Water Diplomacy – The New *Modus Operandi* of EU Diplomacy? Innovative Methods in Diplomatic Practice

Eliška Tomalová | ORCID: 0000-0001-6036-2992
Assistant Professor, Faculty of Social Sciences, Charles University, Prague, Czech Republic
eliska.tomalova@fsv.cuni.cz

Eliška Ullrichová | ORCID: 0000-0002-6786-2321
Doctoral student, Faculty of Social Sciences, Charles University, Prague, Czech Republic
eliska.ullrichova@fsv.cuni.cz

Received: 9 November 2020; revised: 9 April 2021; accepted: 14 June 2021

Summary

This article explores how EU water diplomacy can enrich the current debate on science diplomacy, primarily in the science in diplomacy category. It aims to contribute to the debate on diplomatic instruments and their innovative elements. It focuses on new practices in the field of water diplomacy, including (1) the involvement of a wide range of stakeholders in the diplomatic process from an early stage, (2) a multi-dimensional approach, and (3) multidisciplinary science-based diplomacy. More generally, the article identifies and conceptualises particular diplomatic methods, (1) the internalisation of scientific expertise, (2) cross-cutting lexical understanding across diplomatic agendas, (3) and pluri-disciplinarity, which facilitates the interconnection of science and diplomacy within a diplomatic framework. It thus addresses the commonly acknowledged challenge of interaction between scientists and diplomats and shows that analysis of diplomatic methods may bring more clarity to the peripheral or often neglected *science in diplomacy* category of science diplomacy.

Keywords

European Union (EU) – science diplomacy – science in diplomacy – water diplomacy – diplomatic methods

1 Introduction[1]

In this article, we argue that the science-in-diplomacy approach (that part of science diplomacy that brings scientific advice to diplomacy – see more at Section 2) is a peripheral and neglected part both of science diplomacy practice and academic debate and that the way knowledge is being transferred and integrated into diplomatic practice is a crucial element of any foreign policy administration. Existing academic literature on science diplomacy has identified the science in diplomacy dimension as one of the crucial elements of science diplomacy and has offered a conceptual insight into the way we structure science diplomacy practice but has not focused on particular working and cooperation methods in this field.[2]

The way the stakeholders mobilise their networks, organise teams, channel information, knowledge and expertise, together with their ability to use internal expertise to promote external excellence, has a huge impact not only on organisational methods but on the entire diplomatic agenda. More specifically, the changes water diplomacy has undergone until 2021 have facilitated

[1] The article builds on data gathered during the Horizon 2020 project 'Using science for/in diplomacy for addressing global challenges' (S4D4C) in compliance with the project rules of information gathering and treatment and with preserving data confidentiality. This research has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 770342. This publication was supported by the SVV project of the Institute of International Studies, FSV UK, No. 260954/2021.
[2] For more on science in diplomacy see Gluckman 2016; Gluckman et al. 2017.

the effective interconnection between diplomats and scientists which has been identified by the academic literature as one of the biggest challenges of science in diplomacy.[3] This article thus proposes concrete diplomatic methods, namely (1) the internalisation of scientific expertise, (2) cross-cutting understanding across diplomatic agendas, (3) and pluri-disciplinarity, overcoming the communication gaps between academia and diplomacy to establish efficient science diplomacy in various fields.

Water diplomacy represents a perfect case to illustrate these methods. First, water is by definition an issue calling for a co-operative approach. Water management cannot operate in a national setting alone; it needs to be managed at regional, transboundary and international levels where it becomes water diplomacy.[4] Second, water diplomacy has been regarded as a multilayer topic – it may represent an environmental issue, a human rights issue or a security issue.[5] Therefore, in water diplomacy, pluri-disciplinary expertise and knowledge needs to be mobilised. Last but not least, water diplomacy reflects the EU's growing ambitions on the global level: it tests its ability to face global challenges. In all three aspects, the EU has adopted new methods of co-operation in line with its new ambition.

At the EU level, water diplomacy represents an area of foreign policy administration in which government officials, who deal with water policy issues, interact on the sub-national, national, EU and global levels. It covers many water-related topics, such as access to drinking water, water sanitation, water scarcity and flooding, which have become the subject of transboundary regional and international co-operation. From this sectorial or topical perspective, water diplomacy has been placed in the line of development which started with environmental and climate diplomacies. Since the 1990s, the EU has developed new agendas covering environmental and climate-related issues that have contributed to its image as a global player and normative actor in the field.[6] Its environmental and climate diplomacies have both become key diplomatic agendas that have contributed to its external strategy in terms of its growing ambition to face global challenges.[7] In this context, water diplomacy could be interpreted as a logical continuation of this process, which also affects the sectorial and topical differentiation of diplomacy, opening paths to a more focused approach in areas where more attention is needed (for instance water-related aspects of climate change have been interpreted as major risks in the European Council's conclusions on climate diplomacy, which has resulted in greater political and administrative support for the water diplomacy agenda).[8] In other words, one could approach water diplomacy as a subfield of environmental and/or climate diplomacies.

In our research, we have chosen a different perspective. Water diplomacy is not placed in the context of the European studies theoretical debate that seeks to explain the ontological aspects of European integration. We opted for a different view of water diplomacy, adopting an instrument and methods-based approach, meaning that we focus on diplomatic instruments and methods that bring knowledge into diplomacy and on organisational mechanisms that bring innovation into the everyday diplomatic practice in science diplomacy, and result in changing patterns of administrative behaviour. Our analysis focuses on the *modus operandi*, placing water diplomacy in the context of current developments in science diplomacy and, focusing on organisational practice and mechanisms, addresses the research question how differences between diplomacy and science can be bridged.

