the policy efforts of the EU and its Green Deal. Firstly, environmental diplomacy is an intersection where policymakers, scientists, and diplomats can jointly elaborate on the complex interplay between technological developments, global societal impacts, and the environmental issues outlined. The environment and digital technologies are critical pillars for humanity's future, and they are increasingly becoming integrated into global politics and international relations. Environmental diplomacy as a tool for humanity to jointly manage future risk scenarios is highlighted. Secondly, based on a comprehensive description of real political processes, an argumentative analysis model of green digital diplomacy as a new approach in EU environmental diplomacy is developed. Concrete fields of action for the necessary state, civil society, and company-related actions are demonstrated, and specific recommendations for this process are hereby expressed.

**Keywords:** science diplomacy for the environment, global politics, international relations, global warming, green digital diplomacy, EU environmental diplomacy, European Green Deal.

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**T**he article content. Overall, environmental conventions as outcomes of science diplomacy for the environment can be classified into two general categories: conventions governing the use of natural resources and conventions regulating pollution [34]. In international

environmental politics, there was a shift away from bilateral to multilateral treaties and later to internationally legally binding conventions, which are open for accession to every state. This turn has been an appropriate response to a growing awareness in the international community

that the most serious threats to humanity derive from global environmental risks. "In the last decades, the proliferation of scientific knowledge about global warming [18; 19; 21; 29; 36] and planetary boundaries [26; 37] along with a public awareness of trust in science, were core drivers in shaping the course of science diplomacy for the environment. Environmental diplomacy [1. — p. 66; 13; 23; 27; 32] as defined here provides important insights into global politics and international relations in order to address humanity's greatest challenge: global warming. Furthermore, environmental diplomacy is interpreted as an area of global governance [9], which will have a crucial impact on shaping global politics, international relations, and human security as humanity is facing increasing environmental threads [33. — p. 14]. "Science diplomacy here plays an orchestrating role in intersecting environmental governance fields and global environmental governance." [39]

The analysis of science diplomacy for the environment is first put in a global context and then in a regional context by discussing the environmental policy by the EU in reference to declarations passed by the regional organization in 2021 and its nexus to diplomacy as well as security issues. Only the symbiosis of global, regional (like the EU et al.) and national political processes with the corporate sector can strengthen human security in regions and around the world and guarantee its stability.

With a global outlook and based on a normative approach, science diplomacy for the environment is discussed in the following six subject matters:

The *first* point addresses the interplay of global warming and its nexus to violent conflicts and peacebuilding. A complex relationship exists between environmental, climate issues and violent conflicts [14; 25; 30; 38]. Exploring potential pathways through which global warming will aggravate existing conflict scenarios or increase the occurrence of armed con-

flicts is a highly discussed agenda for the international scientific community. Scientists from the German Advisory Council on Global Change have already pointed to worldwide conflict scenarios because of global warming in their 2007 report, "World in Transition: Climate Change as a Security Risk" [5]. There should be a global and cross-disciplinary discussion about the future challenges that global warming poses for peacebuilding. Furthermore, environmental catastrophes can also negatively impact the outcome of peace processes. Simultaneously, the openings that global warming brings up for promoting the prospects of peace have to be analyzed as well. "There is a discourse on how joint environmental risks resulting from global warming can be a driving force for multilateral cooperation and, as such, can assist to mitigate tensions, enable establishing trust, and ultimately foster global stability and sustainable peace" [39].

The *second* issue relates to *cross-disciplinary research on global warming as a worldchanging (scientific) breakthrough*. The main message for scientists across the globe here is that we are in this all together. To form a common response, global institutions are needed. Otherwise, it will be a lost opportunity for humanity. Rebuilding trust about digital and environmental issues for digital and environmental-related governance is a necessity for humankind. Digital, as well as environmental aspects, illustrate the global connections of every human on this planet. So how will scientists communicate their findings in the future? The intersection among scientists, diplomats, and policymakers is crucial to facing global warming as the most vital challenge for humankind in this century. Regarding science, the future must be driven by cross-disciplinary research, and those scientists have to think outside disciplinary containers". Breaking down the barriers between disciplines is one lesson learned from the COVID-19 pandemic. There was a breakthrough because scientists

came together, shared data, and as such, proved their commitment to addressing this universal challenge of humanity. Environmental — related issues are areas of research that are extremely useful for humankind, and, due to the already existing advanced coalitions among scientists as demonstrated by the Intergovernmental Panel on Climate Change (IPCC) [4], the Club of Rome et al. noteworthy. The area of joint, cross-disciplinary research on global warming will be a world changing breakthrough in the coming decades.

