POLITICAL PROCESSES AND INSTITUTIONS

UDC [327(519.5)+332.14(519.5)](98)(045)
DOI: 10.17238/issn2221-2698.2019.37.69

The Republic of Korea and the Arctic region: from policy formulating to policy making*

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Abstract. The following article is a policy review paper devoted to the general analysis of the Arctic policy of the Republic of Korea. The analysis includes the explanation of the country's demand for conducting its own policy in the Arctic that mostly resides in the peculiarities of South Korea's geographical position and economic conditions and demands. The policy of South Korea in the Arctic region is highlighted in the three stages: before joining the Arctic Council, during the first master plan for the Arctic, and after the updated Arctic policy was issued. The brief history of the Korea's participation in the Arctic activities is highlighted. Also, the provisions of Korea's first master plan for the Arctic are highlighted, and some conclusions are made regarding its implementation. Then the updated Arctic policy of South Korea is examined. The core conclusion is that during 20 year of participation in the Arctic-related activities, the Republic of Korea has transformed its Arctic policy from being research-oriented only to providing national economic benefits from the multilateral inclusion in the Arctic cooperation institutions and events. Some further reflections on Korea's further Arctic policy are provided at the conclusion.
Keywords: *Republic of Korea, Arctic Council, Arctic policy, non-Arctic actors in the Arctic, economic benefits from the Arctic activities, Arctic research cooperation.*

Introduction

Currently, the relevance of numerous fundamental and applied research related to the Arctic is traditionally associated with the strategic importance of the region for the globe. Among the widespread reasons for the global significance of the Arctic are promising transport opportunities of the Northern Sea Corridor (incl. the NSR), the Northwest Passage and even the North Pole [1, Zhang Z., Huisingh D., Song M.], as well as the growing demand for mineral resources (mainly hydrocarbons and rare-earth metals) [2, Swain F.], and the global impact of climate change in the Arctic, which is of great concern to environmentalists and researchers [3, Overland J. et al.]. Thus, these points constitute a sophisticated argument for vigorous activity in the Arctic and create the basis for research in economics, society, and the environment.

The creation of the Arctic Council marked the beginning of the active participation of non-Arctic states in developing policies in the Arctic through the granting of observer status. Since 1996, 13 non-Arctic states have received observer status in the Arctic Council. It is worth emphasizing that from the Arctic policy perspective, the year 2013 was characterized by the appearance of a full pool

* For citation:
Kim M., Marchenkov M.L. The Republic of Korea and the Arctic region: from policy formulating to policy making. *Arktika i Sever* [Arctic and North], 2019, no. 37, pp. 69–81. DOI: 10.17238/issn2221-2698.2019.37.69

of observers - Asian states. Japan, China, India, Korea, and Singapore received observer status at a meeting of the Arctic Council, held at the ministerial level in Kiruna.

The Arctic Council membership requires the relevant policy development and practice in the non-Arctic states[1]. It is also evident that the Arctic policy of observer states has different vital points and the level of state involvement, and, consequently, the distinct role of the country in the global Arctic cooperation. Although the position and prospects of China's activities in the Arctic region are widely covered in political and research discourse, we believe that so much attention is not paid to the other countries of the "Asian Pool" in the Arctic Council. As for the other Asian observers in the Council, it seems quite interesting to consider the case of the Republic of Korea and its Arctic policy. The government and business circles of the country seek the extensive use of the economic and research potential of the Arctic and thereby influence the structure of global governance of the Arctic and economic activity. So, they should be clear for all the interested parties.

South Korea's Arctic Policy Development Issues

Despite participation in the Arctic Council, which allows South Korea to gain more considerable political influence at the global level, it is evident that this is not an aim. A complex interrelation of the reasons why the Arctic region is of interest to South Korea reveals.

