

Implications for Sino-Russian Cooperation on the Polar Silk Road

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This paper explores Russia's cooperation with China on the development agenda of the Polar Silk Road (PSR). China formally introduced the PSR initiative in 2017 to jointly develop Arctic shipping routes, of which the Northern Sea Route (NSR) is a major focus. Russia and China have been cooperating on infrastructure building on both land and sea and liquefied natural gas (LNG) projects as part of the development goals of the PSR. The research question is: what are the major goals and perspectives of Sino-Russian cooperation in the Arctic? Moreover, what opportunities and risks does Sino-Russian cooperation on the PSR present for the region and beyond? This paper seeks to understand how Russia's eastern focus affects the Arctic West and how the shifting geopolitical environment affects the directions for Sino-Russian cooperation. The questions are important to discuss amid the on-going Western sanctions on Russia after it invaded Ukraine. By identifying Sino-Russian cooperation projects along the PSR in the energy, shipping and infrastructure areas, this paper discusses Russia's development strategies in the Arctic and China's contributions to the realization of these projects. The argument is: the increasing tension between Russia and the West stimulates the convergence of China and Russia's interests in the Arctic region, especially along the NSR. The PSR serves as a "vehicle" for Russia to increase investment in building Arctic infrastructure and to expand resource exploration. Under the umbrella of the PSR, Russia has increased economic and security ties with the East. The Sino-Russian cooperation in the Arctic reflects the two countries' increasing influence over the geopolitics in the region.

Introduction

Climate change, energy demand, shipping prospects, globalisation and the changing geopolitical order have become new driving forces for governance and cooperation in the Arctic region. With its abundant natural resources and development capacities, the Arctic region is becoming the focus of both Russia and China's Arctic strategy.

Both Russia and China have long been seeking development opportunities for Arctic shipping routes. To export its energy products, Russia has been advancing its infrastructure both on land and along the Northern Sea Route (NSR). China expressed its interest in NSR during the construction of its first icebreaker "Snow Dragon" in 2009. In 2011, Russian Minister of Emergency Management Sergey Shoygu proposed the concept of "Silk Road on Ice", as a joint investment initiative along the NSR during a conference (Tillman et al., 2018).

The concept did not raise much awareness then, but has slowly gained attention as China grows into a stronger player in Arctic affairs. In May 2013, after much discussion and speculation, six non-Arctic states including China were welcomed to become new Observers at the Arctic Council at the Ministerial Meeting in Kiruna, which was held by eight Arctic states and leaders of Arctic Indigenous peoples' Permanent Participant organizations (Chaturvedi, 2022). Since then, China has been actively cooperating with other Arctic states and participating in Arctic-related dialogues (Chen, 2012).

In 2017, China formally introduced the Polar Silk Road (PSR) initiative as part of its international infrastructure development program – the Belt and Road Initiative, or the BRI, which was originally launched in 2013 (The World Bank, 2018). The PSR initiative outlines China's economic and infrastructure development goals on both land and sea in the Arctic region. It has a major focus in developing projects such as constructing port terminals and logistics centres along Arctic shipping routes that connect North America, East Asia and Western Europe (Gladkiy et al., 2020; Silk Road Briefing, 2021). Among the shipping routes, the NSR is of key interest as it reduces the time and cost for shipping between East Asia and Europe by maximum ~35% (Silk Road Briefing, 2021).

China's Foreign Minister Wang Yi said during a press meeting with Russia's Foreign Minister Sergey Lavrov that, "China regards Russia as an important strategic partner of the joint construction of the 'Belt and Road'", and that "China welcomes and supports the 'Ice Silk Road' initiative proposed by Russia in 2011" (Embassy of the People's Republic of China in the United States of America, 2017). Wang Yi expressed the alignment of China and Russia's development strategies and China's willingness to establish long-term partnerships with Russia. In 2017, Chinese president Xi Jinping and Russia's Prime Minister Dmitry Medvedev agreed to jointly develop the PSR through the implementation of various connectivity projects (Biedermann, 2021). Also in 2017, Russian President Vladimir Putin further stressed Russia's intention to cooperate with China by saying, "the silk road has reached the North. We will combine it with the Northern Sea Route, and it will be what is needed, and we will make the Northern Sea Route Silk" (Gladkiy et al., 2020).

