ISSN: 2146-1740
https://dergipark.org.tr/tr/pub/ayd,
Doi: 10.54688/ayd.1105881
Review Article

HOW CAN SCIENCE DIPLOMACY ASSIST TO SUPPORT THE EU'S POLICY GOALS?

Seray Baykal[1]

Abstract

Article Info

Received:
19/04/2022

Accepted:
20/06/2022

Recently, there has been greater interest in science diplomacy because countries acknowledge the importance and value of science as a strategic foreign policy tool. The European Union (EU) as one of the most significant economic and political unions in world politics has also begun to apply science diplomacy to have a locomotive role in international discussions about the global challenges and increase the union's soft power potential by leading the example in the issue. Since addressing global challenges is one of the top priorities of the union, climate change as one of the most urgent issues of today's world has found a place for itself in the EU's extending science diplomacy activities. Therefore, this paper aims to examine the motives of the EU's extending activities in field of science diplomacy, mainly climate change, while discussing how the EU's increasingly visible policy decisions in field of science diplomacy assists them to support its policy goals on the subject of addressing the global challenges. The article supports the conclusion that the union's decision to give greater role to science diplomacy is mainly related to remaining a global power in world politics and achieving its aims with respect to the wider world.

Keywords: Science diplomacy, Climate change, Policy, Soft power, The European Union.

Jel Codes: F53, F59, F64, F68, Q54.

[1] PhD Candidate, Istanbul University, ORCID: 0000-0003-0465-248X, seray-yildirim@live.com.
Cite: Baykal, S. (2022). How can science diplomacy assist to support the eu's policy goals? *Journal of Academic Approaches, 13* (1), 226-242.

1. Introduction

In today's world, climate change, infectious diseases, food security, water scarcity and other global challenges that the international community has faced threaten all countries. To tackle these issues, global responses which are directly related to scientific evidence and the views of the specialists alongside the policy makers are required. It is assumed that internationalization of scientific cooperation around the world will contribute to the solution of these challenges.

In this respect, the concept of science diplomacy as a new method of multilateral diplomacy and a foreign policy tool has recently emerged and increased its impact in today's global politics. Science diplomacy as a strategic foreign policy tool can be driven for different motives. It enables multilateral cooperation at both regional and global levels and strengthens scientific and technical capacities of countries. It also allows countries to realize their national interests and objectives in the international arena by developing political relations with other nations and attracting public attention through the use of soft power of science.

The European Union (hereafter the EU) as one of the most significant global actors in the world politics has been at the forefront of the scientific cooperation. The EU's research capacity and its scientific endeavors are crucial instruments to exercise its power for demonstrating its global leadership and working together with international partners across the continent. Historically, the EU has used the unifying power of science since the 1950s. For example, after the end of the Second World War, science was used to improve mutual relations among European countries to unify the divided continent in 1954 through the establishment of one of the largest research centers of the world, CERN. However, the union has begun engaging in science diplomacy more visibly in recent years. The union's decision to give a greater role to science diplomacy is mainly related to supporting its external policies regarding addressing the global challenges alongside increasing the union's soft power potential and improving its relations with strategic countries and regions around the world. Since the global challenges are considered as one of the top priorities of the union, it is crucial for the EU to have a locomotive role in international discussions about the global challenges in order to remain its position as a global power in world politics and achieve its aims with respect to the wider world including sustainable development of the earth and protection of the environment. For this reason, climate change, as one of the most urgent global issues of today's world has found a place itself in the EU's extending activities in science diplomacy area.

This paper aims to analyze the motives of the EU's extending activities in the area of science diplomacy with respect to climate change while discussing how the EU's increasingly visible policy decisions in science diplomacy area assist them to support its policy goals in the subject of addressing the global challenges. In line with this purpose, the paper will cover three chapters. In the first chapter, the concept of science diplomacy will be defined with its three dimensions which are "science in diplomacy", "diplomacy for science" and "science for diplomacy" by giving detailed examples. Second, the relationship between science diplomacy and soft power will be examined in order to comprehend the motives of states and non-state actors to apply science diplomacy for the purpose of achieving national interests and objectives in the international arena. Lastly, the reasons for the EU's increasingly visible policy decisions in the science diplomacy area particularly climate change will be analyzed by discussing the decisive role of the EU in climate negotiations.