First, it is essential to study the geographical position of the country, which affects the following economic phenomena. The Republic of Korea is in the southern part of the Korean Peninsula. However, its position is like that of the island. It has no land connection with the mainland. Political tension after the Korean War limits rail and road communications through the north of the peninsula. For this reason, the only means of communication between South Korea and other countries is maritime transport and air traffic. In this context, two interrelated factors are of great importance: The South Korean economy grounds on trade, and the level of dependence on national foreign trade is approximately 90%[2]. The second important factor is the share of shipping in the country's total trade, which is about 99.7%, that is, marine communications in South Korea is a vital and irreplaceable force.

When it comes to the importance of the Arctic for the country, it is necessary to note the general state of the Korean economy. Over the past 30 years, the Republic of Korea's economy has grown more than ten times (GDP has grown 14 times, GNI - 11 times)[3]. In addition, the national economy is highly dependent on imports of energy sources (about 95%)[4]. Based on the previous, it is quite natural that South Korea is looking for a means to shorten the delivery of energy and other goods to Korean ports. The use of the Northeast Sea Corridor, incl. the NSR seems to be a promising possibility, and it offers shorter delivery routes between ports in Asia and Europe [4, Theo-

[1] Arctic Council Rules of Procedure. URL: http://hdl.handle.net/11374/940 (accessed 15 October 2019).
[2] Share of imports and export in gross national income (GNI) in South Korea from 2009 to 2018. URL: https://www.statista.com/statistics/642175/south-korea-foreign-trade-share/ (accessed 17 October 2019).
[3] Explore Korea through Statistics 2018 / Statistical Service Planning Division of Statistics s Korea. 2018. c. 33. URL: http://kostat.go.kr/portal/eng/news/3/index.board?bmode=read&aSeq=372131 (accessed 20 October 2019).
[4] Ibid, pp. 57–58.

charis D. et al.]. The energy needs of Korea's growing economy require Arctic oil and gas. An essential point, in this case, is the proximity of these resources, although prices for Arctic energy sources are currently a controversial issue [5, Harsem Ø., Eide A., Heen K., p. 8041].

Another point in the Arctic focus of South Korea is the economic opportunities of the industrial sector. The country's well-developed high-tech shipbuilding cluster has high potential in building ships for operation in the harsh conditions of the Arctic, as well as offshore platforms to produce Arctic hydrocarbons. All this represents the economic interests of South Korea in the direction of promoting the exploitation of Arctic deposits. Well-known examples were the construction of the world's first icebreaking LNG tanker for the Yamal LNG project at Daewoo Shipyards in Busan. It is also planned to release other similar tankers[5].

Summing up, it should be noted that the geographical features of South Korea and the growth of the energy-intensive economy, dependent on foreign trade and driven mainly by the sea. They are the reason why the Korean government and business are trying to take a consistent and advantageous position in the developing policies in the Arctic. Briefly analyze the first steps of the country in this region.

As for many other non-Arctic states, the beginning of the activities of South Korea in the Arctic region is associated with research. After the creation of the Arctic Council in 1996, Korea declared its interest in research activities in the Arctic region. Before this, the state had some research experience in Antarctica, as part of the activities of the Korean Institute for Ocean Research (KORDI), which was founded in 1987 and was renamed the Korean Institute of Oceanographic Sciences and Technology (KIOST) in 2012. The figure below shows the key points in the history of Arctic research in Korea before observer status in the Arctic Council.

