



## Article

# Assessing Türkiye's Prospective Involvement in the Arctic Region: A Qualitative Inquiry from Energy and Environmental Perspectives

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**Abstract:** Recent developments in the Arctic region, mainly marked by climate change, have caused the region to receive increasing attention from regional and non-regional actors, mainly due to emerging energy-related opportunities and environmental concerns. The main reason for non-regional stakeholders to become involved in the Arctic region to pursue their interests is to obtain the observer status in the Arctic Council. Accordingly, this manuscript analyzes the long-term perspective of Türkiye's involvement in the Arctic region as a non-regional actor and reveals a set of enablers and disablers pertaining to energy and environmental domains. For this purpose, in-depth interviews with experts from Türkiye, with Arctic Council members, or with observer countries are conducted. Results of the analysis are also utilized to provide insights regarding countries with similar profiles to Türkiye, i.e., middle-power and developing countries that are geographically distant from the Arctic region. The results highlight energy security, hydrocarbon reserves, and climate change as significant factors for countries such as Türkiye. Scientific, private sector, or intergovernmental cooperation with regional actors to encourage global action and environmental initiatives are the main enablers. Challenges in the extraction and sharing of energy resources, high costs and high technology requirements of energy exploration and extraction activities, increasing human activity, and damages to the Arctic ecosystem are identified as significant disablers.

**Keywords:** Arctic region; Türkiye; climate change; observer status; energy observer status



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## 1. Introduction

The Arctic consists of an ice-covered ocean, surrounded by land north of the Arctic Circle. The Arctic region countries are Canada, the USA (Alaska), Russia, Denmark (Greenland), Finland, Iceland, Norway, and Sweden. The Arctic region, rich in natural resources, is estimated to have approximately 90 billion barrels of oil and 1670 trillion cubic meters of natural gas resources, according to research conducted by the US Geological Survey (US Geological Survey (USGS) 2008). This represents 13% of the world's undiscovered oil reserves and 30% of the undiscovered natural gas resources. Accessibility to these previously unexploited resources has become easier due to climate change.

Although oil extraction activities are likely to be facilitated by global warming, environmental concerns and the Arctic's harsh climate may pose problems for developing these energy resources. Despite rising temperatures, petroleum activities in the Arctic will be much more expensive than in other regions. Costs and risks will be increased by the difficulty of search and rescue operations, the requirement of special equipment for oil activities, and the darkness of the winter months. Concerns over the protection of the natural life of the Arctic region, as raised frequently by non-governmental organizations, are another factor that makes exploration activities problematic.

The Arctic Council, which acts as a legal control mechanism in the region and an intergovernmental forum, was officially established with the 1996 Ottawa Convention. In particular, it aims to ensure cooperation, coordination, and interaction, especially regarding issues such as sustainable development and environmental protection, between the Arctic States, indigenous communities of the region, and local peoples (Arctic Council 2021a). Countries outside of the Arctic geography to are permitted to apply for observer status in the Arctic Council. Observer status is seen as an opportunity for non-members of the Arctic Council to be involved in the region. The increasing importance of the Arctic region and its energy opportunities provide potential opportunities for energy importing countries to improve their energy security or find new energy sources. The Arctic Council also provides opportunities for external states to pursue their interests and express their opinions regarding the region. The Arctic Council has become an attractive international forum for many countries in this regard.

The Arctic Council expects states seeking observer status to meet certain conditions. These include acknowledging and supporting the objectives of the Ottawa Declaration, recognizing the independence and jurisdiction of the Arctic states, and ratification of the United Nations Convention on the Law of the Sea (UNCLOS) (Arctic Council 2021a). Currently, there are 13 states with observer status in the Arctic Council: France, Germany, Italy, Japan, The Netherlands, China, Poland, India, Korea, Singapore, Spain, Switzerland, and the United Kingdom (UK). Observer participants contribute to the Arctic Council at the level of working groups, which is an important means for making their voices heard to pursue their interests. For this reason, it has also attracted the attention of new actors keen to show their presence in the region (Biresselioglu 2013).

The Arctic region is a region of opportunity and interest for global energy markets and represents the final frontier of global energy supply. Alongside others, Türkiye aims to become engaged in the Arctic region and monitor the economic and scientific opportunities emerging, mainly due to climate change. Türkiye applied to the Arctic Council for observer status in 2015, but the application was deemed insufficient. Following the rejection, Türkiye carried out more comprehensive scientific studies pertaining to the Arctic region, sent its first Arctic expedition, and established the Polar Research Institute, coordinating activities with the Ministry of Industry and Technology. Despite some hesitancy and some remaining difficulties with Türkiye's involvement in the Arctic region, the country has demonstrated both willingness and skill. Türkiye produces icebreakers suited for the region and currently has a fleet involved in energy exploration and drilling activities.

The literature related to non-Arctic states' engagement in the Arctic region contains little work relating directly to Türkiye's inclusion and engagement. In this context, this study aims to fill this gap by identifying the enablers and disablers arising from energy and environmental issues in Türkiye's engagement with the Arctic region.

This study will further shed light on the role and contributions of middle-power and developing countries, such as Türkiye, that are similarly geographically distant from the Arctic region and reveals such countries' possible aims and dynamics.

To this end, the research questions to be answered in this study are: (1) what are Türkiye's long-term goals towards engaging in the Arctic region? and (2) what are the enablers and disablers, particularly concerning energy and environmental dimensions, in Türkiye's potential involvement in the Arctic region?

This study uses a qualitative inquiry to address the research questions via experts from Türkiye, Arctic Council members, or observer countries. In-depth interviews with experts reveal the differences between Turkish experts and foreign experts regarding their opinions and impressions of Türkiye's position and initiatives.

## 2. Literature Review

The literature review involves the analysis of the energy and environmental themes regarding the Arctic region, focusing specifically on existing dynamics, enablers, and disablers. The literature review was compiled from scientific sources identified in extensive

state-of-the-art research on Web of Science, ScienceDirect, Scopus, Google Scholar, and Researchgate databases. More than 1000 sources were screened for relevance during the process, and approximately 250 scientific articles were identified as relevant to energy and environmental research. After narrowing the scope to social sciences and humanities, there remained 160 scientific studies relevant to energy and environmental issues, which were subject to in-depth analysis to identify the main themes.

The main keywords to delimit the search of the literature include: "Arctic", "Arctic region", "global warming", "energy resources", "climate change", "Arctic climate", "energy security", "Arctic environment", "continental shelf", "United Nations convention on the law of the sea", "international cooperation", "Arctic development", "resource management", "Arctic ocean", "Arctic resource management", "environmental pollution", "Arctic regime", "Arctic council", "Arctic council member", and "Arctic council observer".

The search for studies in the existing literature concerning developments in the Arctic region pointed to a much greater body in the natural sciences domain than those from the social sciences and humanities (SSH) discipline. However, the increase in SSH-related studies in recent years on this topic can represent a shift of focus from the natural sciences discipline to SSH (Biresselioglu et al. 2020).