2. Science Diplomacy as a New Concept in International Relations

It has been assumed that diplomatic affairs among states began with the Peace of Westphalia in 1648. Since then, the bilateral nature of diplomacy which is based on state-to-state relations has changed during the post-Second World War period with inclusion of international organizations and non-governmental organizations in decision making process in international relations. In particular, the role of the non-state actors has begun to increase after the end of the cold war with deepening process of globalization and rising in global challenges such as climate change, food security, infectious diseases, water scarcity etc. Hence global challenges require global solutions by moving away from bilateral diplomacy into multilateral diplomacy which is considered a milestone in terms of achieving multilateral cooperation at both regional and global level and benefiting from the strong connection between scientific and technical communities in the 21st century (Langenhove, 2016: 1-2).

In parallel with the development in the international system, science diplomacy as a new method of multilateral diplomacy and a foreign policy tool has recently emerged in the literature. Conceptually, there seems to be a tension between science and diplomacy due to the fact that science is all about "objective truths" while diplomacy is relevant with giving importance to "national interests". However, science diplomacy lays at the intersection of two concepts. Initially, the concept came from the United States and subsequently was widely used in the Anglo-Saxon world. In particular, the American Association for the Advancement of Science (hereafter AAAS) played an important role in terms of the dissemination of the concept. It is essential to underline that even though science diplomacy is a new concept, science

diplomacy activities including appointment of science envoys, establishment of large research facilities and signing of the international treaties in science related issues have been taking place in international arena for a long time (Turekian et al., 2015: 10). However, there is not a single definition of the concept, and its definition varies across the literature.

According to Vaughan Turekian, former chief international officer of the AAAS and first director of the Center for Science Diplomacy, science diplomacy is *"the use and application of science cooperation to help build bridges and enhance between and among societies, with a particular interest in working in areas where there might not be other mechanisms for engagement at an official level"* (Ruffini, 2017: 11). In today's global politics, international scientific cooperation is considered as an effective tool to manage conflicts and strengthen the innovation capacities of countries. In addition to Turekian's science diplomacy definition, it is crucial to emphasize that science diplomacy is not only about promoting international scientific cooperation among countries but also a tool for countries to realize their national interests and objectives in the international arena. In other words, as science diplomacy is almost exclusively initiated by states, and that it represents their interests, it should be regarded as a strategic foreign policy tool with its greater importance in world politics (Özkaragöz Doğan et al., 2020: 3).

In this sense, it is significant to comprehend the aim of science diplomacy which can be categorized into the three main dimensions according to the literature. These are "science in diplomacy", "diplomacy for science" and "science for diplomacy". To begin, "science in diplomacy" dimension involves the effective use of science by providing scientific expertise and advice from research communities around the world, to policy makers on global issues. Arms control, environmental and many other international agreements which are directly linked with scientific issues can be an example of this dimension. More specifically, establishment of Intergovernmental Panel on Climate Change (hereafter IPCC) in 1988 has been crucial for "science in diplomacy". The assessment reports of IPCC which have been published since 1990s, initially played an important role in the adoption of United Nations Framework Convention on Climate Change in 1992 and then also in the signing of climate related treaties including Kyoto Protocol in 1997 and Paris Agreement in 2015 (Langenhove, 2016: 3).

The second dimension of science diplomacy, namely "diplomacy for science" is based on using diplomacy so as to make progress in scientific areas and facilitate international scientific cooperation among states. It is necessary to underline that scientific cooperation among states refers to the establishment of large research projects that one country cannot afford

with its own capabilities. Therefore, in this dimension, diplomacy is perceived as a tool to improve countries' national capacities. For instance, despite the tension between USA and Soviet Union in 1980s, the leaders of two countries attended the several summits to discuss the details of production of fusion energy which ultimately resulted with establishment of International Thermonuclear Experimental Reactor (hereafter ITER) in 2007 (The Royal Society, 2010: 9).