The Belt and Road Initiative Maritime Cooperation Plan, which was released in 2017 by China's National Development and Reform Commission and the State Oceanic Administration defines the "Arctic Waterway" as one of the three major maritime channels of the BRI (Biedermann, 2021).

In 2018, China published its Arctic Policy White Paper, which serves as a major government document for analysing its activities in the Arctic region. In this document, China claims itself as an important stakeholder in Arctic affairs. China's goals in the Arctic region are: "to understand, protect, develop and participate in the governance of the Arctic, so as to safeguard the common interests of all countries and the international community in the Arctic, and promote sustainable development of the Arctic" (The State Council - The People's Republic of China, 2018).

The White Paper confirmed the plan to develop the PSR along with China's other interests in the region. With the document, China legitimises itself in participating in Arctic affairs with regard to environmental protection, scientific research, shipping, and resource development.

The concept of the PSR was first brought about by Russia, with a focus on the joint development of NSR. China further broadened the concept and laid out its development plans for the whole Arctic region. The PSR initiative has brought more cooperation opportunities for both Russia and China. Among other Arctic states, China has the closest cooperation with Russia, especially in the

energy sector and shipping logistics along the NSR. Then, what are the major goals and perspectives of the Sino-Russian cooperation in the Arctic and what opportunities and risks does Sino-Russian cooperation on the PSR present for the region and beyond?

This paper seeks to understand the implications for Sino-Russian cooperation through a discussion of various projects along the PSR in the energy, shipping, and infrastructure areas: the Yamal LNG project, the Arctic LNG 2 project, the Payakha oilfield project, and the Zarubino port project. These projects demonstrate Russia and China's ambitions in the region and help to explain the two countries' economic development path and strategic considerations.

This paper concludes with a discussion of how Russia's eastern focus affects the Arctic West and how the shifting geopolitical environment affects the directions for Sino-Russian cooperation, considering the future prospect of the projects along the PSR with the western sanctions and the potential North Atlantic Treaty Organization (NATO) expansion.

This paper argues that the increasing tension between Russia and the West stimulates the convergence of China and Russia's interests in the Arctic region, especially along the NSR. For China, the co-development of NSR stimulates its economy and provides raw materials necessary for its industries. For Russia, the PSR serves as a "vehicle" to increase investment in building Arctic infrastructure and to expand resource exploration (Russia Briefing, 2019). Under the umbrella of the PSR, Russia has increased economic and security ties with the East. Both Russia and China gain influence over the geopolitics in the region through cooperation and coordination.

Sino-Russian Cooperation Projects along the PSR

Yamal LNG Project

Located to the northeast of Russia's Yamal Peninsula in the Arctic Circle, the Yamal Liquefied Natural Gas (LNG) project serves as an example of Sino-Russian cooperation in the energy sector. It is the first cooperation project between China and Russia under the PSR initiative. It is China's largest investment project in Russia and the largest LNG project in the world (Yamal LNG, 2022).

The project is developed by JSC Yamal LNG. Novatek, the largest Russian private natural gas producer owns 50.1% stake of the project. Total S.A., a French multinational oil and gas company, and China National Petroleum Corporation (CNPC), one of the key state-owned enterprises, each own 20%. China's Silk Road Fund, a state-owned investment fund, owns 9.9% equity stake (Gas Processing & LNG; Silk Road Fund, 2022).

The first LNG Train became operational in December 2017. The Yamal LNG plant has the capacity to produce a total of 926 billion cubic meters of LNG (Yamal LNG, 2022). The project drives the development of Russia's energy sector and the economic prosperity of Russia's border areas. LNG is supposed to be delivered to the European market via westward routes through one of the European regasification terminals, and to Northeast Asia in the summertime through the NSR (Yamal LNG, 2022).

Though the project mainly involves oil and gas development, it also encompasses shipping and infrastructure building. The project has commissioned both LNG icebreakers and ARC 7 ice class carriers, which all have year-round operational capacity, to export its natural gas products to the Asian Pacific and European markets. Moreover, as part of the project, the Sabetta Sea port was constructed to facilitate LNG products' shipment. The project also includes the construction of an

operational camp, airport, and power plant (Yamal LNG, 2022). The long-term agreement between Russian and Chinese companies reflects the positive potential for a cooperation regarding logistics and vessel construction between the two countries (Kobzeva, 2022).