### *2.1. Energy Opportunities: Arctic Oil and Gas Resources*

The Arctic region has undergone significant changes in recent years with climate change. Melting of glaciers led to the emergence of opportunities in the region. These opportunities include the accessibility of rich hydrocarbon reserves and minerals, accessible Arctic maritime routes, potential for renewable energy in the region, tourism, and fishery (Morgunova et al. 2020; Tishkov et al. 2020; Tolvanen et al. 2019; Andersson et al. 2018; Maximova 2018; Theocharis et al. 2018). These opportunities have increased the interest of both Arctic and non-Arctic countries towards the region. However, despite these opportunities, changes due to climate change and increased human activity pose a great threat to the Arctic's fragile ecosystem (Dmitrieva and Romasheva 2020; Afenyo et al. 2019; Mikhaylova 2018; Wenning et al. 2018). To this end, the literature review of this study reflects Türkiye's position and initiatives and major Arctic concerns in energy and environmental dimensions.

The natural resources newly accessible with the effect of climate change have a global impact due to the amount involved, estimated to hold 13% of the world's undiscovered oil reserves and 30% of the undiscovered natural gas resources. In addition, 22% of the world's undiscovered and technically recoverable resources are thought to be located in this region (US Geological Survey (USGS) 2008; Nayar 2014).

Scientists predict much easier access to the rich underground resources in the region by 2050, by which time the glaciers will be 30% thinner and will have contracted by nearly 40% (Ydyrys 2017). The richness of the Arctic region's hydrocarbon resources can significantly alleviate the concerns of countries experiencing energy security problems (Biresselioglu et al. 2012). Therefore, relevant strategies are being formulated by littoral states and other countries that will benefit economically and those seeking to increase energy security through energy resources (Matsumoto et al. 2018; Maximova 2018).

Although the climate-related and geographical conditions of the Arctic present various difficulties for development activities in the region, its importance is gradually increasing due to its energy resources. Therefore, an Arctic strategy has become essential for all actors, particularly for the littoral states and others seeking to engage in the Arctic region as solutions to supply energy resources and diversify their supplier countries and energy resources (Matsumoto et al. 2018).

Recent developments in the energy sector and increasing climate change awareness shape the world's attitude towards energy. In this context, natural gas is being proposed in the transition to zero emissions (Lindholt and Glomsrød 2018). The demand for renewable energy sources has also increased with rising global awareness (Inglesi-Lotz 2016). Therefore, the focus is on the Arctic's renewable energy potential and oil and natural

gas resources, and interest in renewable energy in the region will be certain to grow, especially if fossil fuels lose their current prominence in the coming years (Lansetti 2016; Morgunova et al. 2020; Kirsanova et al. 2018; Boute 2016).

In addition to fossil fuels and renewable energy potential, another important aspect is the Arctic's precious mineral resources. In particular, the Lomonosov Ridge, rich in mineral resources and hydrocarbon reserves, is currently the subject of competition between mining operations in Norway, Russia, and Canada (Wasserrab 2019). In this context, mining is an important but contentious industry in the Arctic, as it supports local and regional economic development but creates long-term negative environmental effects (Khaknazarov 2017). To ensure that resources are exploited equitably, studies are required to monitor sustainable mining and promote improved living conditions for local people (Tolvanen et al. 2019).

## 2.2. Environmental Concerns

The extent to which the Arctic summer sea ice is falling due to dramatic temperature increase alongside the long summer months in the region have allowed human activities to accelerate (Eliasson et al. 2017; Keil 2014). As the states pursue economic and political interests in the Arctic region and increase their activities, the environmental degradation will intensify and become more visible.

One of the major environmental problems is the expected heavy use of the Arctic Route, emerging with climate change and the melting of glaciers (Parks et al. 2019). The challenges arising from climate change will further increase the warming and melting of sea ice in the Arctic region, especially due to the release of oil and gas reserves and commercial shipping (Kao et al. 2012). In this context, environmental groups highlight threats to biodiversity and harm to the ecosystem from increasing maritime traffic, human presence, and energy exploration and extraction activities (Booth and Ferris-Rotman 2018; Johannsdottir and Cook 2019). In addition to the pollution caused by ship traffic, the leading environmental concerns are oil spills, sewage, and wastewater. Mitigating the damage by oil spills in an ice-covered sea such as the Arctic Ocean is made more difficult by harsh climate conditions and insufficient logistics infrastructure (Wilkinson et al. 2017; Knol and Arbo 2014). Maritime pollution is expected to escalate as traffic grows (Afenyo et al. 2019). Scientific studies conclude that current adverse impacts of resource extraction and processing will be river pollution, visible air pollution, destruction of forests, and endangering of endemic animal species (Khaknazarov 2017). On the other hand, the Arctic Route will reduce the travel distance between Asia and Europe, thus also reducing fuel requirements and overall use. Accordingly, this is expected to reduce carbon dioxide emissions (Aksenov et al. 2017). However, this reduction is not expected to impact global warming significantly.

In addition to the pollution caused by emerging maritime routes and increasing maritime activities in the region, plastic pollution around the Barents Sea, expected to be one of the key areas of activity in the Arctic, is predicted to pose serious environmental problems (Grosvik et al. 2018). Considering the severity and multitude of environmental issues, the interested countries must focus on developing appropriate policies, with particular attention given to protecting indigenous peoples from environmental hazards.

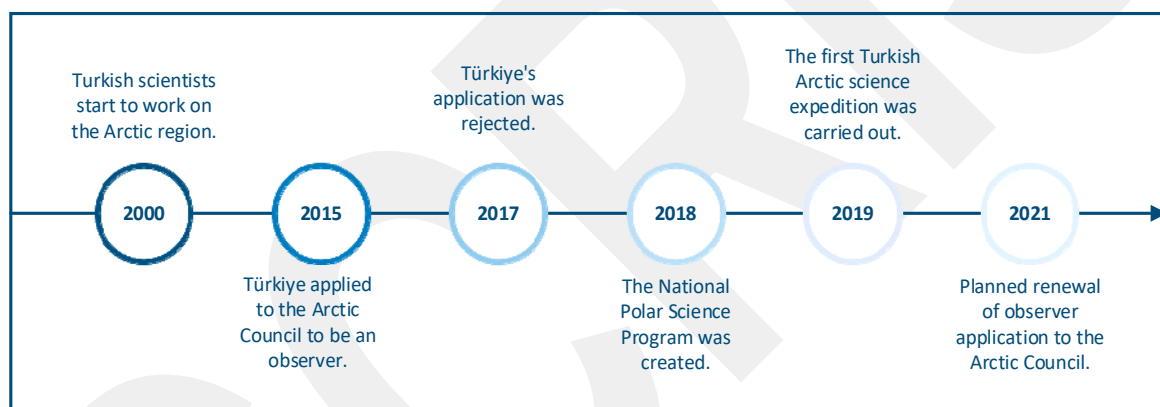
## 2.3. Türkiye's Arctic Policy Development: Position and Initiatives

Eight Arctic States (Canada, The Kingdom of Denmark, Finland, Iceland, Norway, The Russian Federation, Sweden, and the United States) have national jurisdiction in the Arctic region. Türkiye aims to develop a national Arctic strategy for the region in order to gain observer status in the Arctic Council. Alongside Türkiye, many countries have applied for observer status due to climate change and the resulting commercial opportunities for energy resources, trade routes, and various economic activities. Principally, the role of observer countries is simply 'to observe' meetings of the Arctic states and permanent participants (representing various Arctic indigenous groups) (Depledge et al. 2020); nevertheless, the

observer status is quite desirable, providing a degree of legitimacy for the countries that want to engage in the region.

