Research of the "Silk Road on the Ice"

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Abstract. The “Ice Silk Road” has been included in the overall layout of the “Belt and Road” and is also an innovative cooperation model and cooperation concept of the “Belt and Road Initiative” initiative. The "Ice Silk Road" is a new achievement in the development cooperation between China and Russia in recent years, which fully reflects the spirit of cooperation and openness. With the positive response of more and more countries, its smooth progress will have a far-reaching positive impact on the sustainable development of the world economy, the regional economic balance and China's foreign strategic cooperation, and provide opportunities for its development. However, the “Ice Road on Ice” also faces challenges in geopolitics, traditional trade routes and ecological environment. As the main advocate and important participant of the “Ice Silk Road”, China must fully tap the opportunities and potentials, correctly respond to various challenges, and propose corresponding solutions.

Introduction

At present, China's maritime channel connecting the global market is mainly on the southern line, that is, the traditional navigation channel of China through the South China Sea and the Indian Ocean to Southeast Asia, South Asia and North Africa. The Arctic channel is not explicitly mentioned. However, the Russian and Nordic countries that pass through the Arctic waterway are also the areas through which the China-Mongolia-Russia Economic Corridor and the New Asia-Europe Continental Bridge pass. This means that the Arctic waterway is the second channel for China to the aforementioned countries. With the advancement of construction and the gradual scale, the Arctic waterway will become an important supplement to the “Belt and Road” in the future. Although the Arctic waterway passes through many developed countries, the land adjacent to the Arctic waterway is basically a marginal zone with low development level. The infrastructure and energy development needs are strong, and China can provide technology and funds through the “Belt and Road” construction.

(I) Direction of the route

The "Ice Silk Road" currently being built by Sino-Russian cooperation mainly refers to the northeast navigation channel, which is what Russia calls the northern navigation channel. The navigation channel runs northeast from the northeastern region to the Bering Strait and crosses the northern Arctic Ocean coast of northern Russia. Arrived in Northern Europe and Western Europe.

(II) Actual progress

From August to September 2017, COSCO SHIPPING Special Transportation Co., Ltd. dispatched 5 vessels to use the Arctic Ocean navigation window to travel from Lianyungang and Tianjin Xingang to Norway and Denmark. Among the five vessels, only the first ship, the Lotus Pine, hired an icebreaker to pilot. The remaining four vessels are all sailing independently, saving about $800,000 from the original plan to save the icebreaker. According to the company's preliminary calculations, the five vessels have saved about 25,313 nautical miles from the Strait of Malacca and the Suez Canal, shortening by about 80.6 days, saving about 2018 tons of fuel, and saving at least $500,000 in navigation costs for the Suez Canal. This route fully demonstrates the commercial value of the “Ice Silk Road”. If the port north of Shanghai goes to the ports of western Europe, the North Sea, the Baltic
Sea, etc., it will be 25% to 55% shorter than the traditional route, saving 53.3 billion to 127.4 billion US dollars in international trade shipping costs per year.

In addition, the Ministry of Commerce of China and the Russian Ministry of Economic Development are taking the lead in exploring the establishment of a special working mechanism to coordinate the development and utilization of the Arctic channel. The development of resources in the Arctic region, the construction of infrastructure, as well as all-round cooperation in tourism and scientific research.

The Analysis of the Opportunities Facing the "Ice Silk Road"

Global Warming

The smooth opening and commercial operation of the "Ice Silk Road" will largely depend on the melting of the Arctic ice. In recent years, due to human carbon emissions and the El Niño phenomenon, the Arctic tundra has released more carbon dioxide, which directly causes the Arctic temperature to warm. In December 2016, the US National Oceanic and Atmospheric Administration released the Arctic Annual Report, which pointed out that the Arctic region is heating more than twice as fast as other places, and the annual average temperature of the land is 3.5 degrees Celsius higher than that of 1900. In 2016, the Arctic region experienced warm winters. The average temperature was 1.3°C higher than normal, and even broke through zero at the beginning of 2016. Mark Serrez, director of the National Center for Ice and Snow Data Research, predicted that Arctic sea ice could disappear completely in the summer of 2030. The Nobel Peace Prize winner and Russian scientist Oleg Anisimov also pointed out in 2015 that as global warming intensifies, Arctic sea ice may disappear completely within 40 years. As the main coastal countries of the Arctic Ocean and the northeast waterway countries, Russia has launched a series of Arctic development plans for the new opportunities brought about by the melting of the Arctic Ocean. It also invites China to participate and provides a rare opportunity for Sino-Russian cooperation to create the "Ice Silk Road". Opportunity.