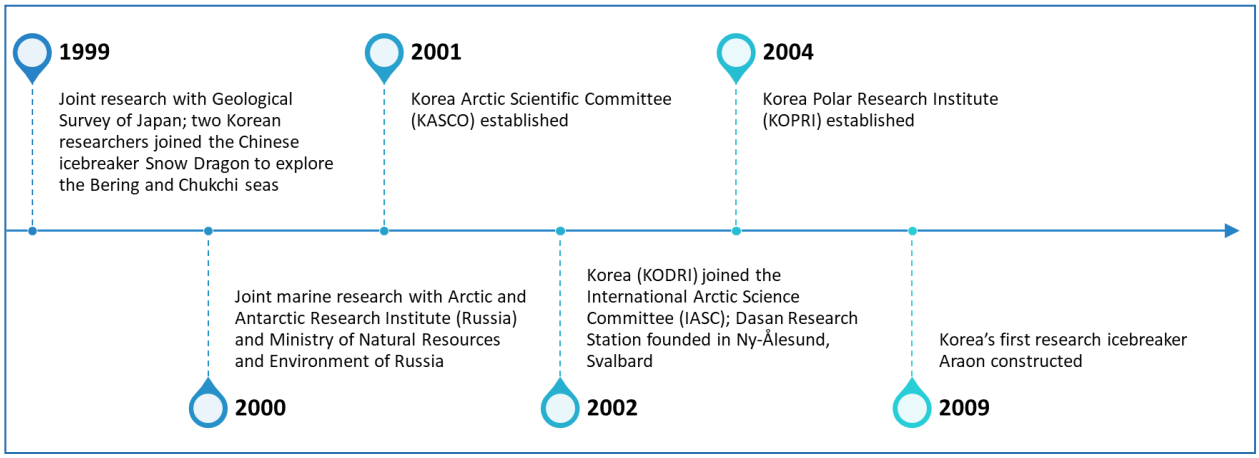

Fig. 1. Key milestones in South Korean Arctic exploration history. Created by authors based on sources [6, EArk Y.K., c. 2-3; 7, Dongmin J., Won-sang S,. Seokwoo L., pp. 87–88; 8, Kim H.J., p. 265].

1999 - Joint research with the Geological Survey of Japan; two Korean scientists joined the expedition of the Chinese ship "Snow Dragon", which studied the Bering and Chukchi Seas.

2000 - Joint marine research with the Russian Institute of the Arctic and Antarctic, as well as the Ministry of Natural Resources of the Russian Federation.

2001 - Creation of the Korean Arctic Scientific Committee (KASCO).

[5] Korea builds world's first ever icebreaking LNG carrier - to Russia. URL: https://www.highnorthnews.com/nb/korea-builds-worlds-first-ever-icebreaking-lng-carrier-russia (accessed 20 October 2019).

2002 - KOPRI joined the International Arctic Science Committee (IASC); The Dasan Science Station on Spitsbergen was founded.
2004 - The Korean Polar Research Institute (KOPRI) is established.

As a result of successively developing in the 2000s research in the Arctic in 2008, the Republic of Korea applied for observer status in the Arctic Council. In support of the application in 2012 and 2013, the Ministry of Oceans and Fisheries has published "Measures to Promote Polar Region Policies," which resulted in the proclamation of a "bipolar" policy of Korea, that is, having two directions: in the Arctic and Antarctic [7, Dongmin J., Won-sang S. & Seokwoo L., p. 88].

The first Arctic Strategy of the South Korea and its implementation

The first stage in the formation of the Arctic policy of South Korea ended with obtaining observer status in the Arctic Council at the ministerial meeting in Kiruna in 2013. This event prompted the Korean government to develop the first national document on Arctic policy, which would consider all areas of the Arctic interests of the state. So, in 2013, the Republic of Korea became the first Asian country to publish its own five-year Arctic strategy, called the "Arctic Policy Master Plan" [9, Bennett M.M., p. 887]. The overall objective of the political document was "to promote a sustainable future for the Arctic by expanding cooperation with the Arctic states and relevant international organizations in the fields of science, technology, and economics"[6]. The Master Plan should be completed together with the responsible ministries and the relevant areas of their responsibility (fig. 2), national research institutions and interested industries.

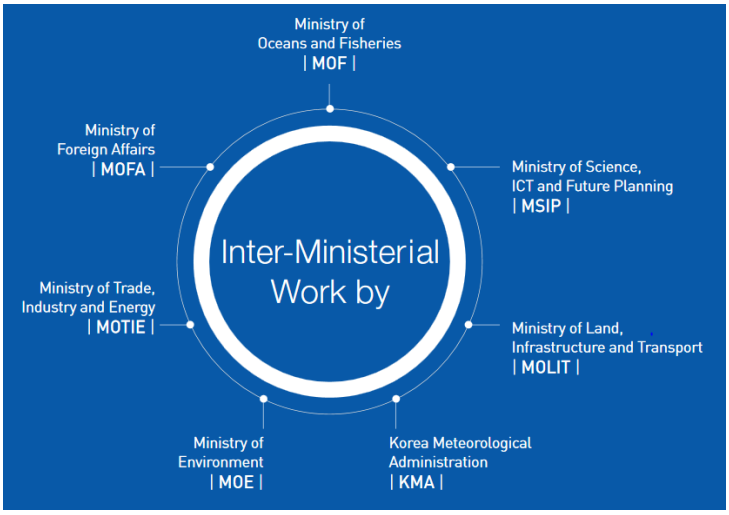

Fig. 2. South Korea ministries responsible for the Arctic Policy Master Plan[7].