The *third* aspect concerns the fact that *global warming has a universal impact*. This reality urges rethinking the institutions of science, diplomacy, and realpolitik. There have to be the same values in all three realms: the most important factor is to have a holistic view of environmental risks. Science diplomacy, as an instrument of foreign policy, can be used to achieve the global goal of saving the planet Earth. In this respect, science diplomacy for the environment is part of the core DNA of humanity. Policymakers across the globe have signed the Kyoto Protocol [24] and the Paris Agreement [34]. This was a clear indication that states are capable of multilateralism. Science diplomacy as a soft power and as a mechanism enabled the EU Green Deal and is a tool for global cooperation. Proposals for change by scientists, diplomats, policymakers, and civil society foster “out of the box” discussions and bring the global level together. By sharing a holistic view of environmental issues, science diplomacy can be regarded as a peace-promoting initiative. There has to be a global framework being set up where all parties can engage. Not only can the value of the concept of science diplomacy be strengthened, but it is also a clear benchmark for fostering cooperation versus encouraging competition. To enhance multilateralism, science diplomacy for the environment has to have funding resources and an institutional framework.

The *fourth* point refers to stakeholders of environmental diplomacy and the *necessity of gaining 21<sup>st</sup> century skills*. What

can science offer on the human level? The COVID-19 pandemic showed policymakers need scientists who cross disciplines. Simultaneously, it also showed the complex relationship between science and policy. Technology affects global order and global warming. Climate change is not about stressing geopolitical competition, but the stability of political systems. It is a security issue. Science diplomacy relies on the power of networks. Scientists must make a clear statement: “Our commitment is the globe,”, simply because humans are so connected. Scientists, diplomats, and policymakers are from different professional fields. So how can one get all three actors together? The key word is respect. Respect for each other, respect for nature, and respect for the planet. Diplomats trained in science and scientists trained in international relations are a good starting point here. Diplomats and scientists can be change agents by learning basic skills for mutual understanding and global challenges. Regarding different pathways to operation at the nexus of science and diplomacy, both actors have to gain “21st century skills.” That also means interacting with civil society and communities to have an impact on policy. The skills of collaboration and engagement with different partners are also a commitment to world society. Engaging with audiences requires leadership skills that are necessary to find options for solutions to handle the effects of global warming in a coordinated way. Science alone is not sufficient. Diplomacy alone is not sufficient. Policymakers alone are not sufficient. Building trust among the stakeholders is a necessity for enhancing stability, peace, and human security. Scientific facts have to form the basis for policymakers’ decisions. Through science diplomacy, “21st century skills” can be developed to communicate with people in “other” languages. Bridging the gaps between different stakeholders is an essential skill for the coming decades. Science diplomacy for the environment enables us to bring scientific evidence to policymakers. “Global warming is the big-

gest risk to humanity and needs strategic coordination among various stakeholders.” [39]

The *fifth* point considers the environmental diplomacy as a *tool for global awareness and universal matters*. Science diplomacy for the environment should not be used predominantly as a vehicle for national concerns, but it should be applied as a tool for global interests. Sharing knowledge is a powerful tool. The challenges for mankind in the current times are global. Humanity needs global cooperation to face demands constructively. This endeavour can be fostered by strengthening science diplomacy. Along with this, science diplomacy and scientific discourse can contribute to a more collaborative approach, a multilateral approach, and a transboundary approach. Environmental risks spread far beyond national boundaries. Global cooperation in the understanding that “humanity is in this challenge together” needs a cosmopolitan view [2; 3; 11; 17; 22; 31]. This certainly requires an approach that uses science diplomacy not only as an intermediary to address national challenges, but also to pursue global interests. Technology is a tool to address universal challenges; global warming constitutes a principal thread for humanity, and, as such, reducing its negative effects is a universal task. Future development has to have a human-centered approach. That has implications for the foreign policy of states, scientists, and other stakeholders. Awareness of global challenges and universal matters has to be on the agenda of scientists, diplomats, and policymakers.