Proposal of the “Belt and Road Initiative”

The promotion and expansion of the “Belt and Road Initiative” initiative provides a realistic carrier for the docking of the Arctic waterway and national policies. The strategic nature of the Arctic Channel has gradually emerged and its status has been improved as never before. From the second half of 2013, President Xi Jinping proposed the “One Belt, One Road” major initiative. By March 2015, the Chinese government issued the “Vision and Action for Promoting the Construction of the Silk Road Economic Belt” and the “21st Century Maritime Silk Road”. The content and meaning of the “Belt and Road” clearly clarified the direction of construction. At this time, the planning of the construction of the Arctic Channel and the “Belt and Road” construction was also put on the agenda. The “Belt and Road” not only magnifies the role that the Arctic Channel has already shown, but also opens up new roles in economic and trade cooperation, security guarantees, mechanism innovation, and global governance. The development of the Arctic Ocean Waterway is both an opportunity and a challenge for China. In the context of the “Belt and Road”, we should seize the opportunity to participate in the construction of the trade hub port and mining cooperation zone along the “Northeast Passage—Northeast Asia Logistics Corridor”.

Construction of the Blue Economic Channel of the Arctic Ocean

The "White Paper" points out that China is a near-Arctic country. China has a geographical advantage in participating in the construction of the Arctic waterway, and the climate change in the Arctic can affect China's agricultural production and ecological environment. Therefore, for us, the development of the Arctic cannot be absent. As a newly developed waterway, the Arctic waterway has no uniform mandatory navigation rules for a long time, causing many confusions. Until January 2017, the International Maritime Guidelines for the Navigation of Polar Waters, which was adopted by the International Maritime Organization, came into force and sailed in the polar regions. Milestones in the
process. In addition, in the frontier areas, scientific investigations can be said to have a leading and fundamental role. The China Snow Dragon Polar Expedition Ship completed its first voyage to the northeastern northeast channel in 2012, and the first successful crossing of the pole in August 2017. The navigation channel and its operations in this area have opened up new areas of scientific research in the Arctic in China. This shows that China is fully capable of grasping the frontiers of the Arctic waterway and at the same time enhancing China's technological discourse and presence in building the blue economic channel of the Arctic Ocean.

The Analysis of the Challenges Faced by the "Ice Silk Road"

Cost-based Economic and Technological Challenges

In 2017, only 19 vessels passed the northern route, carrying only 214,500 tons of cargo. Even in 2013, before Russia and the Western countries formed a tense political situation and oil prices fell, there were only 71 ships on the northern route (the volume of goods transported was 1.4 million tons). The analysis of the cost elements of the northern route shows that on the one hand, the shortening of the transit time or the slowing of the navigation speed reduces the fuel cost, on the other hand, the higher fuel consumption rate and the high price of the marine heavy oil suitable for the Arctic temperature are To some extent, the savings are offset. More importantly, sailing in the northern high latitudes requires the owner to pay extra for the ice class, which may exceed 40% of the normal cost. According to Russian law, ships with an ice level lower than ARC6 must be equipped with an icebreaker service and pay a special transportation fee (this fee is usually much higher than the cost on the Suez Canal).

The Challenge of Geopolitical Competition

Although the end of the Cold War eased geopolitical competition, it did not eradicate geopolitical competition. The prospects for the development of Arctic resources and the opening of waterways have increasingly revived a once-quiet geopolitical competition. If Russia’s territorial claims are approved, nearly half of the Arctic region will be under Russian jurisdiction. Although these competitions have not yet been intensified into confrontation or conflict, some countries have competed to strengthen military deployment and training in the Arctic, showing the worst preparations. These disputes and measures will inevitably affect the advancement of the construction of the "Ice Silk Road".