The article is divided into five sections, in addition to the introduction and conclusion. Section 2 introduces the resources and data used for the analysis. Section 3 introduces concepts needed for comprehension of the debate on science in diplomacy. Section 4 elaborates on the concept of water diplomacy and places EU water diplomacy in the context of EU diplomacy in general. It

[3] See e.g. Gluckman 2018; Spruijt et al. 2014.
[4] We use the term water diplomacy when multiple national or regional stakeholders come into play. For intra-boundary issues we opt for water management.
[5] Council of the EU 2013, 1–2; Council of the EU 2018b, 5–6.
[6] Selin and VanDeveer 2015.
[7] Council of the EU 2018a, 3, 9.
[8] 'The Council recognises the need for more comprehensive and concentrated international efforts to address the water-related aspects of climate change…' (Council of the EU 2018a, 3).

answers the question to what extent water diplomacy is a new ambition of the EU. In Section 5, the methods and practices interconnecting science and diplomacy in EU water diplomacy are analysed. Section 6 of the article situates the analysis within a broader perspective of science diplomacy and offers a taxonomy and hierarchisation of new diplomatic methods water diplomacy offers for the study of science diplomacy.

2 Methodological Note

This article uses information from interviews we conducted at the Directorate-General for Research, Technology and Development (DG RTD), Directorate-General for Environment (DG ENV) and European External Action Service (EEAS) gathered in February 2019 and data from the EEAS Training Meeting on Science Diplomacy held in Brussels on 22 November 2018.

For the data analysis, we adopted a two-level interpretation framework. First, mapping of the stage was needed, as water diplomacy represents a relatively new agenda in EU diplomacy. This step helped us to identify the stakeholder structure (most of the networks are informal or execution networks operating with specific diplomatic goals, even though the EEAS has remained the central administrative actor) and innovative mechanisms in this area of diplomatic practice. Based on these first research results, we could proceed to a more in-depth analysis of the elements and methods used in water diplomacy that affect the *modus operandi* of EU diplomatic actors and their interactions with the scientific community. The innovations in methods and processes have been studied from 2013 – when the framework of EU water diplomacy was launched by a Council conclusion on EU water diplomacy – to 2018, when EU water diplomacy was revised by the second Council conclusion on the same issue.

3 Conceptualising Water Diplomacy: The Theoretical Underpinnings for the Study of Water Diplomacy

Before we approach water diplomacy as a case study for science diplomacy methods, several conceptual and theoretical elements must be addressed. We consider it important to clearly define the distinction between (1) foreign policy and diplomacy, (2) science, (3) science diplomacy, (4) knowledge-based diplomacy and (5) socialisation.

First, the terms diplomacy and foreign policy often overlap in both academic literature and policymakers' discourse. Based on the definition offered by Berridge, we keep the distinction as follows: the chief purpose of diplomacy is 'to enable states to secure the objectives of their foreign policies without resort to force'.[9] Here, diplomacy is viewed as a foreign policy instrument (from a terminological point of view, in this article, we also refer to diplomacy as 'foreign policy administration'). In EU studies, European foreign policy is often viewed as a distinct European foreign policy system.[10] Nevertheless, the difference between foreign policy and diplomacy is rooted in the same elements as in the national arena.

Second, what do we understand by science? Although the prevalent understanding of the co-operation between policy actors and scientific actors in science diplomacy has tended to privilege the natural sciences, there has been a shift in the understanding of the term science in science diplomacy. In our research we approached science as 'systematised knowledge' covering all branches of science, including the natural science, social sciences and humanities. In the broader sense of interactions between the worlds of science and diplomacy, the term science also serves as a common denominator for the entire scientific community, in terms of actors and processes.

Third, science diplomacy constitutes the core conceptual element of our research. The term has in recent years expanded into foreign policy discourse and academic literature, but it still remains imprecise and unstable. Although it has become the target of criticism, mainly for its

[9] Berridge 2005, 1.
[10] Carlsnaes et al. 2004, 15–16.

vagueness and unclear boundaries between different categories, the most widely used definition offering a science diplomacy taxonomy remains that by the Royal Society.[11] This proposes three different concepts: science for diplomacy, diplomacy for science and science in diplomacy. In this definition, diplomacy for science facilitates international scientific co-operation, science for diplomacy covers the scientific co-operation improving international relations, and science in diplomacy provides advice to inform and support foreign policy objectives.[12] Another alternative framing was proposed by Gluckman, who classified science diplomacy activities based on national interests as (1) actions designed to directly advance a country's national needs, (2) those designed to address cross-border interests, and (3) those primarily developed to meet global needs and challenges.[13] Since this article utilises the widely acknowledged typology advanced by the Royal Society and refers to its latter category, the concept of science in diplomacy needs to be discussed in more detail.

The goal of science in diplomacy is to ensure effective, high-quality, up-to-date, independent and evidence-based scientific information to policy-makers to address global problems in an efficient and sustainable way. The Royal Society provides examples of this science diplomacy category and refers to science advisory bodies such as the Intergovernmental Panel on Climate Change (IPCC) within the United Nations (UN) framework.[14] The IPCC is one of the most quoted examples of science in diplomacy in the limited amount of literature devoted to the third element of science diplomacy.[15] Nonetheless, how should scientific information be provided to policy-makers? The Royal Society claims that efficient science in diplomacy requires at least a minimum level of scientific literacy from diplomats, on the one hand, and of understanding of diplomatic realities from scientific academics, on the other. Moreover, scientists need to communicate in a comprehensible and accessible way.[16] In other words, both poles of science in diplomacy – academics and policy-makers – need to have a certain knowledge about the other side and to adjust their language to be intelligible for the counterpart. However, the preconditions of efficient science advisory to diplomacy are considered to be challenges. As Ruffini pinpoints, the limits of science in diplomacy consist of diplomatic ignorance of scientific knowledge and shaping foreign policy around national interests, not around scientific consensus.[17] How can differences between the diplomatic and scientific worlds be bridged? Is there a political will to apply diplomacy based on scientific evidence? Do academics support the interconnection between science and diplomacy? These are only a few questions related to the least researched and developed category of science diplomacy that remain unanswered. This article aims to address several theoretical and practical challenges of science in diplomacy using the case study of water diplomacy.