In this context, non-Arctic states aiming to take advantage of the opportunities in the region are developing their strategies. There are 13 observer countries in the Arctic Council, including the United Kingdom, Poland, France, Germany, Italy, The Netherlands, Switzerland, Spain, India, Japan, Singapore, China, and South Korea (Arctic Council 2021b). Observer status allows them to closely follow the developments in the region, contribute to scientific research activities, and work in cooperation with the council members.

Intending to engage in the Arctic region, Turkish scientists have worked on the Arctic region since the 2000s and have demonstrated their scientific interest. After an initial attempt to develop this research interest in the region, the Arctic Council rejected an official application for the observer status in 2015. The National Polar Science Program was established in 2018 to assess potential strategies and policies in the polar regions (Ministry of Science, Industry and Technology 2018). In 2019, the first Turkish scientific expedition was conducted, demonstrating Türkiye's continued interest in the region, and contributing to scientific studies (Polar Research Institute 2021). Currently, there are plans to renew the observer country application to the Arctic Council with a more comprehensive application file. Figure 1 below illustrates the chronological steps of Türkiye regarding the process of engagement to the Arctic region.



**Figure 1.** Timeline of Türkiye's activities regarding the Arctic region.

These developments and initiatives require a thorough analysis of opportunities and challenges in the region in order to establish a comprehensive policy toolbox and develop a roadmap, leading to concrete policies and political progress in the Arctic region.

### 3. Method

The methodology in this paper follows a qualitative inquiry. The dataset utilized in the study came from the semi-structured in-depth interviews conducted during the TÜBİTAK project, "The Challenges and Opportunities in Arctic Region: Designing a Strategic Roadmap for Türkiye". The methodological approach involved semi-structured in-depth interviews with stakeholders at 3 different levels, including (1) policymakers, (2) representatives of the private sector (commercial institutions), and (3) scientists and researchers. This approach ensured a consistent analysis and interpretation of enablers and disablers in Türkiye's engagement in the Arctic region. In addition, these meetings shed light on the issues to be taken into account while preparing a strategic roadmap appropriate for developing and middle-power countries seeking to meet their energy needs via resources in the Arctic region. In this context, semi-structured in-depth interviews were conducted with 18 relevant stakeholders with expertise in Arctic issues (9 interviews with experts from Türkiye, and 9 with experts from Arctic Council members and observer countries). This approach provides an opportunity to understand Türkiye's perspective

on the Arctic region by comparing the perceptions of Turkish experts with those of Arctic Council members and observer states regarding Türkiye's engagement in the Arctic.

The methodology provides the opportunity to reach the most up-to-date information first hand, and provides a comprehensive data collection that enhances monitoring and understanding of the interviewees' responses (Bireselioglu et al. 2018). The mixed and homogeneous method of stratified purposive sampling, which combines stratified sampling and purposive sampling, was used to select the target sample. The stratified sampling method, first proposed by Bowley (1926), also discussed by Neyman (1934), is defined as a method that emerges by randomly selecting people or groups with similar characteristics within the target population. In further studies, Patton (1990, 2002) states that it would be beneficial to combine stratified sampling with purposive sampling, allowing the researcher to discover and identify similarities and differences between layers. Patton (1990, 2002) defines this method as "... selecting a sample within a sample". The selection criteria for samples in this study was for experts to represent groups active in decision-making processes. Representatives of these stakeholders are particularly important since they have a key role in the Arctic region and its governance.

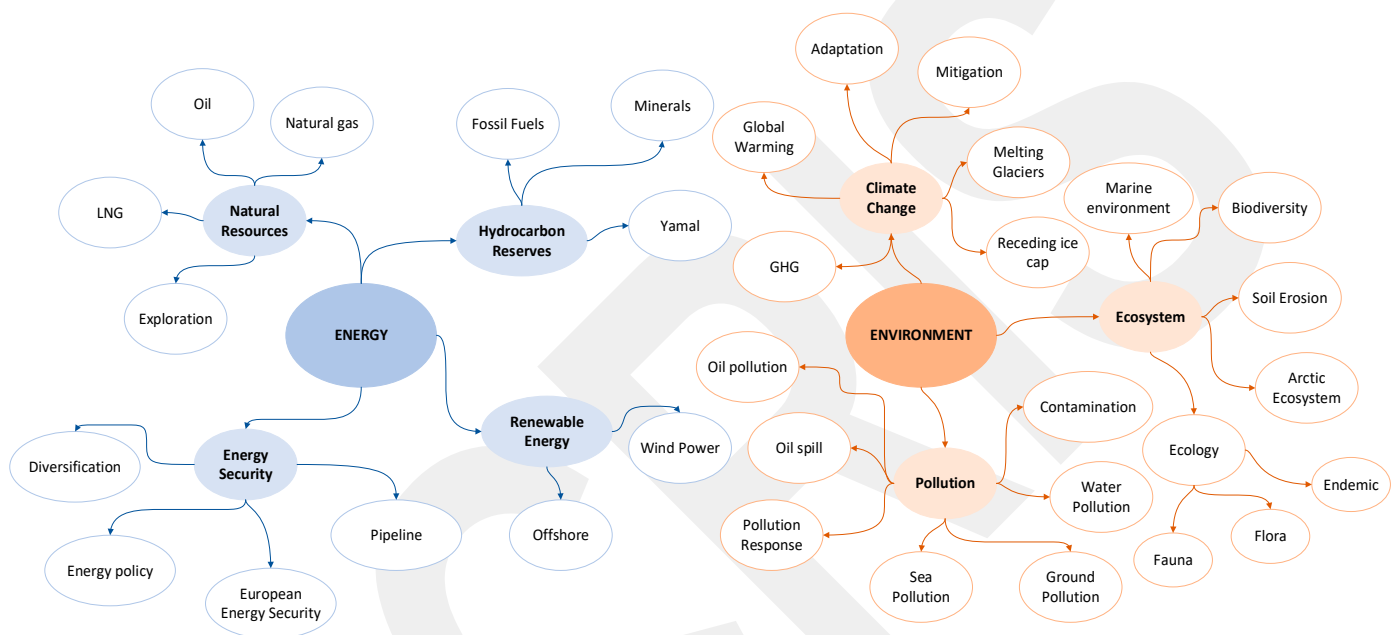
The expert interviewees were selected to represent 3 stakeholder groups, including researchers, policymakers, and private sector representatives. The areas of expertise of the interviewees cover a wide spectrum of relevant fields, including climate change, environment, military, defense industry, oil and natural gas, and international security.