Clockwise ministerial engagement:
Ministry of Oceans and Fisheries (MOF);
Ministry of Science, ICT and Future Planning (MSIP);
Ministry of Land, Infrastructure and Transport (MOLIT);
Korea Meteorological Administration (KMA);
Ministry of Environment (MOE);
Ministry of Trade, Industry and Energy (MOTIE);
Ministry of foreign Affairs (MOFA).

[6] Arctic Policy of the Republic of Korea. URL: http://www.arctic.or.kr/files/pdf/m4/korea_eng.pdf (accessed 21 October 2019).
[7] Ibid.

The figure below represents four key points according their theme area as described in the first South Korea Arctic Policy Master Plan.

4 Major Goals	Four Major Goals (2013-2017)
Strengthen International Cooperation	• Expand activities in the Arctic Council and its bodies • Participate in the cooperation programmes of the Arctic-related organizations • Facilitate private and academic initiatives
Encourage Scientific and Technological Research Capacity	• Support the scientific researches of Arctic stations • Build science infrastructure in the Arctic • Carry out more researches on climate change in the Arctic • Launch a spatial information project for a safer Arctic
Pursue Sustainable Arctic Businesses	• Assess the feasibility of the Arctic Sea Routes • Facilitate the development of Arctic technologies • Seek cooperation in the fisheries sector
Secure Institutional Foundation	• Establish an institutional foundation for polar policy development • Build a Polar Information Service Center

Fig. 3. The first South Korea Arctic Policy Master Plan[8].

The activities of South Korea in the Arctic international cooperation are associated with the work of the Arctic Council bodies. The Republic of Korea collaborates with various Council working groups and task forces. The country's expert representatives take part in meetings and projects, as well as organize their seminars on Arctic issues and invite representatives of these groups to participate. South Korea holds joint workshops with the Arctic Economic Council. Bilateral consultative meetings are held with Denmark, Iceland, Canada, Norway, Russia and Finland. Korean delegations traditionally attend the world's largest forums dedicated to global Arctic dialogue: Arctic Circle (Iceland), Arctic Frontiers (Norway), Arctic: Territory of Dialogue (Russia). Besides, the 2018 Arctic Partnership Week was held in Busan. In collaboration with the University of the Arctic, the Korean Maritime Institute is organizing the "Korean Arctic Academy" - an exchange project for students from the Arctic states to promote the interests of South Korea in the Arctic region. Korean students are sent to leading international universities in the field of Arctic research as part of the Korean student research program in the Arctic. Korean scientists make presentations at various Arctic scientific conferences around the world. The North EAcific Arctic Conference has been jointly organized by the East-West Center and the Korea Maritime Institute annually since 2011.r. The list of cooperation could be longer[9], since Korean research institutions and government work hard to expand their influence in the Arctic and keep the image of an Arctic cooperation expert.

Another direction of the Arctic Policy Master Plan is research and its necessary infrastructure. Over the past 30 years, the Republic of Korea has created a number of institutions involved

[8] Ibid, p. 6.

[9] See: Kang, J.-S. The Republic of Korea's 2018 Observer Review report. URL: http://hdl.handle.net/11374/2262 (accessed 22 October 2019) and Kim, C.-W. Republic of Korea's 2016 Observer Activities Report. URL: http://hdl.handle.net/11374/1862 (accessed 22 October 2019).

in polar and marine research, incl. the Korea Polar Research Institute, an associate institution of the Korean Institute of Oceanographic Sciences and Technology and the Korean Maritime Institute. In conjunction with these institutions, as well as for the implementation of the fourth master plan, the Korean Arctic Research Consortium was created to integrate Arctic research and contribute to the further development of national Arctic policy [10]. The icebreaking research vessel "Aaron" is a useful asset in polar research, both land, and sea. The expeditions of "Aaron" formed the basis of many published studies.