Fourth, valuable conceptual and theoretical insights into the study of science and water diplomacy may be provided by academic literature on knowledge intensive organisations and knowledge in organisational settings that covers mainly the private sector working environment and social processes around knowledge.[18] However, the importance of knowledge, its role, processes and management (and PR) are as relevant in public administration as in private settings. Therefore, the knowledge intensive organisation concept seems to be well adapted to the reality of science in diplomacy. It would be even less confusing to call science in diplomacy knowledge-based diplomacy, but given the predominance of the science in diplomacy term in academic literature and diplomatic practice, we stick to the usage of the latter.

Last but not least, diplomatic socialisation and growing interactions between the worlds of science and diplomacy play a very important role in shaping new working patterns in science diplomacy in general and water diplomacy in particular. In this regard, the academic literature on learning (both individual and organisational) and socialisation serves as a theoretical background

[11] See e.g., Flink 2020, 364–365; Penca 2018, 3.
[12] The Royal Society 2010.
[13] Gluckman et al. 2017.
[14] Gluckman et al. 2017, 5.
[15] See for example Milkoreit 2015; Ruffini 2018.
[16] Gluckman 2018, 96, 98; The Royal Society 2010, 6.
[17] Ruffini 2018, 76.
[18] Alvesson 2004.

for further analysis of science diplomacy, especially in the study of methods that rely on interactions between different community members (science, diplomacy).[19]

The aim of this article is to contribute to the academic literature on the methods and instruments used for overcoming the diplomatic and scientific world in policy-making and thus to shed light on the third aspect of science diplomacy – science in diplomacy. The article addresses the research question how differences between diplomacy and science can be bridged by focusing on organisational practice and co-operative mechanisms.

4 Changing Patterns in EU Water Diplomacy

Since water is a basic resource for supplying food, energy, industrial, economic, social and human security, once water resources become scarce due to population growth, economic development and climate change, they are likely to be a bone of inter- and/or intra-state contention. In addition, water possesses the potential to change power redistribution on an international level because upstream states have the indisputable advantage of managing water resources over downstream countries, irrespective of their economic and political strengths. Therefore, water is considered to be an asset in geopolitical affairs and, consequently, tensions over this particular natural resource can contribute to a conflict, a so-called water war.[20]

The water war concept is widely discussed in academic literature and the mainstream approach understands scarce access (in relative terms) to water as a possible trigger for a clash. However, a conflict is rarely caused by one variable; disputes over water resources are likely to be a part of a set of variables and escalate towards inter- or intra-state conflict unless unilateralism and zero-sum approaches dominate in water governance.[21] Nevertheless, researchers argue that in conflicts within state boundaries water issues tend to play a more significant role than in wars between countries.[22] It is also recognised that water can be used as a weapon and the resource can suffer from the negative effects of violent conflict, for example through damaged water infrastructure or polluted water.[23] Water as a trigger of war was a frequent topic in environmental conflict studies in the 1990s, building on academic argumentation that natural resource scarcity might lead to violent confrontations.[24] In 2002, Kofi Annan, the Secretary-General of the UN, in a speech at World Water Day said that '[…] the water problems facing our world need not be only a cause of tension; they can also be a catalyst for cooperation'.[25] This illustrates the shift, even in the academic debate, that started to examine co-operation and the instruments used to mitigate tensions over shared water resources.[26] In that period, the terms 'water diplomacy' and 'hydro-diplomacy' emerged as the response to water problems and related tensions in international relations.[27] Despite many definitions of water diplomacy in the literature,[28] we favour the one most acknowledged, by Islam and Susskind, which reflects the necessity to address water-related issues in a complex way at various levels:

> […] the process of defining and resolving water issues at every level from the design of a small-scale sanitation system in a village, to the development of a contested hydroelectric facility in one region of a country, to formal treaty negotiations among different nations.[29]

[19] Checkel 1999, 2000, 2001; DiMaggio and Powell 1991; Haas, 1968, 1990.
[20] Spector 2000, 231.
[21] Dinar and Dinar 2000, 198; Postel and Wolf 2009; Spector 2000, 231.
[22] Postel and Wolf 2009.
[23] Pacific Institute 2019.
[24] See e.g., Homer-Dixon, 1991.
[25] Annan 2002.
[26] E.g., Conca 2002; Dinar and Dinar 2000; Spector 2000.
[27] Farnum 2018, 447.
[28] See e.g., Klimes et al. 2019; Zaraie et al. 2021.
[29] Islam and Susskind 2013, xii.

In view of the rising global need for effective water resource management due to the reasons described above, the EU has formulated its water diplomacy in a way that is closer to a different academic approach, one which underlines that water diplomacy is a tool for resolving, mitigating or preventing intra-/inter-state conflicts over water availability and shared resources:

> EU water diplomacy must aim at facilitating the prevention, containment and resolution of conflicts, contributing to the equitable, sustainable and integrated management of water resources from source to sea, and promoting resilience to climate change impacts on water. Cooperation on water must be harnessed to promote regional integration, and address political instability.[30]

In other words, EU water diplomacy aims to be a pre-emptive diplomatic tool 'for peace, security, and stability'.[31] Since the objective of this article is to analyse the setting of mechanisms of scientific and diplomatic communication rather than measure the efficiency of EU policy, we follow the institutional perspective of EU water diplomacy. In this regard, the article does not evaluate EU objectives but focuses on methods in water diplomacy.