According to Putin, the Yamal LNG project “is of great significance, for it can help strengthen our economic cooperation with countries in the Asia Pacific region, particularly the People’s Republic of China, one of our most important partners in the region. Meanwhile, it is a model for successful international cooperation with France, Italy, Germany and other European countries” (CNPC). Putin also emphasized Russia’s willingness to cooperate with China in Arctic energy projects.

The first LNG shipment was delivered to China via NSR in July 2018. The project has the potential to provide three million tons of LNG to China for its clean energy development every year.

Arctic LNG 2 Project

The Arctic LNG 2 project is a major LNG development project located on the Gydan peninsula, Russia (Humpert, 2022). The Utrenneye field is the resource base for the project. The project’s expected production capacity is 19.8 million tons per year. The LNG construction centre was built in Belokamenka near Murmansk to provide fabrication of the gravity-based structures (GBS). Overall, the project provides locals with more job opportunities and boosts local economy (Novatek).

Novatek has a direct 60% interest of the project. TotalEnergies, China National Offshore Oil Corporation (CNOOC), CNPC, and a Mitsui-Jogmec consortium, Japan Arctic LNG each owns 10% (TotalEnergies, 2019). Because of the war against Ukraine, the project’s western partners, for instance, Total from France, Linde and Siemens from Germany, and Mitsui from Japan have exited the project over the past six months. Novatek has thus been looking for new partners for technical support, services, and financing (Humpert, 2022).

The project was originally expected to export its first LNG cargo by 2023 (Humpert, 2022; TotalEnergies, 2019). The construction process of the floating foundations has been delayed and will not be completed until August 2023. With the western sanctions targeting the Russian energy sector, Novatek announced in September 2022 that the project will be delayed by at least a year.

The project involves the construction of three LNG trains. Each of them has a capacity of 6.6 million tons of LNG per year. The first train is close to completion while the second and third train were under construction in China. The European Union (EU) sanctions forced several Chinese yards constructing LNG modules to halt work in May 2022.

The Chinese banks, including the China Development Bank (CDB) and the Export-Import Bank of China have provided financing for the project. Putin said during the Third Russian-Chinese Energy Business Forum in 2021 that “the relations of comprehensive partnership and strategic interaction between the Russian Federation and the People’s Republic of China are at an unprecedented high level”, and that the energy cooperation “has developed significantly in recent years” (Nilsen, 2021). But with the ongoing war in Ukraine and the EU sanctions, Sino-Russian cooperation on the Arctic LNG 2 project is facing challenges.

Payakha Oilfield

Located in the Krasnoyarsk border region of Russia, the Payakha oilfield project is another cooperation project in the energy sector between Russia and China under the PSR initiative. The Payakha oilfield is one of the largest oil storage facilities in the Arctic region and has abundant oil reserves: an estimated of 420 million tons of 2P oil reserves and two billion tons of 3P oil reserves (China Chemical Engineering, 2019).

In 2019, during the 23rd St. Petersburg International Economic Forum, China National Chemical Engineering Group Co., Ltd. signed a four-year cooperation agreement with Russian Oil Gas Holding to joint develop the Payakha oilfield project in St. Petersburg. Under the agreement, China Chemical Engineering Co., Ltd. is responsible for the construction of six crude oil treatment processing units, a crude oil loading dock with an annual capacity of fifty million tons, a crude oil pressure pipeline of more than 410 kilometers, a power station, and a tank farm. The project is expected to be put into operation in 2023 and the products will be exported to the Asian and European markets (Shihua, 2019).

As an important project along the PSR, the successful implementation of the project will enrich China's clean energy supply and thus optimize China's energy structure. For Russia, the project is part of its government's strategic plan in strengthening its Arctic energy industry.

Port of Zarubino

The port project in Zarubino, Russia is among the many cooperation projects between Russia and China's Jilin Province (locates to the northeast of China). Zarubino is in the coastal border area of Russia and is only sixty kilometers away from Hunchun, a Chinese port city in Jilin province (Chun, 2020). As an ice-free port, and because of its nature and location, the construction of the port is an integral part of Jilin's "Borrowing ports for marine shipping" strategy (Digital Observatory, 2021). The strategy outlines Jilin's plan in developing shipping routes that connects Hunchun with the East-Asian and European markets through the Zarubino port, which is owned by Russia. The new terminal will be used to handle part of Russia's grain exports and cargo exports from China's north-eastern provinces (He, 2016).