The third area of the master plan covers the participation of Korean business circles in economic activity in the Arctic. Since this direction is mainly associated with the Arctic sea transport corridors, it has more economic prospects (since the main task of the development of the NSR is to obtain financing for the creation and maintenance of the infrastructure of Russian Arctic ports [10, Lin D. –Y., Chang Y.-T., p. 47]) rather than completed projects. Nevertheless, there are several active projects: the construction of icebreaking vessels for the transportation of LNG by Daewoo Shipbuilding and Maritime Engineering by order of the Russian companies Sovkomflot and NOVATEK[11]. Besides, vessels under Korean flag have already passed the NSR[12]. Thus, this area of cooperation is associated with new profitable projects for the development and transportation of Arctic resources in the future.

Analyzing the provisions of the master plan, we can conclude that South Korea's first comprehensive document on Arctic policy issues retains its previously established orientation toward research and scientific cooperation. Thus, the text testifies to the predominantly research nature of the Arctic policy of the Republic of Korea. In addition, the document highlights issues relating to various aspects of international cooperation in the Arctic (especially within the framework of the Arctic Council, since the state has received observer status), as well as a few points regarding the prospects for Korean business in the region. In general, the Korean Government and companies were able to implement the planned activities and achieve the results set by the country's first political document on the Arctic. Thus, at the end of the master plan, its effects were used to develop a new paper on Arctic policy for the further integration of South Korea into Arctic issues. As a result, in July 2018, the Second Master Plan for the Arctic (for 2018–2022) was published. The main findings of Korea's participation in Arctic affairs after obtaining observer status in the Arctic Council are presented in the figure below.

[10] Founding Declaration of Korea Arctic Research Consortium. URL: http://www.arctic.or.kr/?c=11/13/65&idx=995 (accessed 22 October 2019).
[11] Owen W. Latest Yamal LNG shipping update. URL: https://www.lngindustry.com/liquid-natural-gas/21102019/ latest -yamal-lng-shipping-update/ (accessed 23 October 2019).
[12] CJ Korea Express launches first Arctic operation. URL: http://www.koreaherald.com/view.php?ud=20150720001051 (accessed 23 October 2019).

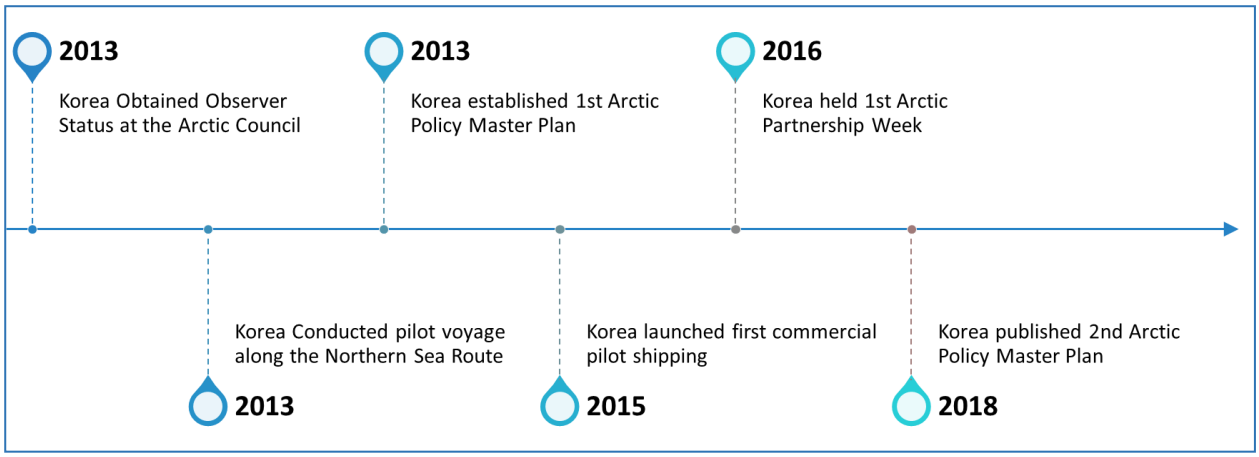

Fig. 4. Main activities of South Korea in the Arctic since 2013.[13]