The development of the water diplomatic agenda, in terms of political engagement and international ambitions, as well as of the methods and processes, relies mainly on the internal know-how in the EU´s water co-operation and management. More specifically, the EU is internationally known for its advanced water legislation in various areas – for example, surface waters, bathing waters, discharge of hazardous substances in surface waters and groundwater, and particularly for the quality of water for human consumption, developed during the second half of the 20th century. EU water policies were defined by the Water Framework Directive (WFD) in 2000 but, nevertheless, the WFD has been broadening the scope, with, for example, the Flood Directive in 2007.[32] Besides this, the EU has a long-term and positive experience in transboundary water co-operation, for example the Danube River flowing through seventeen countries forms the river basin with the largest number of riparian states in the world.

Based on European expertise in water governance and ambitious legislation in the field, the WFD is an example of EU policies that has been externalised beyond EU borders. It has become a focal point of the EU Water Initiative (EUWI), the partnership process established in 2002 that co-ordinates financial support between European institutions, Member States and non-governmental stakeholders for water policies in five regions: the Mediterranean area; Africa; China; Latin America; Eastern Europe; the Caucasus and Central Asia. The EUWI´s activities have consisted especially of promoting the WFD´s principles, in particular integrated water resources management (IWRM), behind EU borders.[33] As a result, the EUWI can be considered as a predecessor of EU water diplomacy.

The EU has tried to use its potential to become a global actor in water-related issues by establishing an EU water diplomacy framework under the EEAS in 2013 and broadening it in 2018. Nevertheless, EU water diplomacy no longer consists only of externalising the WFD and promoting its principles but also in preventing potential water-related conflicts and problems in a broader sense. The two consecutive Council conclusions on water diplomacy represent a turning point in the development of the external water agenda – EU water diplomacy. They both clearly show a high level of political engagement that serves as a prerequisite for further specific organisational, administrative and financial steps in the water agenda.

It is imperative to stress that the EU does not have an exclusive mandate for external activities and thus EU water diplomacy does not replace national foreign policies but, rather, complements and enhances them. Therefore, the EU has established new platforms supporting water co-operation with third countries where nation states are already active and benefit not only from national expertise of EU member states and third countries in water management but also from

[30] Council of the EU 2018b, 3; EU definition is closed to academic approaches to water diplomacy, see e.g., Grech-Madin et al. 2018; Honkonen and Lipponen 2018.
[31] Council of the EU 2018b, 3.
[32] European Parliament and Council of the EU 2007; EU Water Law 2019.
[33] Fritsch et al. 2020, 710; also Fritsch et al. 2017.

traditional bilateral relations and in some cases geographical proximity. These elements of EU water diplomacy are observed in the case of the India–EU Water Partnership (IEWP) formed in 2016 where, along with a number of non-state actors, three Member States – Germany, Hungary and the Netherlands – are actively involved.[34] In addition, the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) on food systems and water resources associates primarily southern Member States that have historical ties with the Mediterranean area and which are more vulnerable to food and water scarcity due to climate conditions.

Nevertheless, EU water diplomacy encompasses not only nation states but also other stakeholders (international organisations, private companies and civil society), which contributes to the credibility and complexity of the foreign activities by combining a top-down with a bottom-up approach. This can be illustrated in the case of the European Union Water Initiative Plus for Eastern Partnership Countries (EUWI+) Programme formed in 2016 as a successor of the EUWI project. The EUWI+ platform supports dialogue and knowledge exchange with key national stakeholders to advance water policy reforms in targeted countries. Besides the engagement of nation states, international organisations, namely the Organisation for Economic Co-operation and Development (OECD), the United Nations Economic Commission for Europe (UNECE), the Environment Agency Austria and International Office for Water, are involved in the co-operation. However, EUWI projects have shared a significant weakness in practice. Despite significant engagement with national and international actors, non-state stakeholders and the private sector were mostly absent.[35] The EU also established co-operative platforms with other countries which were initially part of the EUWI under the new label of EU water diplomacy – for instance, EU–China water collaboration was formalised through the China–EU Water Platform (CEWP) in 2018 encouraging policy dialogue and research and innovation.

5 Innovative Aspects in EU Water Diplomacy

EU water diplomacy is a model for analysing elements of science in diplomacy, one of the three Royal Society categories to which neither EU representatives nor academic literature on EU science diplomacy pay much attention. Contributing to this literature gap, we identify three elements to demonstrate that EU water diplomacy illlustrates various aspects of science in diplomacy in EU scientific activities: (1) a wide range of stakeholders involved in processing (developing and creating) the framework, (2) a multi-dimensional approach, and (3) multidisciplinary science-based diplomacy including the role of social sciences and humanities.

First, we should mention that a wide range of stakeholders have been engaged in the 2010s not only in concrete activities within the EU water diplomatic agenda, as mentioned above, but also through playing an active role in the preparation of the legislative framework of EU water diplomacy. This approach is found to be an 'innovative approach in EU document making'.[36] Apart from the involvement of Member States, we consulted research institutes, private companies, think-tanks and NGOs in preparation of documents related to water diplomacy.[37] Furthermore, the recent activities of the DG RTD in EU water legislation and other water-related activities highlight the increasing role of science in legislative and strategic procedures. Identifying obstacles in implementation of EU water policies at national levels, DG RTD advises political DGs on revision of the current WFD and on preparation of new water directives (e.g. documents on reusing water) and contributes to so-called smarter regulation. Alongside EU internal issues, DG RTD has emphasised that research project calls should be tailor-made for sectorial DGs 'to fulfil implementation and policy gaps by providing scientific knowledge […] and to address operational gaps inside of the EU institutions'.[38] For these purposes, the scientific community has participated in Framework Programme projects and varied platforms have been developed as sources of