In the analysis of the semi-structured in-depth interviews, the personal information of the participants was confidential, and the opinions of the stakeholders were reported anonymously. A summary of the semi-structured in-depth interview characteristics is presented in Table 1.

**Table 1.** Semi-structured in-depth interview characteristics.

# Interview	Country	Position	Stakeholder Level
Interview 1	Türkiye	Academician (Climate Change and Environment)	Scientist/Researcher
Interview 2	Türkiye	Academician (Energy Geopolitics and Security)	Scientist/Researcher
Interview 3	Türkiye	Advisor in an International NGO	Policymaker
Interview 4	Türkiye	Ambassador	Policymaker
Interview 5	Türkiye	Military Attaché	Policymaker
Interview 6	Türkiye	Environment and Climate Change Consultant	Private Sector Representative
Interview 7	Türkiye	Senior Executive in Oil and Natural Gas Sector	Private Sector Representative
Interview 8	Türkiye	Senior Consultant in the Defense Industry Sector	Private Sector Representative
Interview 9	Türkiye	Academician (International Law)	Scientist/Researcher
Interview 10	Sweden	Director and Researcher	Private Sector Representative
Interview 11	USA	Senior Policy Advisor	Policymaker
Interview 12	USA	Senior Executive	Private Sector Representative
Interview 13	Norway	Senior Defense Advisor	Policymaker
Interview 14	Norway	Scientist	Scientist/Researcher
Interview 15	Italy	Senior Executive	Private Sector Representative
Interview 16	The United Kingdom	Senior Researcher	Scientist/Researcher
Interview 17	Poland	Advisor in International Security Program	Policymaker
Interview 18	France	Researcher	Scientist/Researcher

Upon completing the semi-structured in-depth interviews, all voice data was transcribed, and the interviews conducted in Turkish were translated to English. Data analysis was initiated with a nearly 150-page corpus consisting of 18 in-depth interview transcriptions. In the analysis, following the guidelines by [Strauss and Corbin \(1990\)](#) and [Kvale \(1996\)](#), triangulation and coding were utilized to avoid any possible bias stemming from interpretation. In the triangulation method, the authors simultaneously analyzed the corpus by comparatively interpreting and checking the accuracy and validity of the semi-structured in-depth interviews ([Shenton 2004](#)). Following the triangulation, the first stage of the analysis was completed through open coding. In this context, Figure 2 illustrates the coding results.



**Figure 2.** Open coding results.

The coding results show that energy-related aspects for Türkiye in the Arctic region cover the main themes of natural resources, hydrocarbon reserves, renewable energy, and energy security. Oil and natural gas exploration and extraction activities in the Arctic are liable to certain challenges, such as continental shelf and exclusive economic zone problems. Not being a littoral state, Türkiye's involvement in the region through natural resource exploration and extraction activities is inevitably subject to significant challenges. However, the opportunity to diversify the resources to strengthen energy security is still considered a remedy for developing countries such as Türkiye, and energy security is a prime motive for the involvement of countries in the region.

The environment-related aspects focus more on protecting the Arctic ecosystem, climate change adaptation, and mitigation. Another group of themes pertains to the consequences of climate change and environmental pollution due to economic activities. The rising industrial activities in the region pose significant threats, particularly for the marine environment and biodiversity; therefore, it is essential to develop pollution response mechanisms in case of contamination, oil spills, ground pollution, and water pollution. Scientific efforts to protect the ecosystem, flora, and fauna are critical for Türkiye's Arctic region engagement.

#### 4. Results and Discussion

This section presents the emerging outcomes of the developments in the Arctic region, addressing Türkiye's position, positive mediators, and negative mediators in the country's engagement. The results are based on an extensive field study, utilizing a qualitative

technique of in-depth interviews, reflecting on the perspectives of representatives from various stakeholder levels.

The factors supporting Türkiye's engagement in the Arctic are defined as enablers, and the factors preventing them from taking action and discouraging the engagement process as disablers.

#### 4.1. Energy

##### 4.1.1. Enablers Regarding the Energy Aspect

The rich natural resources in the region attract the attention of Arctic and non-Arctic countries and increase their importance in the international arena. In this context, experts agree that the region will maintain its importance in meeting the increasing energy needs:

*"The civic importance of the Arctic region appears to have increased. This is related to the fact that there are serious hydrocarbon and energy resources in the region."*

*Interview 8, Türkiye, Senior Consultant in the Defense Industry Sector, Private Sector Representative.*

*"There is a very serious amount of oil and natural gas resources in this region, and the days when humanity can access them are getting closer. This in itself is a new energy center of the future, a new Middle East."*

*Interview 4, Türkiye, Ambassador, Policymaker.*

*"When we say the Arctic, we are talking about a region that has been spoken more and more in recent years, especially in the context of energy. Because the energy demand due to the rapidly increasing economic growth, the increasing energy demand due to the population, directs our attention to new regions, especially to regions that have not been explored until now, at the point of constantly searching for new resources."*

*Interview 2, Türkiye, Academician (Energy Geopolitics and Security), Scientist/Researcher.*

*"Glaciers are melting in the Arctic region, making the region more moderate. The possibility of extracting natural resources is rising. Of course, the first thing we think about is oil. Because other oceans are getting empty, this means that there is a potential in the north, and this potential will become more important as the glaciers melt."*

*Interview 13, Norway, Senior Defense Advisor, Policymaker.*

In addition to the region's rich hydrocarbon resources, experts repeatedly stressed the renewable energy potential of the region and the necessity of maintaining a sustainable approach by, for instance, increasing energy efficiency and reducing energy density in the region. Storage issues hinder the exploitation of estimated ample renewable energy potential in the Arctic region, and technological solutions are needed to overcome the problems of geographical distance of the region from potential areas of demand, as current energy storage technologies are not yet mature enough. Hence, advances in energy storage technologies are required to access the renewable energy potential in the Arctic region. This situation presents an opportunity for countries such as Türkiye to be involved in the region through R&D in energy storage technologies:

*"We should work with major oil companies to ensure sustainable extraction of resources. I see great potential in cooperation."*

*Interview 14, Norway, Scientist, Scientist/Researcher.*

*"Focusing on energy efficiency and reducing the energy density. These should be the main goals. Therefore, the future of the world is in renewable resources. This is a huge disadvantage for the Arctic at a time when oil prices are low."*

*Interview 2, Türkiye, Academician (Energy Geopolitics and Security), Scientist/Researcher.*

*"When we talk about renewable energy, we usually talk about generating electricity. When it comes to generating electricity, the storage problem arises . . . It is difficult for all*

*countries to reduce emissions from the Arctic region because being in the Arctic region will create emissions. Where will you transfer the renewable energy you produce there? Where will you connect it? It does not seem possible because the Arctic is so far away."*

*Interview 6, Türkiye, Environment and Climate Change Consultant, Private Sector Representative.*