2013 - South Korea received observer status in the Arctic Council;
2013 - The first Arctic Master Plan was developed;
2013 - Test passage of a Korean vessel along the NSR;
2015 - South Korea launched the first trial commercial sea route;
2016 - The first Arctic Cooperation Week was held in South Korea;
2018 - South Korea developed a second Arctic Master Plan.

Perfecting South Korea Arctic policy and its further development

The overall goal of the second document on national Arctic policy is the need for multilateral cooperation in the Arctic region. However, the focus of the paper shifted from "promoting sustainable development of the Arctic" to positioning the country as a "pioneer and partner in discovering the future of the Arctic". It proposes to expand the activities of the Republic of Korea in the region. The principal directions of the renewed Arctic policy of South Korea are below.

Fig. 4. Priorities of the second Arctic Policy Master Plan[14].

It is too early to assess the progress in the implementation of the current Arctic plan. However, the critical point of the strategy should be analyzed. First, while the first master plan was a kind of compilation of proposals from national ministries, the updated program document was unified by a shared vision of national Arctic policy. The four main lines of policy remain similar, and this indicates the correctness of the directions of the previous strategy. However, economic cooperation now ranks first. Such a transformation seems reasonable since South Korea has already

[13] Source: developed by the authors.
[14] Seo H. The Study on the Priority on the Arctic Challenges in Policy Perspectives of Korea (poster at Arctic Futures 2050 conference). URL: https://www.searcharcticscience.org/files/presentations/arctic-futures-2050-conference//arctic_future_2050-korean_arctic_policy_analysis.pdf (accessed 23 October 2019).

passed the stage of research in the status of a non-Arctic state in the Arctic space of cooperation. Moreover, the Republic of Korea has already entered the sphere of Arctic political discussions, as the land was granted observer status with the Arctic Council. Besides, it is worth emphasizing that the current Arctic policy of Korea is formulated following the provisions of the "Polar Vision 2050."[15] Main goals are in the figure below.