[34] Interview with DG ENV representative 2019.
[35] Fritsch et al. 2017.
[36] Interview with EEAS representative 2019.
[37] Interview with EEAS representative 2019.
[38] Interview with DG RTD representative 2019.

information for EU expert groups and workshops – for example, the Joint Programme Initiative for Water, Water Supply and Sanitation Technology Platform and the European Innovation Partnership (EIP) Water can be mobilised by the EU.[39] For example, EIP Water organised five conferences joining the private sector with the academic and policy-making worlds to introduce innovative EU approaches in the water field.[40] This approach has also been applied in ongoing discussions (as of 2019) over financial aspects and implementation of the Council conclusions on EU water diplomacy which illustrates how experience from internal EU policies is transferred to EU diplomatic activities.[41]

Secondly, EU water diplomacy is also understood as a multi-dimensional approach covering different policies: 'security, human rights, gender equality, climate change, health, food security, energy, inland navigation, pollution control, biodiversity, desertification, land degradation and the overarching need for less resource intensive growth'.[42] In accordance with this multi-dimensional approach, it is imperative to point out that EU water diplomacy takes the second level of human rights, meaning socio-economic rights, as a pivotal point of the EU strategic document, which is considered to be a ground-breaking approach.[43] In the Council conclusions, the EU highlights its commitment to:

> […] safe drinking water and sanitation, as components of the right to an adequate standard of living. The EU recognises that the human right to safe drinking water entitles everyone, without discrimination, to have access to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use.[44]

The right to education is certainly closely connected to the water dimension, in particular in poor regions where women and children may spend a significant part of their lives fetching water, often kilometres away from their houses and sometimes undergoing unsafe journeys. Consequently, people living in these conditions are excluded from education by definition.[45] The socio-economic human rights dimension of water diplomacy is clearly connected with the promotion of Sustainable Development Goals (e.g. PRIMA, CEWP).[46]

Besides the cross-sectorial perspective, the multi-dimensional tendency also requires the engagement of diversified stakeholders represented not only by a wide range of non-EU organisations and Member States, as mentioned above, but also by actors throughout EU structures. The existing state of co-operation among EU bodies is seen as insufficient to execute the multi-dimensional approach of EU water diplomacy. Therefore, the EU aims to improve the throughput within its structure and strengthen horizontal communication, in particular inside the Commission of the European Union. In 2014, the Juncker Commission formulated water priorities covering various sectors, such as economic, environmental and societal, and, based on these priorities, the EU created an informal coalition, the so-called EU Water Alliance, of more than 500 water stakeholders throughout value and sectorial chains.[47] In addition, the EU water priorities also require collaboration of thirteen Directorate-Generals (DGs) can be considered to be non-problematic but this has not been the case in practical terms.[48] According to one interviewee, DGs frequently see the involvement of another body at the same level as an infringement on their

[39] Interview with DG RTD representative 2019.
[40] European Commission.
[41] Interview with EEAS representative 2019.
[42] Council of the EU 2018b, 6.
[43] Interview with EEAS representative 2019.
[44] Council of the EU 2018b, 6.
[45] EEAS 2019.
[46] Council of the EU 2018b, 7.
[47] EU Water Alliance 2014.
[48] DG RTD, DG ENV, DG Health, DG Agriculture, DG Industry and Enterprise, DG for Regional and Urban Policy, DG Clima, DG Energy, DG for Communications Networks, Content and Technology, DG for International Cooperation and Development, EuropeAid Cooperation Office, DG for Maritime Affairs and Fisheries, DG Transport and Space.

internal areas of competences. These mechanisms and resistance from the EU structure are likely to change with the necessity of addressing challenges overlapping different dimensions.[49]

Thirdly, EU water diplomacy calls for multidisciplinary research that takes into consideration the natural and social sciences, which have been overlooked not only in practice but also in the academic literature related to water science.[50] This is despite the fact that it is believed that the natural and social sciences should be integrated into answers to global challenges. Whereas the natural sciences serve as a tool for finding technical solutions in the water agenda, the social sciences and humanities should be called on to identify behavioural and contextual indicators in order to understand problems in broader terms.[51] Moreover, this is necessary since hydro-politics is perceived as: 'a unique combination of the geographic features of the specific basins with a multiplicity of historical, political, economic, social, strategic, and cultural factors and circumstances specific to each basin'.[52]

The EU underscores the social scientists´ role as essential to understanding the contextual political, economic, and social situation in regions exposed to water risks and believes in their potential to find global perspectives on water-related issues.[53] To give one example, in 2018–2019 PRIMA supported eighteen projects in the water management area among which thirteen study socio-economic aspects alongside the technological dimension of the water-related problems, which means that multidisciplinary consortia had a majority in the funded projects.[54] It also is worth noting that the EU water diplomacy programmes encompass related research fields with respect to the multidisciplinary nature of water-related challenges, such as water–food security (PRIMA) or the water–food–energy nexus (CEWP), and thus water issues cannot be extracted from the wider context. Therefore, some innovative features identified in this article are interlinked with other scientific agendas, such as food research.

Table 1 shows some innovative aspects of water diplomacy methods and examples of their application in different types of activity.

Table 1. Innovative methods and processes in water diplomacy

Innovative aspects of water diplomacy	Examples
Multiple stakeholders involved in the process from the early stages	Council conclusions (2018)
Multi-dimensional approach	Council conclusions (2018), PRIMA, EUWI+, CEWP
Multidisciplinary science-based diplomacy	Council conclusions (2018), PRIMA, IEWP, EUWI+, CEWP

6 Upgrading Science Diplomacy: How Can the Analysis of EU Water Diplomacy Enrich the Current Debate on Science Diplomacy?