For non-Arctic states, the resource wealth in the Arctic region is not limited to the hydrocarbon resources and renewable energy potential; the region's valuable mineral resources also attract attention. Opportunity exists in the wide spectrum of usage areas for these mineral resources, such as the pharmaceutical industry. The experts stated that Türkiye's cooperation with regional states in the extraction of these precious minerals is a door of opportunity to become an actor in the region:

*"We can have a serious economic gain in valuable minerals rather than energy. I believe that it will be more advantageous for Türkiye to turn to valuable minerals as the dependency on fossil fuels will decrease after the years of 2030–2040."*

*Interview 9, Türkiye, Academician (International Law), Scientist/Researcher.*

*"The Arctic region is an important area for the pharmaceutical industry. Especially, minerals from the Arctic region are very important to the pharmaceutical industry. The activities of these pharmaceutical companies on minerals are also seen in the region."*

*Interview 7, Türkiye, Senior Executive in Oil and Natural Gas Sector, Private Sector Representative.*

*"The commercial and economic importance of this region for Türkiye may increase more with the increase in the need for energy, hydrocarbon resources, and valuable minerals as a result of industrialization."*

*Interview 8, Türkiye, Senior Consultant in the Defense Industry Sector, Private Sector Representative.*

*"My main focus is on the opportunities created by the extraction of minerals in the Arctic region."*

*Interview 11, USA, Senior Policy Advisor, Policymaker.*

Both Arctic and non-Arctic actors are closely interested in the region and perceive the emerging opportunities for the development of energy resources. These countries regard cooperation between all possible actors as the most effective way to protect the political and economic balance in the region. In this context, countries aiming to engage in the region, such as Türkiye, should similarly develop strategies to build cooperation with regional actors, whether in the scientific field, in the private sector, or through inter-governmental cooperation. In this sense, to take full advantage of the opportunities for regional development, regional actors should cooperate both among themselves and with non-Arctic states.

*"As Türkiye becomes more scientifically collaborative, I think there will be no need to discuss Türkiye's involvement in the region if Türkiye's scientists begin to coordinate with the United States, Canada, Russia, and others."*

*Interview 12, USA, Senior Executive, Private Sector Representative.*

*"I think that Arctic scientific cooperation will be more beneficial for Türkiye than an energy-oriented strategy."*

*Interview 6, Türkiye, Environment and Climate Change Consultant, Private Sector Representative.*

*"As a NATO ally, Türkiye has a chance to enter the Arctic through some kind of cooperative and positive talks with the United States . . . I think the Arctic region is an area that needs coordination and cooperation."*

*Interview 12, USA, Senior Executive, Private Sector Representative.*

*“There is a study about the fact that Russia cannot develop its oil in the Arctic region alone. That is why they need partners to work with. It would make sense to cooperate with Norwegian oil companies in a country like Norway because of so much experience and technological know-how.”*

*Interview 13, Norway, Senior Defense Advisor, Policymaker.*

*“The United States views the Arctic mostly in terms of energy and economic operation in Alaska.”*

*Interview 16, The United Kingdom, Senior Researcher, Scientist/Researcher.*

The expert statements underline that the actors in the Arctic region should emphasize their specific strengths, citing the example of Russia, whose investments in icebreaker ships are seen as key in their Arctic strategy. Similarly, the strengths of Türkiye should be highlighted in its national Arctic strategy. In this context, Türkiye’s ship production capacity should be underlined as a potential basis for cooperation with regional actors. Similarly, Türkiye can engage with the region commercially as a producer of icebreaker ships:

*“Russia is at a different point regarding oil and natural gas production. In this context, it is possible to say that they will want to benefit more from the resources in the region than other actors. Its investments in nuclear and icebreaker ships are increasing, and this shows that Russia wants to play an active role in the region.”*

*Interview 1, Türkiye, Academician (Climate Change and Environment), Scientist/Researcher.*

#### 4.1.2. Disablers Regarding the Energy Aspect

The opportunities brought by the region’s energy resources and valuable minerals bring challenges related to their extraction and allocation. Border disputes are arising from the United Nations Convention on the Law of the Sea between the littoral states, especially in areas rich in energy and mineral resources. Regional states can request expansion of up to 350 nautical miles in addition to their given 200 nautical miles of exclusive economic zone. This situation, however, may pose a problem for the development of energy resources in the region:

*“Speaking of challenges, there is no overarching international framework for conflict resolution in the Arctic region. The closest we have to this is the United Nations Convention on the Law of the Sea.”*

*Interview 13, Norway, Senior Defense Advisor, Policymaker.*

*“It is said that there is a war over energy resources, but most energy resources are already within the exclusive economic zones of littoral states. The areas that Türkiye can claim are international waters, which we consider as “common ground”. There can only be bilateral cooperation within the exclusive economic zones of Arctic states.”*

*Interview 9, Türkiye, Academician (International Law), Scientist/Researcher.*

Another challenge is the decreasing interest in fossil fuels due to increasing carbon emissions and the negative effects of global warming. With the increase in environmental awareness, energy exploitation activities in the Arctic region become more difficult:

*“In these days when environmental awareness has become very widespread, the interest in this place has decreased, apart from the oil and natural gas lobbies.”*

*Interview 2, Türkiye, Academician (Energy Geopolitics and Security), Scientist/Researcher.*

Energy activities in the Arctic region have high technological requirements and are costly compared to traditional oil extraction activities. Equipment requirements for polar conditions may mean that it is not economically rational to engage in energy activities during low oil prices. This situation can be perceived as an obstacle to the development of energy resources in the Arctic region:

*“Searching for and extracting energy resources in the region is both costly and technologically challenging. So, in the short term, it may not be a low-cost alternative.”*

*Interview 8, Türkiye, Senior Consultant in the Defense Industry Sector, Private Sector Representative*

*“The Arctic region is a somewhat difficult and costly area. There are lots of ice and rough areas. We now use observation systems, autonomous robots, vehicles, and ships that can access this region.”*

*Interview 14, Norway, Scientist, Scientist/Researcher.*

## 4.2. Environment

### 4.2.1. Enablers Regarding the Environmental Aspect

As aforementioned, while creating policies for the Arctic region, littoral states and observer states should prioritize environmental protection through cooperation. Considering that any Arctic region changes are likely to affect all humanity, global action should be prioritized over national interests. Therefore, Türkiye should keep a focus on the environment as climate-related Arctic research may be an enabler for Türkiye’s involvement in the region:

*“But from an environmental point of view, first of all, whether this is the Arctic Council or the observer countries, basic principles should be established to protect this place. Adhering to these principles, it is necessary to take advantage of the opportunities here.”*

*Interview 7, Türkiye, Senior Executive in Oil and Natural Gas Sector, Private Sector Representative.*

*“Türkiye’s engagement in the region will be a very positive situation in terms of increasing the global dimension of the Arctic. Because this is a development that will strengthen the division and international dimension of the Arctic.”*