The *sixth* issue thermalizes *science as a global common good* and *environmental diplomacy as a tool to strengthening universal commons*. Practitioners who built science diplomacy were already improving international order to reduce tensions. These skills and the understanding of science diplomacy to address global interests can create a win-win situation for people across the globe. Therefore,

universities and diplomatic academies can make essential contributions to international understanding. They are places for the training of future experts and decision-makers. Global cooperation is more than international cooperation. A different science needs a different science diplomacy. Global issues address the role of science as a global common good and the need to share human capacity. Reflecting on the role of science in the 21st century, strengthening science as a common endeavor of humanity can contribute significantly to mutual understanding across the globe and, as such, is an essential part of environmental diplomacy. To tackle universal challenges, multilateral science is required to open up pathways to a more sustainable future.

### **The EU as a global leader in environmental policy**

Today, environmental protection issues are increasingly fading into the background due to new challenges: the economic recession, migration, pandemics, and energy security problems. Within the framework of environmental policy, there have been changes in approaches to solving climate problems and measures to prevent some environmental disasters. The official position of the European Commission is that global climate problems are one of the most important sources of instability and a threat to security [7]. Thus, the EU uses sustainable development goals to promote its values and interests in foreign policy, including this agenda in its diplomatic mission. One of the new directions in the EU’s “green diplomacy” is the transition to “green” digital technologies by increasing the resilience and reducing the vulnerability of EU member states and partner regions.

According to the report on multilateralism, “increasing the EU’s capacity to be a global actor also means ensuring consistency between the EU’s external actions and its internal policies” [20]. This signifies

that the EU's international involvement in digital issues must simultaneously consider the potential impact on the environment, including aspects of energy consumption. Digital success within the EU will put it in a better position to provide intellectual leadership in the transition to "green" digital technologies, especially in the framework of bilateral relations and multilateral forums.

The term "green digital diplomacy", being defined by the Executive Director of EUISS P. Pawlak, is relatively new. The European Commission maintains the position that the information and communication technology sector should undergo a "green" transformation by improving energy efficiency and closed-loop economy indicators in the digital sector [8]. These actions should not only be carried out on the territory of the EU, providing Europe with intellectual leadership in the transition's framework to "green" technologies, but also go beyond it and be expressed in interaction with other regions. The EU creates a global coalition with "green" data.

The steps to achieve this goal include the following actions:

1. Building partnerships to promote sustainable data processing practices by improving energy efficiency and interacting with other regions.

2. Increasing the importance of sustainability as a global responsibility of state governments and citizens (digital competence programs as an example).

3. Moving towards more advanced environmental practices: striving for an inclusive life cycle assessment of the data economy and EU sustainable development policy.

Some elements of what might be termed digital diplomacy in the field of environmental policy are already included in the EU's activities.

Firstly, as part of the European "Green Deal", the European Commission has proposed raising the target of reducing greenhouse gas emissions to at least 55% by 2030. Further measures in this area

were set out in the preliminary Agreement on European Climate Law [16], which agreed in April 2021. In the area of trade policy, the EU urges member states to align their strategies in the areas of trade promotion, financing, aid, and foreign investment with their domestic climate commitments and the Paris Agreement.

Secondly, the European Commission stated the goal that "data centers and telecommunications will need to become more energy-efficient, reuse waste energy, and use more renewable energy sources" [8]. This objective is complemented by the EU Code of Conduct for Modern Data Centers [28], which is a voluntary initiative managed by the European Commission's Joint Research Centre. It serves to improve the understanding of energy needs, raise awareness and create the best practice guidelines for energy efficiency. Currently, around 20% of European data centers use the Code. They have taken measures to improve the environmental performance of their products, setting a framework for energy-related manufacturers and allowing end-users to determine the most energy-efficient product. However, not only large but also small centers must become climate neutral.