The three above-mentioned innovative aspects of water diplomacy methods are highly relevant for the academic debate on science diplomacy that to date has been centred mostly around the

[49] Interview with DG RTD representative 2019.
[50] Cook and Bakker 2012, 95.
[51] EEAS 2018; Gluckman 2018, 93.
[52] Elhance 2000, 202.
[53] EEAS 2018; Interview with EEAS representative 2019.
[54] PRIMA 2018, 2019 (information for projects supported in 2020 were not available at the time of publishing).

distinction between the different categories outlined in the Royal Society definition and around an interests-based typology as suggested by Gluckman. However, we suggest that, for a better understanding of science diplomacy, the discussion of categories needs to shift to a debate on methods. Science diplomacy, as demonstrated by the water diplomacy case, is mainly defined by the methods it can bring to diplomatic practice.

In the previous section, we defined three innovative aspects of water diplomacy: (1) a wide range of stakeholders involved in the preparatory phase of the framework, (2) a multi-dimensional approach, and (3) multidisciplinary science-based diplomacy including the role of social sciences and humanities. How do these innovative features, present in EU water diplomacy, impact on science diplomacy and the interactions between the scientific and diplomatic communities? How are they translated into science diplomacy? To answer these questions, we suggest superior methods-related categories that are built upon the analysis of water diplomacy and which have the potential to shape science diplomacy mechanisms. These new methods contain new elements of pluri-disciplinarity, internalisation of scientific knowledge into public administration openness, and cross-functionality (see Table 2).

The new patterns and methods we identified in EU water diplomacy, which can be called lessons learnt, do not currently cover existing working methods in all areas where science diplomacy comes into play. Rather, they represent tendencies and inspirational elements that contribute to an open environment where collaborative instruments are mobilised. These instruments include (1) the internalisation of scientific expertise, (2) cross-cutting understanding across diplomatic agendas, (3) and pluri-disciplinarity. They are combined with cross-functionality and agile management as leading principles – a prerequisite for creating an open environment where collaborative instruments are mobilised.

Table 2 Innovative methods in water diplomacy to be used in science diplomacy

Water diplomacy	Science diplomacy
Multiple stakeholders involved in the process from the early stages	Focus on network diplomacy with a higher involvement of science-based actors Shifting the role of scientific expertise from external to internal practices
→ Internalisation of scientific expertise combined with cross-functionality and agile management	
Multi-dimensional approach	A more integrated diplomacy creating crossover between different diplomatic agendas
→ Cross-cutting understanding across diplomatic agendas combined with cross-functionality and agile management	
Multidisciplinary science-based diplomacy including the role of social sciences and humanities	Pluri-disciplinarity. Less vertical more horizontal teams
→ Pluri-disciplinarity combined with cross-functionality and agile management	

In science diplomacy, scientific knowledge and expertise become an integral part of the diplomatic process from an early stage of the diplomatic process. Science is not an external

element but a component of diplomatic practice but. The internalisation of science, then, is a prerequisite for the development of knowledge-based diplomatic strategies and processes. This goes hand in hand with a cross-cutting understanding of diplomatic agendas. More specifically, different topics, both long-term and crisis-related, often cover more than one diplomatic agenda. In these situations, science diplomacy mobilises relevant actors and solutions and refrains from being enclosed in a narrow topical understanding of the issue at stake (as is the case in water diplomacy and its socio-economic rights, security, gender and other dimensions). Pluri-disciplinarity has the same meaning in science diplomacy as multidisciplinarity in water diplomacy. Scientific knowledge and expertise are represented by different disciplines, including the natural sciences, social sciences and humanities. Achieving foreign policy goals and conducting knowledge-based diplomacy is thus dependent on processes that imply cross-disciplinary co-operation and which approach topics from various scientific angle.

Cross-functionality in team management means creating and managing teams composed of experts with different areas of functional expertise, each bringing a different (field, environmental, institutional) perspective to achieve a common goal. If combined with agile management that offers a more flexible approach to management, cross-functionality is more change adaptive and may bring solutions to both long-term and short-term projects. In the field of science diplomacy, cross-functionality and agile management represent management methods that make better use of the three above-mentioned categories, namely (1) internalisation of scientific expertise, (2) crosscutting understanding across diplomatic agendas, and (3) pluri-disciplinarity.

7 Conclusion

This article set out to provide a deeper understanding of innovative methods in EU water diplomacy practices. The study has drawn on qualitative analysis of water diplomacy processes and methods showing (1) a wide range of stakeholders involved in the preparatory phase of the diplomatic process the framework, (2) a multi-dimensional approach, and (3) multidisciplinary science-based diplomacy including the role of social sciences and humanities representing major changes in the water diplomacy agenda. Although the article has examined EU water diplomacy in an early stage of its existence, the findings advance the current debate on science diplomacy by identifying instruments of interaction between diplomats and scientists for achieving knowledge-based diplomacy. These instruments include (1) the internalisation of scientific expertise, (2) cross-cutting understanding across diplomatic agendas, (3) and pluri-disciplinarity. Once these tools are combined with cross-functionality and agile management as leading principles of diplomacy formulation, the basis of science in diplomacy is established. As a result, in order to bridge the scientific and diplomatic worlds, the article suggests that more attention should be paid to methods, knowledge transfer channels and internal organisation mechanisms that impact on the very core of diplomatic practice.