The final dimension of science diplomacy known as "science for diplomacy" is about building or improving mutual relations between states through using the soft power of science. In this respect, countries' success in science and technology is connected to their economic strength as well as its overall impact in world politics. For instance, it is indicated that although people who live in Middle East are rather skeptical towards US culture or products, they respect United States' advancement in science and technology. Therefore, the US Department of State used science as the most admired aspect of US society in order to reach out to the Muslim world by applying the commonly cited statement of Norman Neureiter who supported the idea that *"an active way of reaching out to the Muslim world in an area where we know they admire us"* (Ruffini, 2017: 88). In this sense, Former US President, Barack Obama's speech titled "A New Beginning" at Cairo University, Egypt in 2009 could be given as a concrete example of this policy. At a time when the US's relations with Muslim majority countries had deteriorated and diplomatic channels among the countries were not functioning well due to the 9/11 attacks, Obama used science as a respected value in the Middle East to normalize the relations and increase the scientific collaboration with these countries (Ruffini, 2017: 89).

It should also be noted that science diplomacy can be driven for different motives. From this perspective, the literature also identifies that the motives of countries engaging in science diplomacy are mainly linked with three particular objectives, which are classified as "access", "promotion", and "influence". First, "access" is essential for countries to improve their national innovation capacities and competitiveness by accessing new technologies and markets as well as being part of larger research projects such as the "International Space Station" or ITER, that one single country could not afford with their own capabilities. Second, "promotion" is based on the understanding that a country's success in research and development allows them to attract the attention of scientists, researchers, or companies from all around the world while also enhancing their innovation capacity and reputation. Third, "influence" is using the soft power of science to influence public opinion, policy makers or leaders from other countries as well as fostering mutual relations (Flink & Schreiterer, 2010: 669). Based on these classifications,

when countries apply science diplomacy for the sake of "access" and "promotion", it can be stated that their objective is to mostly enhance their scientific and technical capacities. On the other hand, when countries apply science diplomacy for the sake of "influence", it is mainly to improve political relations with other nations and attract the public attention in those countries by means of using the soft power of science.

In light of that, science diplomacy, as a strategic foreign policy tool in today's world, reflects the driving motives of those who initiate it. Hence, it should be underlined that one of the most important aspects of science diplomacy is the "initiator". Although it is mostly initiated by states, it is not rare to encounter the involvement of non-state actors including private foundations, research agencies or supra national regional organizations like the EU (Langenhove, 2017: 8-9). The motives of initiators, whether they are states or non-state actors, are mostly connected to the "influence" objective of science diplomacy. Thus, it is significant to analyze the relationship between science diplomacy and soft power, as the soft power of science plays an important role in achieving national interests of the countries in the international arena.

3. The Relationship between Science Diplomacy and Soft Power

Prof. Joseph S. Nye, former dean of the Kennedy School of Government at Harvard University introduced the concept of "soft power". He regarded it as the "second face of power", while drawing the line between soft and hard power. The concepts of soft and hard power are not entirely different because the aim of both concepts is to achieve desired outcomes through affecting the behavior of others. However, soft power differs from the commonly used concept of hard power as the latter is based on using military or economic resources to force others to change their undesired positions. On the other hand, soft power as defined by Nye, is the ability to shape positions or behaviors of others through attraction and persuasion. It is based on building common interests and values which allow states to achieve desired outcomes without having to use force or threats, unlike hard power (Nye, 2004: 5-7). Soft power is also defined as an "attractive power" by the literature due to its sources, which are effective in changing the positions or attracting the attention of others. According to Nye, culture, political values, and foreign policy of a particular country are accepted as the soft power sources of a country. In this respect, moral authority, legitimacy, international rules, institutions, and cultural values are at the roots of soft power (Nye, 2004: 11).

In this perspective, science is also considered as one of the sources of soft power because a country's culture involves all values including its history, sports, art, music, science,

technology and so on. There are multiple examples where a country uses the soft power of science. The oldest and most important one of those examples date back to the 18th century, the establishment of "The British Royal Society" whose aim was to promote excellence in science as well as to support international scientific collaboration. Since then, the UK government has frequently applied science as a tool in cases of solving military and political issues (The Royal Society, 2010: 1). Another example could be the space race of the Cold War era. When the Soviet Union launched the first space satellite, Sputnik in 1957, many Europeans believed the idea that science was valuable instrument for the Soviet Union and their culture. This understanding subsequently paved way for the advancement of not only the Soviet's hard power capabilities but also their soft power. Although the global influence of US was tremendous in terms of popular culture including movies, TV programs, or music during the Cold War period, the Soviet Union's success in science and technology had a positive impact on its soft power. Thus, Soviet culture became much more popular and attractive in those decades (Nye, 2004: 74-75).