Thirdly, the formation of the European Green Digital Coalition in 2020 — a group of companies supporting initiatives within the framework of environmental and digital transformation — is worth mentioning. Although only 24 EU countries and Norway and Iceland have joined the Declaration on Green and Digital Transformation, the coalition is open to interested companies that are willing to commit to sustainability and welcome greenhouse gas reduction and climate neutrality goals. In response, the coalition is ready to provide resources and personnel to implement the measures included in the Declaration [15]. In addition to the main declaration, several other documents were developed and adopted in this direction. The Declaration on "European Data Gateways as a key element

of the EU Digital Decade” was signed by 27 countries, which pledged to develop means of communication between the EU and its partners in low-income countries in Africa, Asia, the European Partnership, and Latin America and pay attention to land and submarine ships, communication satellites, and network channels. 26 European states signed the EU Green and Digital Transformation Declaration to accelerate the implementation of green digital technologies in environmental systems [12].

*Finally*, at the end of November 2021, the Council of the European Union approved Ten European Partnerships in response to the Commission’s proposal to accelerate the transition to a green, climate-neutral, and digital Europe, as well as to increase the sustainability and competitiveness of European industry. Among these partnerships are those related to the “green” digital transformation. For example, the field of Key Digital Technologies covers electronic components, as well as their design, manufacture, and integration into systems and software. The main goal of this partnership is to support the digital transformation of all economic and social sectors. The introduction of Smart Networks and Services to achieve technological sovereignty is also among the partnerships. It helps resolve societal problems and ensure the digital and green transition, as well as support technologies that will contribute to economic recovery. It will allow European players to develop the technological potential of 6G systems as the basis for future digital services by 2030, as well as “green cloud” technologies, artificial intelligence, blockchain, environmentally friendly equipment, support for environmentally friendly public procurement, and “green” technology start-ups of medium and small enterprises [6]. Partnerships are open to a wide range of public and private partners, such as industry, universities, research organizations, bodies with a public service mission at the local, regional, national, or

international level, as well as civil society organizations, including foundations and NGOs.

## Conclusion

“A sustainable world signifies respecting key planetary boundaries” [39]. Reducing environmental risks due to global warming should be used as a strategic concept and not as a communication label. Cross-disciplinarity is not an easy goal. Solving global problems, pointing to universal interests and strengthening the global commons encourages openness. Regarding the EU Green Deal, science and technology are the foundation of the agenda. The overall focus on global warming can create a positive framework and cooperation is based on shared values like academic freedom and digital transition. The EU has taken on the serious task of becoming the first climate-neutral space by 2050. However, EU representatives should be aware of the full scope of measures that will need to be taken in such a short period to retain leadership in environmental policy.

Mitigating the risks of resource scarcity and managing environmental threads depend on the international engagement of actors and global networks. A global dialogue is needed to set up this process and create a safe space where researchers across the globe can cooperate. Diplomats can negotiate this process to address global challenges. After all, humanity faces the same risks, so there is a common interest in viability. Global warming is relevant on a planetary scale. At the same time, the spread of new-generation technologies should not be limited to the information spaces of high-income countries. Regions that encounter serious consequences due to climate change should also have access to such ICT products, whose development will go in parallel with the strengthening of social sustainability. As such, science diplomacy for the environment is a lan-

guage of hope for the future of humanity and vital to its survivability.

The international community has managed so far to set up international legal treaties to reduce the environmental risks faced by humanity. To avoid exposing future generations to the real threat of weakening the Earth's life-support systems and destabilizing the planet, a concerted effort by various stakeholders, including scientists, diplomats, and politicians, is required.

"Science diplomacy for the environment is not a panacea for all global

challenges, but it is an important tool for humanity to manage joint future risk scenarios in a peaceful way. Achieving global stability, enhancing human security and conserving a liveable environment are hereby inextricably linked to each other" [39]. It is relevant to assess how synergies between different stakeholders can be fully exploited through coordinated action, given the limited time horizon of the Paris climate agreement. Environmental diplomacy and green digital diplomacy are promising pathways to achieving a sustainable future across the globe.

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