*Interview 18, France, Researcher, Scientist/Researcher.*

*“What happens in the Arctic Ocean is the kind of thing that will concern everyone on the planet? It is not just about a particular region. Therefore, all states in the world are stakeholders in what is happening. At the same time, each nation has a certain responsibility, perhaps a duty, to contribute. So the responsibilities are not directly national but global. I think any scientific activity in the region should take place without ignoring nationality.”*

*Interview 14, Norway, Scientist, Scientist/Researcher.*

*“From time to time, our politicians also talk about how much we care about the climate issue on a global scale. Focusing on these areas may be beneficial in terms of raising Türkiye’s profile. In other words, Türkiye should come out of its shell and focus on the climate area.”*

*Interview 3, Türkiye, Advisor in an International NGO, Policymaker.*

### 4.2.2. Disablers Regarding the Environmental Aspect

The expert interviews highlighted climate change and global warming as the foremost concerns regarding the Arctic region. Although the effects of global warming and changes in the region due to the melting of glaciers often bring opportunities, their long-term effects on the ecosystem have still not been fully assessed. The melting ice cover as a result of global warming disrupts the global balance, and experts frequently highlight its environmental impact on natural processes:

*“As the ice cover disappears, you have different light regimes during the summer months. Thus, the world begins to receive more light. This will cause some problems in the formation of algae and the emergence of organisms that would not normally be there during the summer months. As a result, you will find yourself in a chain of effects in which different organisms are formed outside of the right time.”*

*Interview 14, Norway, Scientist, Scientist/Researcher.*

*“Climate change is a global problem because melting glaciers in the Arctic is triggering global change. Oceans are changing, causing climate systems to change. The acceleration of storms, the growth of cyclones are processes associated with melting glaciers.”*

*Interview 1, Türkiye, Academician (Climate Change and Environment), Scientist/Researcher.*

*“As the ice sheet disappears, the area becomes more and more bare and unprotected. We can say that the ice cover is somewhat misunderstood or not fully understood within the ecosystem. In other words, it is not fully understood how the ice cover affects life.”*

*Interview 14, Norway, Scientist, Scientist/Researcher.*

*“I believe ecosystem function should be preserved. Therefore, I think that the impact of any operation to be performed there should be evaluated.”*

*Interview 6, Türkiye, Environment and Climate Change Consultant, Private Sector Representative.*

*“We should work with major oil companies to ensure sustainable extraction of resources. I see great potential in cooperation.”*

*Interview 14, Norway, Scientist, Scientist/Researcher.*

Environmental pollution from increasing industrial and tourism activities in the Arctic region represents great threats. In this context, increased human mobility threatens a large portion of the Arctic region, especially in Svalbard, Greenland, and in northern Norway. In such a sensitive region, pollution is caused by industrial activities in the region through the intensification of ship traffic as a result of increasing tourism, and in fact, by every single human footprint:

*“The keyword for me is climate change, the main factor of change in the Arctic. I think there is very high pressure on the environment caused by increased human activities, the militarization of the Arctic.”*

*Interview 18, France, Researcher, Scientist/Researcher.*

*“A significant amount of ships come to the north of Svalbard, Greenland, Norway for tourism activities, and hundreds of people pollute these places in that three-month period.”*

*Interview 5, Türkiye, Military Attaché, Policymaker.*

*“Svalbard is where 2700 people live, but ships with 1000 people are coming. The footprint of each means pollution.”*

*Interview 5, Türkiye, Military Attaché, Policymaker.*

*“Tourism activities cause pollution and damage the natural landscape. Because if people walk on the tundra, a path is formed from the footprints and remains visible for 200–300 years, it is not covered by grass or anything else; it is quite sensitive.”*

*Interview 14, Norway, Scientist, Scientist/Researcher.*

*“As a concern, Norway is connected to the Arctic sea routes. Moreover, oil spills are increasing as shipping along with the Norwegian coast increases. Ships are not always the way they should be, and that will have environmental implications.”*

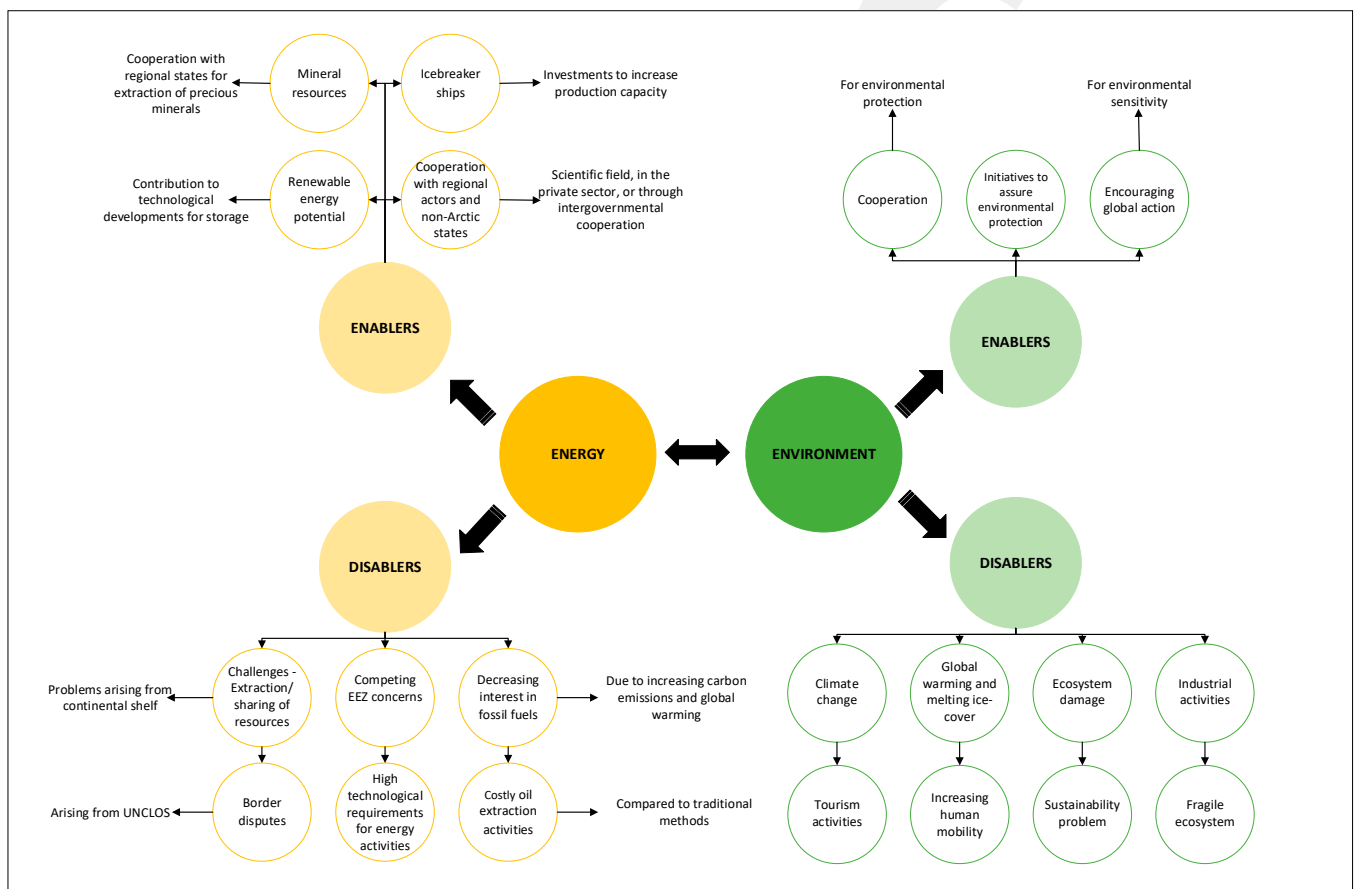
*Interview 13, Norway, Senior Defense Advisor, Policymaker.*