Science is accepted as an effective and attractive asset for both national and universal interests of countries. This is because developments in science and technology as well as the rise in international scientific cooperation, serve the interests of all states, and also allow them to build the influence they desire. Therefore, science is a significant tool to improve not only the hard power but also the soft power capabilities of the countries. Since a country's attractiveness for its national science capacity creates a positive impact on other nations, many scholars advocate the idea that science diplomacy has "pure soft power" potential thanks to its softening role and overall effect on the states. When science becomes the most admired aspect of a country, and its scientific community is successfully recognized by other states on the global stage, this allows them to achieve their desired outcome alongside growing the influence of their scientific community in world politics (Özkaragöz Doğan, 2015: 41).

It is apparent that science diplomacy as a strategic foreign policy tool with its greater importance plays an essential role in terms of generating soft power. However, it is also crucial to underline that science for diplomacy dimension of science diplomacy is mainly driven by the influence objective. When countries' desire to create influence on the global level connects with their science for diplomacy activities, leverage of one particular country's impact over the others is clearly visible. The activities including signing of science cooperation agreements, opening of scientific excellence centers, promoting international research projects, science festivals, exhibitions, providing science fellowships or educational scholarships opportunities

are concrete examples of science for diplomacy dimension which are also pivotal activities for generating soft power (The Royal Society, 2010: 11-12).

Indeed, there has been greater interest in science diplomacy in today's world politics. More recently, countries acknowledge the strategic importance and value of science in part of their foreign policy making process. Previously, only a small number of developed and scientifically advanced countries such as the US, UK, Russia engaged in science diplomacy activities to spread their culture beyond their borders and influence other nations. However, developing and relatively small countries have also begun to apply science as a strategic foreign policy tool and become involved in science diplomacy activities for advancing their diplomatic relations and increasing their visibility in international negotiations (Gluckman et al., 2017: 5).

To illustrate, New Zealand as a relatively small country in terms of size, population, and economy has recently reconstructed its science and technology capacity. In this regard, New Zealand has begun to support science related funds and restructure departments and bodies within the government in line with scientific necessity while prioritizing science in certain policy subjects including climate change, biodiversity, sustainable energy and so on. In return, New Zealand's diplomatic relations with countries that were previously not included in the list of its trading partners have improved on a broad scale and the country increased its visibility in the international negotiations regarding the global challenges. Thus, it is clear that the New Zealand's decision to reconstruct its science and technology capacity was aimed to increase the country's voice in international arena and develop mutual relations beyond its continent (Gluckman et al., 2012: 3-6).

In addition to the country examples above, non-state actors such as private foundations, research agencies or regional organizations have actively engaged in science diplomacy in recent years. In particular, the EU has given greater role to science and science diplomacy. Hence, analyzing the motives of the EU's increasingly visible policy decisions in science diplomacy, particularly on climate change, is crucial for the aim of this paper. It is also significant to underline the role of science diplomacy in Europe which will be examined in a detailed way in the following chapter.

4. Role of Science Diplomacy in Europe

Science diplomacy is not a strange concept for Europe. In particular, after the end of the Second World War, science was seen as a significant tool for recovery to Europe from the disastrous impacts of the two world wars. In an attempt to improve mutual relations among

European countries and unify the divided continent in 1954, CERN, one of the largest research centers of the world in the area of physics was established with the contribution of twelve European nations including Germany and Italy as well. Frankly, ideological background of CERN is based upon the idea of establishing a scientific institution which is rooted in a movement to bring peace and reconstruction of Europe at the same time (Ruffini, 2017: 94).