Officials from Jilin province and Russian Suma Group, Russia's largest and Europe's third largest port operator, signed the agreement to jointly construct the Zarubino seaport in 2014. The goal of both sides is to build an international port with an annual capacity of sixty million tons.

During an interview with Russian media in 2016, Chi Chuang, the Deputy Director of Jilin Provincial Bureau of Economic and Technological Cooperation said that the project is moving smoothly. Participating parties, including the Jilin provincial government, China Merchants Group and Russia Suma group have established business and financing model plans and have been conducting the required consultations (He, 2016).

In 2018, the first shipping route, "Hunchun (China) - Zarubino port (Russia) – Busan (Korea) – Ningbo (China)" was established with a round-trip cycle of 15 days. On September 7th, 2018, 4300 tons of copper smelting raw materials were transferred from Peru to Hunchun through the Busan Port in South Korea and the Zarubino port in Russia (Jilin Province Development and Reform Commission, 2020). In 2020, a second shipping route, "Hunchun (China) - Zarubino port (Russia) – Qingdao (China)" was established. Currently, Jilin is still working on developing other cross-

border lands-sea intermodal routes from Hunchun to Japan, South Korea, Europe, and North America via Zarubino port (The State Council - The People's Republic of China, 2020).

The Sino-Russian joint construction of the Zarubino seaport project not only contributes to the revitalization of northeast China's old industrial towns, but also promotes the economy of Russia's Far East. For China, the Zarubino port serves as a crucial connecting point for its planned shipping routes. For Russia, the Zarubino port would potentially strengthen its maritime security in the region. With the current geopolitical structure and the continuing sanctions from the West, Russia is moving eastward and enhancing its cooperation with China to build a firm foundation in east Asia.

Russia's Asian Interest

Sino-Russian cooperation since the fall of the Soviet Union can be traced back to 1997, when then Russian President Yeltsin signed the joint declaration for the formation of a strategic partnership with then Chinese President Jiang Zemin. In mid-2013, with the closer Sino-Russian economic and political ties, Putin announced its "pivot to Asia" strategy. The strategy acknowledges the growing economic power of Northeast Asia and stresses the importance of strengthening ties with Asian countries (Lanteigne, 2018). In 2014, the western sanctions resulted from the Ukraine Crisis and the rapid deterioration of relations with the United States pushed Russia to further seek cooperation with Asian countries and develop its Far East region (Alexeeva & Lasserre, 2018).

The Sino-Russian relationship has developed gradually with the introduction of BRI in 2013. In 2016, during the Russia-ASEAN (Association of Southeast Asian Nations) Business Forum, Putin again stressed the need to coordinate with China's BRI project. According to Putin, Russia aims to create "a broad cross border partnership with the participation of the Eurasian Economic Union (EAEU), the ASEAN community, and the Shanghai Cooperation Organization (SCO)" (Alexeeva & Lasserre, 2018). Sergey Karaganov, head of the Council on Foreign and Defense Policy of Russia, introduced the concept of a Greater Eurasian Partnership to promote international cooperation in the region. East Asia's position in the global trade pattern has strengthened. Putin seeks for a more extensive Eurasian partnership through joint development with countries such as China, Japan, South Korea, India, and other ASEAN and SCO countries (Alexeeva & Lasserre, 2018). These countries are important partners who provide Russia with the necessary energy markets. Before, the European countries were the main customers of Russia's oil and natural gas energy supply. The recent trend of renewable energy development means that European countries may become less dependent on Russian oil and natural gas in the future. The reduction of the European demand will directly compress Russia's energy exports and affect Russia's energy development in the Arctic region. Russia might slowly lose its strategic advantage over Europe based on energy exports. For this reason, Russia looks towards the East to establish the Greater Eurasian Partnership.

Russia has special interest in cooperating with China and China was the first to respond to Russia's Greater Eurasian Partnership. During Putin's official visit to China in 2016, Russia and China signed a joint agreement to confirm the formation of the Eurasian partnership, as a strategy to deepen regional integration. The agreement reads (Li, 2018):

Russia and China advocate building a comprehensive Eurasian partnership on the basis of openness, transparency and the consideration of each other's interests, including the possible involvement of the member countries of the EAEU, SCO,

and ASEAN. In this regard, the heads of state instructed the governments of the two countries to work through the relevant departments and propose measures to implement this initiative in order to promote the deepening of the integration processes in the region.