Another key issue revealed by the interviews is sustainability. In this context, it is necessary to act for the future of the Arctic region and strike a balance between the mitigation of environmental problems and the benefits of the emerging rich oil and natural gas resources. The experts also pointed out that the fragility of the region’s ecosystem should be taken into account when developing policies for the Arctic region. The sustainability perspective concerning the Arctic ecosystem should be a pillar of Türkiye’s strategy:

*“As the availability of resources changes, access to fossil fuels here will create opportunities for countries. However, I think that the fossil fuels here should be used by considering the impact of climate change. It should be considered that future generations also have rights in the glaciers and the Arctic, and it should be worked on sustainably . . . it is difficult for all countries to reduce emissions from the Arctic region because being in the Arctic region will create emissions in itself.”*

*Interview 6, Türkiye, Environment and Climate Change Consultant, Private Sector Representative.*

The findings are illustrated in Figure 3, addressing the enablers and disablers for Türkiye in the process of engagement in the Arctic region.



**Figure 3.** Results for enablers and disablers.

#### 4.3. Quantitative Analysis of the Results

Following the transcription and coding steps, a quantitative analysis was performed in order to provide a statistical perspective. The quantitative analysis involves the identification of the frequencies at which the main themes (enablers and disablers) for Türkiye in the process of engagement towards the Arctic region are addressed by the experts.

In total, concerning the two main categories, the experts have addressed the significance of energy-related themes 82 times (on the average, 3.04 times by an expert), and environment-related themes a total of 92 times (on the average, 3.41 times by an expert). Note that in the case an expert has addressed one theme two or more times, that is counted as one. Hence, environment-related themes are slightly more often (by 12.2%) discussed compared to energy-related themes. These results demonstrate that concerning Türkiye’s engagement in the Arctic region, the experts identify environmental concerns more than energy-related concerns (statistically significant at  $\alpha = 0.05$ , according to the  $\chi^2$  test).

When the perspectives of the experts are considered, the enablers are mentioned 63 times, whereas the disablers are discussed 111 times, showing a 76.2% higher emphasis (statistically significant at  $\alpha = 0.05$ , according to the  $\chi^2$  test) on disablers compared to enablers. Accordingly, the experts highlight the significance of challenges concerning Türkiye's endeavor regarding the Arctic region. The above conclusion also pertains to both the energy-related themes and the environment-related themes, where disablers are highlighted more often than enablers (statistically significant at  $\alpha = 0.05$  for both categories, according to the  $\chi^2$  test). These results are depicted in Figure 4 below:



**Figure 4.** Distribution of themes by category and by type.

An analysis of the expert interviews concerning the individual themes reveals that “climate change” is the most-cited theme by the experts. This observation demonstrates that the experts define the main framework for the Arctic region through climate change, along with the two other oft-cited themes, namely, “global warming and melting ice cover”, and “challenges-extraction/sharing of resources”. Among the other themes that frame the current situation in the Arctic region are “costly oil extraction activities”, “high technological requirements for energy activities”, and “increasing human mobility”.

The second most cited theme is “cooperation with regional actors and non-arctic states”. This theme refers to the principal policy tool that is suggested by the experts towards Türkiye's engagement in the Arctic region. Among the other themes, “icebreaker ships”, “encouraging global action”, “mineral resources”, “renewable energy potential”, and “initiatives to ensure environmental protection” point to areas where Türkiye might seek potential advantages towards involvement in the Arctic region.

Most of the other themes, including “competing EEZ concerns”, “ecosystem damage”, “industrial activities”, “border disputes”, “tourism activities”, and “sustainability problems” refer to a set of challenges that will be in effect in the Arctic region, as highlighted by the experts. These challenges need to be explicitly considered by Türkiye while planning for its engagement in the Arctic region.

Table 2 below represents the frequency in which the main themes are identified by the experts:

**Table 2.** Frequency of main themes—expert perspective.

Theme	Category	Enabler/Disabler	Frequency
Climate change	<i>Environment</i>	<i>Disabler</i>	20
Cooperation with regional actors and non-Arctic states	<i>Energy</i>	<i>Enabler</i>	17
Cooperation for environmental concerns	<i>Environment</i>	<i>Enabler</i>	17
Global warming and melting ice cover	<i>Environment</i>	<i>Disabler</i>	16
Challenges-Extraction/sharing of resources	<i>Energy</i>	<i>Disabler</i>	12
Costly oil extraction activities	<i>Energy</i>	<i>Disabler</i>	12

Table 2. Cont.

Theme	Category	Enabler/Disabler	Frequency
High technological requirements for energy activities	<i>Energy</i>	<i>Disabler</i>	10
Icebreaker ships	<i>Energy</i>	<i>Enabler</i>	9
Increasing human mobility	<i>Environment</i>	<i>Disabler</i>	7
Encouraging global action	<i>Environment</i>	<i>Enabler</i>	6
Mineral resources	<i>Energy</i>	<i>Enabler</i>	5
Renewable Energy potential	<i>Energy</i>	<i>Enabler</i>	5
Competing EEZ concerns	<i>Energy</i>	<i>Disabler</i>	5
Ecosystem damage	<i>Environment</i>	<i>Disabler</i>	5
Industrial activities	<i>Environment</i>	<i>Disabler</i>	5
Border disputes	<i>Energy</i>	<i>Disabler</i>	4
Initiatives to ensure environmental protection	<i>Environment</i>	<i>Enabler</i>	4
Tourism activities	<i>Environment</i>	<i>Disabler</i>	4
Sustainability problem	<i>Environment</i>	<i>Disabler</i>	4
Decreasing interest in fossil fuels	<i>Energy</i>	<i>Disabler</i>	3

The in-depth interviews revealed enablers and disablers on energy and environment-related aspects for Türkiye. These enablers and disablers are likely to apply to other developing and middle-power countries and can be utilized for formulating policies and developing a roadmap for engagement in the Arctic region.

The enablers are natural resources, hydrocarbon reserves, renewable energy, and energy security in terms of energy-related issues. Although countries such as Türkiye lack the authority to direct energy resources in the region, there is a clear possibility of establishing partnerships in developing these resources, thus, contributing to their energy security. By establishing partnerships with the region's countries, non-Arctic countries can develop their areas of strength to create a presence in the region. As evidenced through in-depth expert interviews, the three main challenges to Türkiye's greater involvement in the region are tensions arising due to the exclusive economic zone problems between the littoral states, the cost of energy extraction activities in the Arctic region, and the decreasing interest in fossil fuels.