Unifying and softening role of CERN as a major scientific institution in Europe paved the way for building bridges between the European countries which was deteriorated due to both world wars. Thanks to high level of collaboration on ongoing scientific research within the programme, first contacts between German and French scientists were made and this eventually led to restoration of Franco-German relations with the Elysée Treaty in 1963 (Turekian et al., 2015: 9). Similarly, collaboration on scientific issues within the programme provided opportunities for scientists from both East and West Europe to collaborate and also enabled the first contact between the USSR and Europe. This resulted with the conclusion of the first ever contract between the USSR and Europe through CERN, as the first European organization during the Cold War period. In addition to the USSR, CERN's collaboration on ongoing research activities with other countries including China, Taiwan, India, and Pakistan in the following years has shown that ties among countries can be strengthened without taking into consideration of national, racial, or ideological backgrounds of the countries, when the subject is science (Ruffini, 2017: 95). Once CERN's influence and unifying power became global, research facilities have been continued to establish within the EU such as European Space Agency or outside of the EU such as Synchrotron-light for Experimental Science and Application in the Middle East (SESAME) which was established in the Middle East with contribution of the EU.

Historically, even though the EU has been involved in science diplomacy since the 1950s, turning points in terms of prioritizing science as a strategic foreign policy tool in the union's external policies were achieved first with the adoption of "Strategic European Framework for International Science and Technology Cooperation" in 2008 and then adoption of "Enhancing and Focusing EU International Cooperation in Research and Innovation: A Strategic Approach" in 2012, and finally with the appointment of Carlos Moedas as the EU Commissioner for Research Science and Innovation in 2014 (Langenhove, 2017: 10).

Initially, the proposed framework titled with "*Strategic European Framework for International Science and Technology Cooperation*" was published by the European Commission in 2008. According to proposed framework, the aim of the cooperation is to

improve research efforts and facilities of the union through using new technologies and increasing collaboration across the continent so that the EU can respond global challenges effectively which also assist ultimately the EU to increase its research capabilities and attractiveness around the world (Commission of the European Communities, 2008).

Similar efforts can be seen in the strategic document titled with "*Enhancing and Focusing EU International Cooperation in Research and Innovation: A Strategic Approach*" which was published in 2012. The aim of the document is to strengthen the EU's research and innovation capacity as well as coping with the global challenges and supporting the union's external policies. However, it is also essential to emphasize that the document has a significant place since science diplomacy as a strategic concept was mentioned in the document for the first time. The following statement was made in the document regarding science diplomacy:

> Science diplomacy will use international cooperation in research and innovation as an instrument of soft power and a mechanism for improving relations with key countries and regions (European Commission, 2012).

Despite prioritizing science diplomacy in the union's strategic documents in the last decade, remarkable change was noticed particularly during Carlos Moedas's term as the EU Commissioner for Research Science and Innovation. Individually, Moedas believes strategic role and power of science and obviously science diplomacy in terms of developing the EU's science and technology capacity and increasing its attractiveness around the world. During one of his speeches at the European Institute in Washington in 2015, he emphasized the role of science diplomacy by saying the following statement.

> Science diplomacy to play leading role in our global outreach for its uniting power. Certainly, with our closest partners, but, even more so, where it can make an even greater difference: where the political situation is more complex (European Commission, 2016).

According to him, science diplomacy has a potential to *"light the way where other kinds of politics and diplomacy have failed"*. Therefore, he strongly supported the idea that the EU should be involved actively and visibly in science diplomacy in the 21st century, to efficiently implement their policies pertaining to development, international relations, and neighborhood (Langenhove, 2017: 10). Since Moedas boldly expressed the importance of science diplomacy for the union on all occasions, it is crucial to quote his below statement on this topic:

> We need to Open to the World! Europe is a global leader in science, and this should translate into a leading voice in global debates. To remain relevant and competitive, we need to engage more in science diplomacy and global scientific collaboration. It is not sufficient to only support collaborative projects; we need to enable partnerships between region and countries. Challenges in areas like energy, health, food, and water are global

> challenges. And Europe should be leading the way in developing global research partnerships to address these challenges (European Commission, 2016).

Alongside these developments, science diplomacy's role within the EU has increased as a significant instrument for increasing the union's soft power potential and improving its strategic relations around the world. In addition, it is also essential to highlight that science diplomacy is used for the sake of supporting the union's external policy goals specifically in the case of addressing the global challenges. Since the global challenges that the union has faced, such as climate change, energy, and food security etc. all require international response, science can assist the union in its policy making process as long as their policy makers are guided on recent scientific evidence and information (European Commission, 2016). Thus, the EU policy makers focus on the needs of the scientific community to become the scientific excellence center of the world, or in other words, make the EU a global brand for scientific excellence. Through this, the union is able to find innovative solutions to address the global challenges. Since being left out of the problem-solving process to global challenges will jeopardize the EU's position as a major global actor in the world politics, it is crucial for the EU to be involved in science diplomacy. When the union's research and innovation capacity are combined with their growing science diplomacy activities, such as the creation of the European Research Area, increasing the union's budget for research and innovation programme, and funding programme for international cooperation, it is not surprising to see a rise in the attractiveness of the union around the world (Moedas, 2016: 2).