Both China and Russia have been seeking ways to promote bilateral trade. In 2017, Chinese Commerce Minister Zhong Shan and Russian Economic Development Minister Maxim Oreshkin signed a Joint Declaration of the Ministry of Economic Development of the Russian Federation and the Ministry of Commerce of the People's Republic of China regarding the Feasibility Study of the Eurasian Economic Partnership Agreement. The agreement contributes to the creation of a more favorable trade environment for both countries (Gladkiy, 2020). In 2020, Russia declared the Russian Arctic a complete Free Trade Zone and has been encouraging business in the region (Russia Briefing, 2020). In this way, Russia is attracting more partners to be part of its Greater Eurasian Partnership.

Sino-Russian Cooperation along the NSR

Building on the existing relationship, the 2017 PSR initiative provides more opportunities for the two countries to cooperate on the development of the NSR. In the energy sector, China became Russia's key foreign partner on LNG production projects, for instance, the Yamal LNG, the Arctic LNG, and the Payakha oilfield project. With the rising competition from energy producer countries from the Middle East and North America, the construction and development of these LNG projects are critical for Russia's development in the economic sphere. Moreover, China has been the largest importer of Russian crude oil. In the infrastructure sector, the Belkomur railway link project increases the accessibility of the Siberia region and further connects Russia's land transportation system with its marine transportation system.

In the shipping sector, Russia continues to push forward for its natural resource production and commercial shipping through the NSR by supporting Russian shipping and energy companies. Originally, Russia took Arctic shipping as a domestic issue as it wanted to use the NSR as a national transport route. In 2017, Russia announced amendments into the Merchant Shipping Code, which grant vessels navigating under the Russia flag the exclusive rights to utilize NSR for shipment of oil and gas, and coal produced in Russia (TASS, 2017). In 2020, Putin approved the Basic Principles of Russian Federation State Policy in the Arctic 2035. The policy further confirmed that Russia would like to develop the NSR as "a globally competitive national transport corridor" (Biedermann, 2021: 8).

Since the first Chinese vessel *Xuelong's* navigation to the NSR in 2012, Chinese shipping companies, such as the leading state-owned Arctic shipping company COSCO, have been showing increasing interest to Arctic shipping routes (Huang, Lasserre & Alexeeva, 2015). China also has significantly contributed to ensure the development of navigation along the NSR, in the realm of navigation technologies, informational logistics, port infrastructure, and financing. China becomes "an investor, supplier, and consumer of Arctic shipping" (Kobzeva, 2022: 318). The advanced development of NSR means that for China, cooperating with Russia is the most feasible Arctic policy (Kobzeva, 2022).

China and Russia both benefit from the construction of the Zarubino port project. Ships have obstacles to go through NSR, with the harsh environmental condition and the limited

infrastructure. Sino-Russian cooperation contributes to the infrastructure development along NSR. The newly established ports and logistics make it easier and feasible for ships to go through NSR, as a “Transcontinental Eurasian Sea Transport Corridor” (Li, 2018). China benefits from the NSR’s development through the increasing trade opportunities and the natural resource supplies. NSR successfully establishes a link between European and Asian markets (Kobzeva, 2020).

Other than the above-mentioned projects that fit under the PSR initiative, China and Russia have also cooperated in constructing pipelines, railroads, shipping routes, cross-border bridges, and subsea cables under the broader BRI in the Arctic region. The China-Russia East-Route Natural Gas pipeline provides stable supplies to China and helps Russia secure its energy sector. The Primorye-1 and Primorye-2 international transport corridors encourage trade and investment between Russia and China (Russia Briefing, 2017). The Blagoveshchensk-Heihe Bridge (completed in 2019) and the Nizhneleninskoe-Tongjiang Railway Bridge (completed in 2022) are two cross-border bridges that were jointly built by Russia and China (Bannerman, 2021; Chen & Nekhay, 2022; Pengpai News, 2022). These bridges facilitate travel between Russia and China. In 2021, with China’s technological support, Russia began to construct a Polar Express Arctic subsea cable valued at \$889 million (Bannerman, 2021).