Moreover, the focus on science in diplomacy is itself innovative. On the one hand, both science for diplomacy and diplomacy for science have been developed and documented in the academic literature, while less or no attention has been paid to science in diplomacy. On the other hand, science diplomacy as an umbrella term still remains an unclear, vague concept. Focusing more on science in diplomacy methods offers a way out of the deadlock. It also provides new possibilities for how to conceptualise science diplomacy in different areas of diplomacy. Finally, there is no doubt that co-operation mechanisms between science and diplomacy, including management methods and processes in practice are worth examination in order to shed light on this underdeveloped aspect of science diplomacy, that is, science in diplomacy.

Bibliography

Alvesson, Mats. *Knowledge Work and Knowledge Intensive Firms* (Oxford: Oxford University Press, 2004).

Annan, Kofi. 'Message of Secretary-General Kofi Annan on the World Day for Water'. 23 March 2002. https://www.un.org/press/en/2002/iaea1351.doc.htm.

Berridge, George. *Diplomacy: Theory and Practice* (Basingstoke: Palgrave Macmillan, 2005).

Carlsnaes, Walter et al. *Contemporary European Foreign Policy* (London: SAGE, 2004).

Checkel, Jeffrey. 'Sanctions, Social Learning and Institutions: Explaining State Compliance with the Norms of the European Human Rights Regime'. ARENA Working Paper, 15 March 1999. https://www.sv.uio.no/arena/english/research/publications/arena-working-papers/1994-2000/1999/99_11.html.

Checkel, Jeffrey. 'Bridging the Rational-Choice / Constructivist Gap? Theorizing Social Interaction in European Institutions'. ARENA Working Paper, 15 May 2000. https://www.sv.uio.no/arena/english/research/publications/arena-working-papers/1994-2000/2000/00_11.html.

Checkel, Jeffrey. 'International Institutions and Socialization in the New Europe'. ARENA Working Paper, 18–19 May 2001. https://www.sv.uio.no/arena/english/research/publications/arena-working-papers/2001-2010/2001/wp01_11.htm.

Conca, Ken. 'The Case for Environmental Peacemaking'. In *Environmental Peacemaking*, eds. Kean Conca and Geoffrey Dabelko (Washington, DC: Johns Hopkins University Press, 2002), 1–33.

Cook, Christina and Karen Bakker. 'Water Security: Debating an Emerging Paradigm'. *Global Environmental Change* 22 (1) (2012), 94–102. DOI 10.1016/j.gloenvcha.2011.10.011.

Council of the EU. 'Council Conclusions on Water Diplomacy'. 22 July 2013. http://www.europarl.europa.eu/meetdocs/2009_2014/documents/droi/dv/1407_councilconclusions_/1407_councilconclusions_en.pdf.

Council of the EU. 'Council Conclusions on Climate Diplomacy'. 26 February 2018a. http://data.consilium.europa.eu/doc/document/ST-6125-2018-INIT/en/pdf.

Council of the EU. 'Council Conclusions on Water Diplomacy'. 19 November 2018b. https://www.consilium.europa.eu/media/37022/st13991-en18.pdf.

DiMaggio, Paul and Walter Powell, eds. *The New Institutionalism in Organizational Analysis* (Chicago: University of Chicago Press, 1991).

Dinar, Shlomi and Ariel Dinar. 'Negotiating in International Watercourses: Diplomacy, Conflict and Cooperation'. *International Negotiation* 5 (2) (2000), 193–200. DOI 10.1163/1571806002084872.

EEAS (European External Action Service). Training meeting on science diplomacy. Brussels, 22 November 2018.

EEAS (European External Action Service). 'Water is Life…Every Drop Counts…Cherish It!' 22 March 2019. https://eeas.europa.eu/diplomatic-network/unesco/60063/water-life%E2%80%A6-every-drop-counts-cherish-it_en.

Elhance, Arun. 'Hydropolitics: Grounds for Despair, Reasons for Hope'. *International Negotiation* 5 (2) (2000), 201–222. DOI 10.1163/15718060020848730.

European Commission. 'EIP Water Website'. https://ec.europa.eu/environment/water/innovationpartnership/index_en.htm.

European Parliament and Council of the EU. 'Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the Assessment and Management of Flood Risks'. *Official Journal of the European Union* L 288, 23 November 2007. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007L0060&from=EN.

EU Water Alliance. 'Main Priorities for Water under the Juncker Commission (2014–2019)'. 15 September 2014. http://eu-wateralliance.eu/wp-content/uploads/2014/09/Main-priorities-for-water-under-the-Juncker-Commission-2014-2019.pdf.

EU Water Law. 'General Framework of EU Water Law: Legal Basis for Water Policy'. 2019. https://www.era-comm.eu/EU_water_law/part_2/index.html.

Farnum, Rebecca. 'Drops of Diplomacy: Questioning the Scale of Hydro-diplomacy through Fog-harvesting'. *Journal of Hydrology* 562 (2018), 446–454. DOI 10.1016/j.jhydrol.2018.05.012.

Flink, Tim. 'The Sensationalist Discourse of Science Diplomacy: A Critical Reflection'. *The Hague Journal of Diplomacy* 15 (3) (2020), 359–370. DOI 10.1163/1871191X-bja10032.

Fritsch, Oliver et al. 'The EU Water Initiative at 15: Origins, Processes and Assessment.' *Water International* 42 (4) (2017), 425–442. DOI 10.1080/02508060.2017.1330816.

Fritsch, Oliver et al. 'Three Faces of the European Union Water Initiative: Promoting the Water Framework Directive or Sustainable Development?' *Water Alternatives* 13 (3) (2020), 709–730. http://www.water-alternatives.org/index.php/alldoc/articles/vol13/v13issue3/597-a13-3-15/file.

Gluckman, Peter. 'Science Advice to Governments: An Emerging Dimension of Science Diplomacy'. *Science & Diplomacy* 5 (2) (2016). https://www.sciencediplomacy.org/sites/default/files/science_advice_to_governments_0.pdf.