Likewise, it will also pave the way for the extension of European values of promoting and ensuring freedom, democracy, human rights, equality, and rule of law which are significant for the union's internal aims. In addition, the EU also has aims within the wider, external world which include sustainable development of earth, protection of environment and so on (The European Union, 2022). Achieving these external aims are significant for the EU as stated by Ursula Von Der Leyen, The President of the European Commission, who underlined the importance of sustainable development and new growth strategies for the planet and life on it during the presentation of European Green Deal in 2019. This also explains the EU's efforts to work together with other nations in terms of the collective responsibility principle for the global challenges. Therefore, openness and engagement with its neighbors and the rest of the world for solving these global challenges are considered as one of the top priorities of the union. To achieve its strategic priorities, it is crucial for the EU to have a leading role in international discussions to maintain its position as a major global power, by finding innovative solutions through using new technologies and sharing knowledge in areas that contribute to scientists from different parts of the world (European Commission, 2016).

Recently, climate change as one of the most urgent global issues of today's world has been given importance to the EU's extending activities in science diplomacy which is also expected to support the EU's policy goals in the subject of addressing the global challenges. Historically, the EU has been at the forefront of tackling with climate change issue. The union has been participating the climate negotiations actively since the Earth Summit in Rio in 1992. Since then, the EU has been playing a decisive role in climate discussions first adoption of Kyoto Protocol in 1997 and then Paris Agreement in 2015. Despite the EU's voluntary effort to reduce its greenhouse gas emission (hereafter GHG) rate which are known as primary reasons of climate change, the impact of the Kyoto Protocol as the first climate related agreement was limited because of unwillingness of other developed countries to ratify the protocol and set the reduction targets (De Las Heras, 2018: 4).

Afterwards, the EU's initiatives and efforts have continued in the subject of signing a new climate agreement. The publication of alarming Fourth and Fifth Assessment Reports of IPCC in 2007 and in 2014 explicitly indicated the necessity of new climate agreement for a better future. During the Paris Agreement negotiations, the EU urgently called all the countries to take legally binding action in the case of determination of mitigation commitments unlike the Kyoto Protocol which required to take responsibility of only industrialized countries. The EU's offer was accepted by the authorities and included to the Paris Agreement as "Nationally Determined Contributions" (NDCs) which include action plans and the policies of the countries in the case of mitigation commitments that they plan to achieve for a certain period of time. In this sense, it is also crucial to underline that the EU called on all countries to revise their NDCs every five years for ensuring dynamism and supervision over the countries' mitigation targets (De Las Heras, 2018: 15).

As a result of the EU's and the international communities' efforts, the Paris Agreement was signed in 2015. The aim of the agreement is keeping the increase in the global average temperature below 2°C while pursuing the best efforts to limit the increase to 1.5°C above pre-industrial levels in order to deal with climate change and minimize its severe effects (United Nations, 2015). After the signing of the Paris Agreement, the EU ratified the agreement, and the union was one of the first group in terms of submitting their NDCs under the name of *"The NDC of the European Union and its 28 Member States"* which indicates that the EU will act collectively throughout the whole process. According to their NDCs, the EU aimed to reduce their GHG emissions by at least 40% by 2030 while also increasing the use of renewable energy sources and rising energy efficiency within the union (European Commission, 2015).

However, the global perspective shifted with the election of Donald Trump as US President and his announcement of the US withdrawal from the Paris Agreement in 2017. This led to a visible increase in anti-environmental voices international arena, including Bolsonaro, the President of Brazil. These anti-environmental voices have jeopardized the applicability and commitments of the Paris Agreement. Therefore, in the absence of US, the EU had to invoke additional efforts in demonstrating its global leadership for their locomotive role in dealing with climate change. Hence the EU plays a decisive role in climate discussions as a key global actor since the mid-1990s and its commitments and objectives about the issue are regarded as crucial by virtue of its responsibility to set an example for the other nations which has been emphasized several times by the bureaucrats within the union.