These projects demonstrate a close economic relationship between China’s northeast and Russia’s Far East. Infrastructure development on both land and sea stimulates trade in the region. Northeast China and the Far East of Russia are located at the core of the Northeast Asian logistics network and are the key nodes connecting the Eurasian transportation corridor. Russia considers the economic development of the Far East as a strategic priority. In 2010, Putin signed the Social and Economic Development Strategy of the Far East and the Baikal region before 2025. The Sino-Russian cooperation and development plan in the Russian Far East region (2018-2024) further outlines the specific cooperation projects between China and Russia in the northeast and Far East and provides corresponding policy guidelines. This plan has become a specific guide for the cooperation between Northeast China and the Russian Far East. It also lays a foundation for promoting the comprehensive and practical cooperation between the two regions (Hu & Yi, 2020).

The Future of Sino-Russian Cooperation

Sino-Russian cooperation also faces challenges, both internally and externally. Internally, first, China has limited activity in the Arctic region. Though being an Observer at the Arctic Council, China, as a non-Arctic state still has limited decision-making capacity on Arctic affairs. While Russia is an Arctic sovereign state, China is also a legitimate Arctic actor (Kobzeva, 2020). The Arctic region, as a strategic resource hub, is central to Russia’s national security and is core to Russia’s status as a great power (MacDonald, 2021). The development of Arctic resources is of geopolitical significance for Russia in the long term (Chanysheva & Ilinova, 2021). From the realism perspective, China’s increasing economic power and geopolitical status in the Arctic region could be concerning for Russia, as China is gradually gaining its geopolitical power through the BRI and the PSR initiatives. Russian experts fear that the long-term effects of China’s influence in the Arctic may threaten Russia’s Arctic sovereignty. Russia has been reluctant to hand in more controlling power to Chinese companies investing in NSR projects. For Russia, a multi-polar world best ensures its strategic autonomy in the polar region. Instead of committing to “an ever-tightening relationship” with China, Russia has thus engaged with diverse investment partners including Japan and India (MacDonald, 2021: 199-200).

The above discussed projects reflect the asymmetric nature of the Sino-Russian cooperation in the Arctic region. Cooperation on the LNG projects holds exciting potential for both countries given Russia's abundant nature resources, China's growing consumer market, and the Chinese government's need to secure and diversify its energy supply. These factors should drive both countries to build a mutual beneficial collaboration. But practically, Sino-Russian cooperation in the Arctic has developed slowly over a long period of time. Russia and China diverge in the national interests in the Arctic region, such as the ambiguities for bilateral cooperation. China portrays the Arctic as a region for all humankind while Russia continues to tighten its national security along the NSR. Moreover, Russia continues to secure the Arctic Council as the key regional institution for international cooperation (Biedermann, 2021). PSR projects such as the Yamal LNG links East Asia with continental Europe through the NSR. Russia thus has been finding ways to seek balance between openness and control of its natural resources and shipping routes. For China, a closer tie with Russia might repel its European partners (Kobzeva, 2022). China also feels no obligation to fully accommodate Russia's rules as it is also interested in cooperating with other Nordic countries (MacDonald, 2021). For Russia, an increasing dependence on Chinese investment threatens its Arctic sovereignty. Russia may lose its strategic advantage over China in the Arctic region (Kobzeva, 2022). According to MacDonald (2021), Sino-Russian relationship is best defined as an entente: "an understanding to regularly cooperate, consult and in some cases coordinate activities across multiple domains due to mutual, but not perfectly aligned or comprehensive, strategic interests while remaining autonomous and equal actors with limited hard commitments between them" (p. 196). In the future, China and Russia would have to find a way to cooperate considering the legitimate use of the natural resources and the shipping routes of the Russian Arctic.

Second, the unpredictable weather conditions, the fragile Arctic environment, and the limited accessibility of the Arctic shipping routes add on to the existing challenges.

External threats come from the existing geopolitical disputes in the Arctic. For instance, the United States and Canada have a border dispute in the Beaufort Sea region; Russia and the United States have disputes over the legal status of the Bering Strait boundary and the NSR; and Russia, Canada, and Denmark have disputes over the continental shelf boundary (Yoder, 2022).

External threats also come from the EU and NATO. For NATO, Sino-Russian cooperation pose security challenges to the Arctic region (MacDonald, 2021). Russia's invasion to Ukraine in February 2022 provides opportunities for NATO expansion. Both Finland and Sweden are in the process of joining NATO (Atlantic Council experts, 2022; Haltiwanger, 2022). The war in Ukraine is changing the future development course of Sino-Russian cooperation in the Arctic.