Gluckman, Peter. 'The Role of Evidence and Expertise in Policy-making: The Politics and Practice of Science Advice'. *Journal of Proceeding of the Royal Society of New South Wales* 151 (1) (2018), 91–101.

Gluckman, Peter et al. 'Science Diplomacy: A Pragmatic Perspective from the Inside'. *Science & Diplomacy* 6 (4) (2017). https://www.sciencediplomacy.org/article/2018/pragmatic-perspective.

Grech-Madin, Charlotte et al. 'Negotiating water across levels: A peace and conflict "Toolbox" for water diplomacy'. *Journal of Hydrology* 559 (2018), 100-109. DOI 10.1016/j.jhydrol.2018.02.008.

Haas, Ernst. *The Uniting of Europe: Political, Social and Economic Forces 1950–1957* (Stanford: Stanford University Press, 1968).

Haas, Ernst. *When Knowledge is Power: Three Models of Change in International Organizations* (Berkeley: University of California Press, 1990).

Homer-Dixon, Thomas. 'On the Threshold: Environmental Changes as Causes of Acute Conflict'. *International Security* 16 (2) (1991), 76–116. DOI 10.2307/2539061.

Honkonen, Tuula and Annukka Liponnen. 'Finland's Cooperation in Managing Transboundary Waters and the UNECE Principles for Effective Joint Bodies: Value for Water Diplomacy?'. *Journal of Hydrology* 567 (2018), 320–331. DOI 10.1016/j.jhydrol.2019.02.049.

Islam, Shafiqul and Lawrence Susskind. *Water Diplomacy: A Negotiated Approach to Managing Complex Water Networks* (New York: Routledge, 2013).

Klimes, Martina et al. 'Water Diplomacy: The Intersect of Science, Policy and Practice'. *Journal of Hydrology* 575 (2019), 1362–1970. DOI 10.1016/j.jhydrol.2019.02.049.

Milkoreit, Manjana. 'Science and Climate Change Diplomacy: Cognitive Limits and the Need to Reinvent Science Communication'. In *Science Diplomacy: New Day or False Dawn?*, eds. Lloyd Davis and Robert Patman (Singapore: World Scientific, 2015), 109–131. DOI 10.1142/9789814440073_0006.

Pacific Institute. 'Water Conflict Chronology'. 2019. https://www.worldwater.org/water-conflict/.

Penca, Jerneja. 'The Rhetoric of "Science Diplomacy": Innovation for the EU's Scientific Cooperation?' EL-CSID Working Paper, 2018. https://5ec1837c-88ac-4ca1-b478-8bfae7f7f027.filesusr.com/ugd/0bc3be_e75b3b2ed47a4f7da3534e30d7f5747e.pdf.

Postel, Sarah and Aaron Wolf. 'Dehydrating Conflict'. *Foreign Policy*, 18 November 2009. https://foreignpolicy.com/2009/11/18/dehydrating-conflict/.

PRIMA (Partnership for Research and Innovation in the Mediterranean Area). 'Funded Projects 2018'. May 2018. https://prima-med.org/booklet-2018/.

PRIMA (Partnership for Research and Innovation in the Mediterranean Area). 'Funded Projects 2019'. May 2019. https://prima-med.org/booklet-2019/#.

Ruffini, Pierre-Bruno. 'The Intergovernmental Panel on Climate Change and the Science–Diplomacy Nexus'. *Global Policy* 9 (3) (2018), 73–77. DOI 10.1111/1758-5899.12588.

Selin, Henrik and Stacy VanDeveer. *European Union and Environmental Governance* (London: Routledge, 2015).
Spector, Bertram. 'Motivating Water Diplomacy: Finding the Situational Incentives to Negotiate'. *International Negotiation* 5(2) (2000), 223–36. DOI 10.1163/15718060020848749.
Spruijt, Pita et al. 'Roles of Scientists as Policy Advisers on Complex Issues: A Literature Review.' *Environmental Science & Policy* 40 (2014), 16–25. DOI 10.1016/J.ENVSCI.2014.03.002.
The Royal Society. 'New Frontiers in Science Diplomacy: Navigating the Changing Balance of Power'. January 2010.
https://royalsociety.org/~/media/royal_society_content/policy/publications/2010/4294969468.pdf.
Zareie, Soheila et al. 'A State-of-the-art Review of Water Diplomacy '. *Environment, Development and Sustainability* 23 (2021), 2337–2357. DOI 10.1007/s10668-020-00677-2.

Appendix 1 Interviews

Interview with the Representative of Environment and Water at the European External Action Service (EEAS). 25 February 2019. Brussels.
Interview with the Representative of the Directorate-General for Environment (DG ENVI). 27 February 2019. Brussels.
Interview with the Representative of the Directorate-General for Research, Technology and Development (DG RTD). 26 February 2019. Brussels.

Eliska Tomalova
PhD, is an Assistant Professor at the Institute of International Studies, Faculty of Social Sciences, Charles University. Her research focuses on different forms and strategies in diplomatic practice (public diplomacy, cultural diplomacy, science diplomacy) and intercultural relations. Her teaching activities include courses on European Integration and Foreign Policies of EU Member states. Tomalova is also a researcher for the Horizon 2020 project 'Using science for/in diplomacy for addressing global challenges' (S4D4C).

Eliska Ullrichova
is a doctoral student in Area Studies at the Institute of International Studies, Faculty of Social Sciences, Charles University. In her research, she focuses on agenda-setting in EU water policy and diplomacy. She was a Sylff Fellow (Ryoichi Sasakawa Young Leaders Fellowship Fund) from September 2019 to August 2021. During the period from 2018 to 2021, she was a researcher for the Horizon 2020 project 'Using science for/in diplomacy for addressing global challenges' (S4D4C).