In this sense, ongoing discussion between the European Parliament and the European Commission about determination of a net zero emission target for the EU as a long-term vision was resulted in adoption of aiming climate neutrality by 2050. In an attempt to achieve the EU's strategic priority and the long-term vision, "The European Green Deal" was represented in the European Commission in 2019. Ursula Von Der Leyen, The President of the European Commission implied the importance of The European Green Deal by giving the following statement (Jensen, 2020: 1).

> The European Green Deal is our new growth strategy…We will help our economy to be a global leader by moving first and moving fast. We are determined to succeed for the sake of this planet and the life on it…By showing the rest of the world how to be sustainable and competitive, we can convince other countries to move with us (European Commission, 2019).

The aim of the deal is to make Europe first climate neutral continent in 2050. As part of the deal, policy measures and financial resource mechanisms have been explained in a detailed way. To achieve the target and make the EU first climate neutral economy in the world, the Commission proposed to revise and enhance the EU's mitigation targets which had been proposed in their first NDCs in 2015. Thus, in 2020, the Commission adopted "2030 EU Climate Target Plan" which proposed to increase the EU's mitigation target from 40% to 55% by 2030 while offering regulatory revisions, and new initiatives regarding climate change policy framework and reduction targets for sectors such as industry, building, agriculture, waste, and transportation. Subsequently, all these action plans, policies and legislative revisions were presented under the name of "Fit For 55" package during the commission work programme for 2021 alongside revising and enhancing the NDCs of the union in accordance with more ambitious mitigation targets as offered (Jensen, 2020: 2-3).

In addition to the efforts within the union in terms of working closely with the specialists and scientists to determine the ambitious goals and long-term visions about climate change, the union has also begun to work closely with the international partners and countries so as to deal with climate change in the last decade. This paves the way for significant rise in science diplomacy activities of the union such as sharing their expertise through bilateral or multilateral agreements about mitigation trading, supporting transfer of technology and research collaboration with other countries through research and innovation programme like Horizon Programme. Besides the union's decision to work closely with the international fora which have direct influence on the climate negotiations including Organization for Economic Cooperation and Development, International Energy Agency, Major Economies forum on Energy and Climate, IPCC, G8 and G20 countries is crucial to improve the implementation of climate related policies in the world politics (European Commission, 2021).

To sum up, all the efforts of the EU from Kyoto to Paris in the case of tackling with climate change issue indicate that the union has been acting in the perspective of science for globe rather than science for the continent. This understanding is directly related with supporting the EU's policy goals in terms of demonstrating its global leadership in the world politics and also achieving its aims with respect to wider world by addressing the global challenges as one of the world's major economic and political union. Hence the EU's advanced technological capacity is significant resource to address the global challenges, collective usage of these resources will contribute solution process of these challenges as well as increasing attractiveness of the union around the world. Thus, the union's science diplomacy activities regarding climate change which have been mentioned above play an important role in terms of supporting the union's policy goals.

5. Conclusion

In addition to countries, non-state actors have also recently acknowledged the strategic importance and value of science and subsequently adopted science diplomacy as a part of their foreign policy making process. Although the EU has been at the forefront of scientific developments and the cooperation, the union's decision to use science diplomacy as a strategic foreign policy tool is relatively new. In the last decade, the EU begun actively using science diplomacy to support the union's external policies on global challenges as well as increasing the union's soft power potential and improving its relations with strategic countries and regions around the world.

As analyzed in this paper, addressing global challenges is one of the top priorities of the union due to two main reasons. First, it is crucial for the EU to remain its position as a global power in the world politics by having a locomotive role in international discussions about the global challenges. Second, addressing global challenges is significant for achieving the union's aims within the wider world, which include sustainable development of the earth and protection of the environment. This plays a vital role in determining the union's policy goals in the perspective of science for the globe, rather than science for the continent. Therefore, climate change, as one of the most threatening issues in today's world has found a place for itself in the EU's extending activities in science diplomacy so as to support the union's policy goals of addressing global challenges.