Harsh Natural Environment

The natural environment of the Arctic is very fragile and the navigation conditions are poor. The Polar Rules, which came into force on January 1, 2017, have become the mandatory international treaty on polar navigation, centering on the two aspects of ecological environment safety and ship navigation safety in polar seas. The Polar Rules set strict standards for vessels crossing the polar waters and set requirements for ship structural design, mechanical facilities, life-saving equipment, communications equipment, fire safety, navigation safety, and crew training. At present, the main function of the North Sea Channel is energy export and commercial development. It is a matter of course that ships in the Arctic seas need to meet the requirements of the International Maritime Organization. However, due to the different requirements for navigation technology along the coast of the Arctic Ocean, including the classification of ships, the classification of ships is not consistent in a short period of time. Secondly, in the process of implementing the Polar Rules, port states need to embed polar rules into domestic laws and amend existing legislation, and this process requires consultation between various departments. In addition, polar rules pose new challenges to sea navigation supervision, sea area use, and ship production between coastal states, port states, and flag states. China, a flag state but not an Arctic country, will face serious constraints on the development and use of the North Sea Channel. Including Russia, although Russia is a long-lived Arctic country in the Arctic Ocean, and has a rich experience in the sea of complex ice conditions, the icebreakers and transport vessels used in the Russian North Sea Channel are too long, basically not in line with the new environmental protection.
Requirements, ship updates, technical updates and domestic legal amendments are also challenges for Russia.

Countermeasures

**Vigorously Develop Polar Marine Technology and Marine Economy to Ensure Economic Sustainability**

With the development of the “Ice Silk Road”, China’s marine economy will gain new impetus and growth points, including polar marine bioprospecting, polar shipping, polar fisheries development, polar energy and mineral resources development and related vessels. Manufacturing, etc. Here, China should vigorously develop marine technology that meets the polar standards and provide economic and technological support for the construction of the "Ice Silk Road" and its sustainable development.

**Creating a Favorable Political Environment through Bilateral Cooperation**

Global warming has not only enhanced the prospects for the development of Arctic resources and the opening of waterways, but also brought the risk of geopolitical competition in the Arctic. Faced with the complex Arctic geopolitical environment, China should make full use of its economic and technological advantages and its transcendental position outside of itself, and adopt different cutting-edge strategies to create a good political environment.

**Overcoming Harsh Environments and Building an Ecologically Viable Foundation**

One of the sources of pollution in the Arctic is the oil spill in oil and gas transportation. Since China-Russia projects in the Arctic region are dominated by energy projects, the two countries should take the lead in Russia to improve monitoring and prevention mechanisms in the Arctic region and improve emergency response capabilities to minimize and reduce pollution and threats to the Arctic Ocean environment from maritime transport. The most important point is to establish a sound oil and hazardous materials monitoring mechanism and develop preventive measures. In addition, in the marine environmental protection of the North Sea Channel, it is necessary to develop green ship technology, continue ecological research, astronomical meteorology, geology and geomorphology, etc., to create an ecological feasibility basis for the Arctic navigation. To strengthen cooperation in navigation safety, the two countries need to take advantage of both sides to achieve mutual sharing. For example, Russia's coastal areas have basic infrastructure, transportation facilities and transportation guarantees. Russia has a wealth of relevant knowledge and knowledge about Arctic navigation. China is the world's second largest economy and the largest trading nation. For the navigation safety of the North Sea Channel, there should be ships, equipment and personnel with experience in ice area compliance with the requirements of the Polar Rules. China and Russia can cooperate in crew driving training and strengthen cooperation in polar infrastructure construction, such as port construction and infrastructure construction required for the project. Due to the continuous improvement of safety requirements in the Polar Rules and the continuous improvement of environmental protection standards, Russia and China need to jointly develop innovative technologies and adopt innovative management methods to meet the requirements of the new era, with “green, open, shared, and win-win”. The principle of the realization of the "Belt and Road" construction and the construction goals of the North Sea Channel.

**Setting up a Transportation Service Station and Opening a Line**

China and Russia cooperate in the Arctic Ocean region, and should first prepare for the maintenance of the transportation route in the Arctic Ocean. When necessary, we can make full use of Russia's successful experience in opening up navigation channels in the Arctic Ocean region, and set up transportation service stations in the Arctic Ocean to provide navigation services for vessels. In layman's terms, it is necessary to build a large canal like Panama in the Arctic Ocean region, on the one hand to shorten the route of transportation in the Arctic Ocean region, and on the other hand to
provide various conveniences for ships to and from the area. This is a grand project that requires huge investment. If there are not enough ships to pass through the Arctic Ocean, it is almost impossible to recover the infrastructure investment. Russia attaches great importance to cooperation with China in the Arctic Ocean region because China is the world's largest trading country. China urgently needs to develop transportation routes in the Arctic Ocean region. China is willing to cooperate with Russia in the construction of transportation infrastructure in the Arctic Ocean region. By improving the transportation conditions in the Arctic Ocean region, it will provide convenient conditions for ocean transportation in China and other countries.

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