Some of the Sino-Russian cooperation projects under the PSR initiative have been challenged by the western sanctions. In May 2022, the European Council adopted a sixth package of sanctions targeting Russian oil, banks, and military officials. Under the new restrictions, Russian oil exports to European countries will be banned. Russian crude oil and petroleum products will be barred from entering the EU by the end of 2022. The package also includes a ban on EU companies providing insurance for Russian oil shipment (European Commission, 2022). South Korea has also joined the sanction and bans the exports of strategic items such as electronic and marine equipment to Russia (Shin & Kim, 2022). Also, as mentioned above, EU sanctions have caused the delay to the opening of the Arctic LNG 2 project due to western companies' exit of the project and Chinese firms' halt of module production for the project.

The EU sanctions and the associated consequences are forcing Russian oil companies to look for new export routes and markets for their Arctic oil (Staalesen, 2022). The increasing tension between Russia and the West stimulates the convergence of China and Russia's interests in the Arctic region, especially along the NSR.

Since the 2010s, with the increased tensions between Russia and the West, China has become the key foreign financial supporter, the major customer, and the principal technological partner in Russian Arctic projects. To develop its natural resources, Russia needs both external financial and technological support that it lacks. China provides the essential investment and other necessary technological resources to support Russia's projects (Filimonova & Krivokhizh, 2018). China has gradually become Russia's main foreign partner with its participation in the Yamal LNG and Arctic LNG 2 projects. These two projects represent Sino-Russian cooperation in the Arctic region (Spivak and Gabuev, 2021). Novatek's Chairman of the Management Board Leonid Mikhelson said that the Chinese market is the firm's key target (Financial Times, 2021). China has become Russia's most important export destination since 2021 (Biedermann, 2021). China's support is crucial for the development of the NSR (Biedermann, 2021).

Looking ahead, Sino-Russian cooperation might again face challenges with the ongoing geopolitical shift. Putin signed the new naval doctrine on July 31, 2022. The doctrine emphasizes the strategic importance of the Arctic region. It includes measures that Russia would take to strengthen its Navy's warfare capabilities in the Arctic and beyond. With the potential growth of the NATO military alliance and the United States' desire to weaken Russia's control over the NSR, the doctrine identifies U.S. and NATO maritime activities in the Arctic as major threats to Russia's security. Putin said that Russia will ensure the protection of its Arctic waters "firmly and by all means" (RFE/RL's Russian Service, 2022). The naval doctrine might make the joint Sino-Russian use of the NSR problematic, given the increased tension between Russia and the West.

Conclusion

The PSR initiative connects Northeast Asia with Western Europe through the NSR. China, Russia, and Western European countries are the direct beneficiaries. The tightening Sino-Russian relationship has influenced the geopolitical environment in the region (MacDonald, 2021). Future studies could focus on how the shifting geopolitical environment is going to affect cooperation and interaction among various actors, including the Arctic states and non-Arctic states in the Arctic region.

China and Russia have a high degree of strategic mutual trust and a stable foundation for cooperation. Throughout the history, the two countries have developed cooperation projects in the political, defensive, economic, and scientific realms. China has gained political and economic power over the years. Its legitimacy in participating in Arctic affairs has also increased. The Chinese investment helps Russia in the construction of Arctic infrastructure, the development of NSR and the enhancement of the development capacity of Russian Arctic resources. Sino-Russian cooperation is of long-term strategic significance for Russia.

Vladimir Putin's attendance at the 2021 Beijing Winter Olympics Games' opening ceremony and the subsequent meeting with Chinese President Xi Jinping signal closer ties between the two countries. The increasing use of NSR as an alternative for traditional waterways moves the world economic centre northward. The world political and economic order is changing with the closer

Sino-Russian cooperation under the PSR initiative. Russia has an urgent need to develop its Arctic region in order to maintain its status as a great power. Russia considers the PSR as a “vehicle” to attract investment and technical supports in constructing its Arctic infrastructure and extracting natural resources. The current western sanctions and the potential expansion of NATO would strengthen Russia’s “pivot to Asia” strategy that was brought about in 2013. Sino-Russian cooperation contributes to the formation of their collective security system in the region (Alexeeva & Lasserre, 2018).

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