Peer-review: Externally peer-reviewed.

Conflicts of Interest: There is no potential conflict of interest in this study.

REFERENCES

Commission of the European Communities. (2008). Strategic European framework for international science and technology cooperation. 26 April 2022, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52008DC0588.

De Las Heras, B. P. (2018). From Kyoto to Paris: The European Union's contribution to a new world climate order. *Revista Catalana De Dret Ambiental*, *9* (1), 1-26.

European Commission. (2012). Enhancing and focusing EU international cooperation in research and innovation: A strategic approach. 26 April 2022, https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A52012DC0497

European Commission. (2015). Intended nationally determined contribution of the EU and its 28 member states. 26 April 2022, https://www4.unfccc.int/sites/submissions/INDC/Published%20Documents/Latvia/1/LV-03-06-EU%20INDC.pdf.

European Commission. (2016). Open innovation, open science, open to the world*:* A vision for Europe. 26 April 2022, https://data.europa.eu/doi/10.2777/552370.

European Commission. (2019). The European Green Deal sets out how to make Europe first climate-neutral continent by 2050, boosting the economy, improving people's health and quality of life, caring for nature, and leaving no one behind. 26 April 2022, https://ec.europa.eu/commission/presscorner/detail/en/ip_19_6691.

European Commission. (2021). Statement by European Commission President Ursula Von Der Leyen on the outcome of COP26. 26 April 2022, https://ec.europa.eu/commission/presscorner/detail/en/statement_21_6023 https://ec.europa.eu/clima/eu-action/international-action-climate-change/cooperation-non-eu-countries-regions_en.

European Union. (2022). Aims and values. 26 April 2022, https://european-union.europa.eu/principles-countries-history/principles-and-values/aims-and-values_en.

Flink, T. & Schreiterer, U. (2010). Science diplomacy at the intersection of S&T policies and foreign affairs: Toward a typology of national approaches. *Science and Public Policy, 37* (9), 665-677.

Gluckman, P. T., Goldson, S. L. & Beddle, A. S. (2012). How a small country can use science diplomacy: A view from New Zealand. *Science & Diplomacy, 1* (2), 1-7.

Gluckman, P. T., Turekian, V. C., Grimes, R. W. & Kishi, T. (2017). Science diplomacy: A pragmatic perspective from the inside. *Science & Diplomacy, 6* (4), 1-13.

Jensen, L. (2020). EU climate target plan: Raising the level of ambition for 2030. European Parliamentary Research Service**.** 26 April 2022, https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/659370/EPRS_BRI(2020)659370_EN.pdf.

Langenhove, L. V. (2016). Global science diplomacy for multilateralism. *Science & Diplomacy, 5* (4), 1-8.

Langenhove, L. V. (2017). Tools for an EU science diplomacy. European Commission. 26 April 2022, https://data.europa.eu/doi/10.2777/911223.

Moedas, C. (2016). Science diplomacy in the European Union. *Science & Diplomacy, 5* (1), 1-9.

Nye, Jr. J. S. (2004). *Soft power: The means to success in world politics.* (1. Edition). Public Affairs.

Özkaragöz Doğan, E. (2015). *Science diplomacy in the global age: Examples from Turkey and the world*. (Unpublished Doctoral Dissertation). Middle East Technical University Institute of Social Sciences, Ankara.

Özkaragöz Doğan, E., Uygun, Z. & Akçomak, I. S. (2020). Can science diplomacy address the global climate change challenge? *Environmental Policy and Governance, 31* (1), 31-45.

Ruffini, P. B. (2017). *Science and diplomacy: A new dimension of international relations*. Springer International Publishing.

The Royal Society (2010). New frontiers in science diplomacy: navigating the changing balance of power. Science Policy Centre. 26 April 2022, https://www.aaas.org/sites/default/files/New_Frontiers.pdf.

Turekian, V. C., Macindoe, S., Copeland, D., Davis, L.S., Patman, R. G. & Pozza, M. (2015). The emergence of science diplomacy. In David, L. S., and Patman R. G. (Eds), *Science diplomacy: New day or false dawn?* (pp.3-24). World Scientific Publishing.

United Nations. (2015). Paris Agreement. 26 April 2022, https://unfccc.int/sites/default/files/english_paris_agreement.pdf.