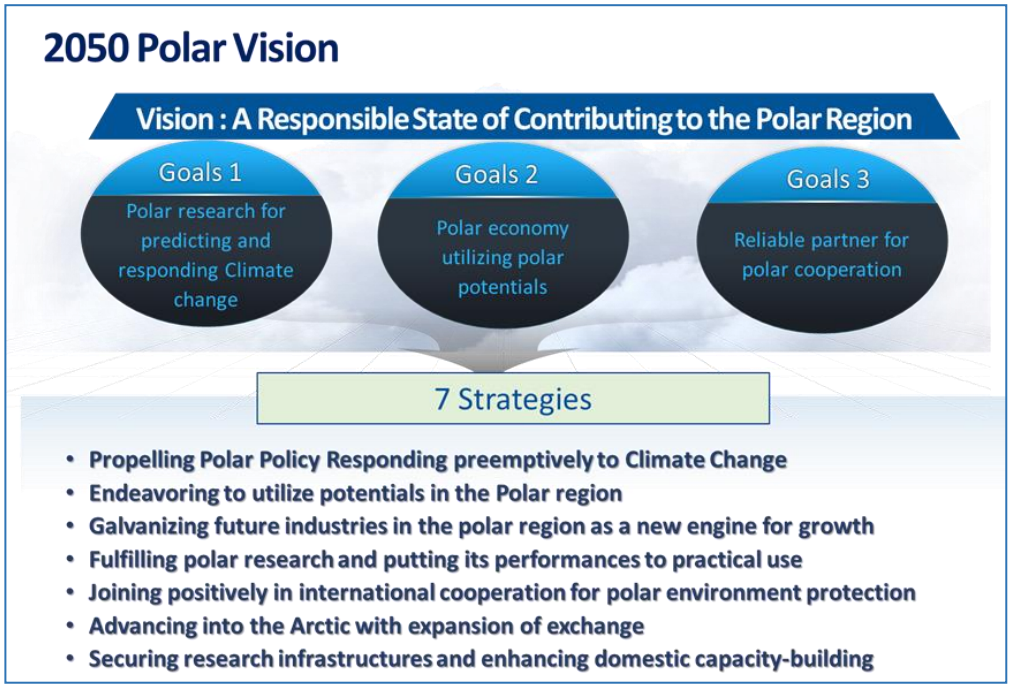

Fig. 6. "Polar Vision 2050" review [16].

"Polar Vision 2050". Perspective: a responsible contribution to the Polar region
Goal 1. Polar research for predicting and responding to climate change
Goal 2. Arctic economy using polar potentials
Goal 3. Reliable partner for polar cooperation

Seven strategies:

Actively promoting a polar policy response primarily to climate change;
Try to use possibilities in the polar region;
To give impetus to the subsequent development of industry in the polar region as a source of economic growth;
Conducting research and applying their results;
Participation in international cooperation in the field of environmental protection;
Promotion in the Arctic through the enhanced exchange;
Consolidation of scientific infrastructure and acceleration of the creation of national Arctic potential.

It is clear, Polar Vision 2050 supports the values, formulated in the master plans for Korean policy in the Arctic. Thus, the document covers the areas of Korea's contribution to Arctic science, responsible use of the region's economic potential, and diversification of cooperation with other stakeholders in the Arctic. Moreover, the documents of South Korea on the Arctic that we examined allow us to conclude on the commitment and contribution of the state to the sustainable development of the Arctic, as well as to the implementation of the specific sustainable development goals

[15] 2050 Polar Vision Statement. URL: http://en.koreapolarportal.or.kr/intro/2050PolarVision.do;jsessionid=877264E315FAC2641EBC2022EAF8DAC3 (accessed 23 October 2019).
[16] Source: developed by the authors.

that are needed today in the Arctic region [17]. South Korea's contribution to the development of the Arctic could be a distinct research theme.

Conclusion

Summing up, it seems reasonable to conclude that the current South Korean master plan for the Arctic meets the challenges and opportunities of the region. The South Korean Arctic policy focuses on the use of economic benefits (transport opportunities and energy resources). At the same time, the state contributes to the protection of the region's environment by conducting relevant studies. At the same time, the country's Arctic policy is oriented towards seeking cooperation with ordinary participants in the Arctic dialogue.

Nevertheless, it is necessary to note several aspects related to the Arctic policy of Korea, which are likely to become a topic for further discussion and study. Some scholars note that expanding the participation of foreign states in Arctic projects may encounter specific difficulties in ensuring national security (esp. since the economy and energy security of some Arctic states depend on Arctic mineral deposits) [11, Sharov A.Ye., Chuvashova N.I., pp. 110–111]. In addition, one can expect economic rivalry between China, Japan and South Korea on the issues of privileges and ease of use of the NSR. Given the potential competition, the Republic of Korea should make more efforts to promote its Arctic technologies, and to develop a sustainable business model for the Arctic region, since China does not currently have such a highly developed Arctic technology sector [12, Zhuravel V.P., p. 129].

In the end, it is essential that scientific organizations actively participate in the formulation and formation of the Arctic policy of Korea, since its origins are in the field of scientific research, where they avoided a bureaucratic approach and relied on strategic planning.

Acknowledgements and funding

This review article would not have been possible without the participation of the authors at the 5th Korean Arctic Academy, held in Busan, Republic of Korea, from July 4 to July 13, 2019. The authors would like to thank the Ministry of Oceans and Fisheries of the Republic of Korea for the exchange, the Korea Maritime Institute, and the University of Arctic. The authors would like to express special thanks to Jong-Deog (Justin) Kim, General Director of the Korea Maritime Institute, for an excellent and informative presentation during the Korean Arctic Academy.

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