Considering the environment-related aspects, Türkiye can contribute to the Arctic region in climate change adaptation and mitigation, pollution response, and protection of the Arctic ecosystem. As underlined in the in-depth interviews, the changes in the Arctic region have made global warming more visible globally. At the same time, the effects of the changes in the region should not be the responsibility of regional actors alone, but require collective efforts. On the other hand, there are many disablers pertaining to environment-related issues. With increasing human and industrial activities in the region, such as maritime traffic and tourism, problems multiply, such as pollution and disturbances to the ecosystem and indigenous peoples. This situation is a barrier to the involvement of more actors in the region. For this reason, countries attempting to become engaged in the region should focus on sustainability, climate change adaptation, and scientific studies in the field of environment.

## 5. Conclusions

As a result of the changes mainly caused by global warming, the Arctic region has received more attention from political, social, commercial, academic, and environmental spheres. The many facets of this interest include the region's abundant natural resources, potential utilization of more efficient maritime routes, and concerns about indigenous communities.

The Arctic Council acts as an intergovernmental forum to promote cooperation and coordination in the region among its stakeholders: the Arctic States, indigenous peoples, and other Arctic inhabitants. In addition to the Arctic States and permanent participants, the observers may also contribute to the work of the Arctic Council. The observers include not only the non-Arctic states, but also intergovernmental and antiparliamentary organizations (e.g., International Maritime Organization, United Nations Development Program, International Federation of Red Cross and Red Crescent Societies), and non-governmental organizations (e.g., International Arctic Science Committee, Worldwide Fund for Nature, Arctic Program, Advisory Committee on Protection of the Sea).

From the perspective of the Arctic Council, the observers are expected to contribute mainly through participation in the working groups, but they may also propose projects, make statements at meetings when invited, and submit written statements.

For non-Arctic states, observer status can be perceived as an opportunity to be more deeply involved in the region and increase their influence in the relevant domains, including the political, social, commercial, and academic realms.

With such intentions, Türkiye set the strategic goal of obtaining observer status and applied to the Arctic Council in 2015. Although rejected by the Arctic Council, Türkiye continues to show its interest in the region, mainly through scientific studies and the establishment of the National Polar Research Institute under the Ministry of Industry and Technology.

The analysis of Türkiye's efforts towards engagement in the Arctic region provides important insights into the perspectives of Turkish experts and foreign stakeholders on energy- and environment-related aspects. Firstly, establishing the extent of Türkiye's possible involvement in the Arctic region and how this would serve Türkiye provides a clear perspective on the main motive behind the related efforts. Based on this perspective, identifying enablers and disablers allows the formulation of policy suggestions for the country itself and those with similar characteristics (i.e., middle-power and developing countries that are geographically distant from the Arctic). Moreover, the analysis results may form the foundation of a roadmap for engagement in the Arctic region.

Regarding energy-related aspects, the main themes for Türkiye's involvement in the Arctic region are natural resources, hydrocarbon reserves, renewable energy, and energy security. Indeed, the active involvement of Türkiye to have a voice in the allocation or extraction of hydrocarbon resources may be subject to many challenges. Nevertheless, there are important motives for Türkiye's involvement in the region, namely the potential to contribute to the country's energy security via diversification, and adjustments to its energy policy based on developments in the Arctic region.

In terms of environmental concerns, Türkiye's engagement in the Arctic region can contribute to climate change adaptation and mitigation, pollution response, prevention of contamination and pollution, and protection of the Arctic ecosystem. By consensus, the experts agree that as the effects of global warming become increasingly visible, environmental concerns will become a major motivation for Türkiye and many other countries showing interest in the Arctic region. This situation offers several possibilities for a scientific collaboration between Arctic and non-Arctic stakeholders to analyze the Arctic ecosystem, the assessment of climate change on flora and fauna of the region, and biodiversity.

Considering the energy-related goals of Türkiye, there are significant challenges that act as disablers. These include significant barriers regarding Türkiye's involvement in the region for resource extraction and allocation and competing EEZ concerns that, in turn, make this barrier even more challenging. Another barrier is the decreasing interest in fossil fuels due to the high costs of oil extraction techniques needed in the region. Moreover, the effects of climate change and increasing carbon emissions call for the reduced use of fossil fuels.

More optimistically, Türkiye's strong ship building industry might be the basis for producing a special type of ship (e.g., icebreaker ships) to be utilized in the new maritime transit routes through the Arctic region. Furthermore, regional mineral resources allow

Türkiye to cooperate with regional states on extraction activities. The renewable energy potential in the region can also be exploited by efforts contributing to technological developments for storage. These areas suggest that Türkiye and countries with similar profiles can be involved in the region through cooperation at intergovernmental and private-sector levels and in the scientific field. These enablers have the potential to balance out the barriers stated earlier.

When the environmental issues are considered, barriers identified by the experts regarding Türkiye's involvement in the Arctic region mainly pertain to the risks of involving non-regional actors. Any further intervention from outside of the region could increase the effects of climate change in this highly ecologically sensitive region. Increasing human activities, tourism activities, industrial activities, and damage to the fragile ecosystem are among the factors that increase the vulnerability of the region and pose barriers in the involvement of Türkiye and similar countries.

Environmental concerns are common to regional and non-regional states, representing shared issues, problems, and goals for all countries. Therefore, the nature of the environmental concerns and the need for global action also act as enablers for the involvement of non-regional actors. Initiatives for environmental protection, proposals for collaboration regarding climate change adaptation and mitigation, and scientific studies to assess the impacts of environmental problems all provide potential avenues for cooperation, and in turn, engagement of Türkiye and similar countries in the Arctic region.

The analysis of the enablers and disablers suggests prioritizing scientific studies that both serve the goals of Türkiye in terms of the Arctic region and facilitate collaboration with regional actors. The need for immediate action to alleviate the newly arising challenges in the region makes scientific collaboration even more urgent.

Another direction for the involvement of Türkiye or similar countries in the Arctic region is the formulation of policies to support the identification of Türkiye's industrial strong points and matching these to the needs of regional actors. For Türkiye, the ship-building industry can be given as an example. Such industries may be supported through government incentives or directly involving industry representatives in bilateral relationships with the Arctic states.

Intergovernmental relations also impact the potential for cooperation. Therefore, policies should prioritize relations with regional states, thus leading to further opportunities to contribute towards wider policies regarding the Arctic and expand the potential for their involvement in the region.

Developing effective policies regarding environmental concerns and climate change mitigation allows countries to have a more active role in the global response to these issues. Therefore, a strong policy suite in these areas, backed up with scientific research, also contributes to the global response to the threat to the Arctic ecosystem.

Finally, the policies regarding energy issues in general, specifically energy security, need to be formulated, taking into account a detailed evaluation of the developments in the Arctic region.

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