

# Shipping Matters:

## The Role of Arctic Shipping in Shaping China's Engagement in Arctic Resource Development

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*China's engagement in Arctic resource development represents an option that guarantees its diversification of energy supply. It could be influenced by multifaceted factors, ranging from the changing landscape of Arctic geopolitics, the resource development policies of Arctic states, and certain realistic restrictions affecting economic viability and operational feasibility. This article argues that accessibility, specifically reliable, economical and time-saving maritime connections linking the Arctic resource production sites with the extra-regional market plays a decisive role in shaping China's interests in the Arctic resource development. China's investment in Russia's Yamal Arctic LNG project is such a case in point. It demonstrates the complementarity and mutual reinforcement between the use of Arctic shipping routes and the development of Arctic resources. The added value of Arctic shipping to China's engagement in Arctic resources development lies in that it not only facilitates the distribution of Arctic resources to the Chinese market in a reliable and economical approach, but also brings China's expertise in permafrost engineering into the global oil/gas market and fosters China's all-round engagement in the Arctic regional economic development.*

According to the frequently cited circum-Arctic resource assessment conducted by the U.S. Geological Survey (USGS, 2008), the Arctic region possesses 13% of the world's undiscovered oil, 30% of its undiscovered gas, and multiples more of gas hydrates. These resources are unevenly distributed and mostly concentrated in the offshore areas in West Siberian, and East Barents Basin as well as in Alaska (ibid). Technological advances and irreversible Arctic warming have enhanced the accessibility of the region, calling attention to the economic prospects of Arctic resource development. Oil and gas extraction is already underway in northern Russia and Norway, as world

oil prices are recovering from the brutal slump of the past years while energy demands in the European and East Asian markets continue to rise. Operations on the Norwegian Barents continental shelf commenced in 2016 (Norwegian Petroleum Directorate, 2017), and Russia's largest independent gas producer Novatek started the Arctic LNG production from the facility's first liquefaction trains situated in the Yamal Peninsula on December 5, 2017. The departure of the first LNG export shipment followed days later. Apart from oil and gas reserves, the Arctic possesses massive quantities of mineral deposits of iron, coal, nickel, zinc, gold, diamonds and rare earth elements (REE). A number of mining projects remain active across the Arctic territories in Alaska, Baffin Island, northern Russia, Lapland, Svalbard, as well as many other areas of the Circumpolar North. This indicates the economic viability of extracting resources in some parcels of the Arctic and the emerging demands for Arctic resources from the global market.

China is also inspired by the promising outlook of the Arctic energy industry. Its Arctic policy whitepaper advocates actions to "participate in the exploitation of oil, gas and mineral resources in the Arctic, through cooperation and on the condition of properly respecting the eco-environment in the Arctic" and to generate technological innovations in the domains of resource development and infrastructure construction (State Council of China, 2018). China reiterates "respect" as the predominant principle, with regard to "the sovereign rights of Arctic states over oil, gas and mineral resources subject to their jurisdiction in accordance with international laws" (*ibid*), and also with respect to the interests and concerns of the residents of the region. However, there exists a prevailing perception that defines China's investment in Arctic resource development as unregulated, unconstrained and driven by unclarified intentions. This perception derives from the publicized incidents of China's previous misconducts in managing investment projects in some underdeveloped regions, the concern over China's access to such strategic resources as REEs and uranium in the Arctic that could lead to its monopoly of global supply of the key resources, as well as the fear of influx of Chinese labor immigrants that might endanger local social stability. It is widely cited that Chinese investment in Arctic littoral states for the past five years has reached 450 billion USD (Rosen & Thuringer, 2017). However, the figure does not make any distinction between the amount of investment that eventually flows into the Arctic administrative districts of each state or directly targets Arctic-related projects. The current statement tends to over-exaggerate China's ambition, and as a matter of fact, China's engagement in Arctic resource development remains rather modest, pragmatic and prudent.

This article aims to articulate what factors may influence China's engagement in Arctic resource development, and then explain why the accessibility, connectivity and reliability of Arctic shipping is considered to play a decisive role by citing the example of China-Russia cooperation on the Yamal LNG project. The article concludes with a comprehensive review on what could be learned from the Yamal cooperation to provide a better understanding of China's interests and preferences in its strategy regarding Arctic resource development.

## Factors Influencing China's Engagement in Arctic Resource Development

In its white paper on Arctic Policy, China labels the participation in the exploration for and exploitation of oil, gas, mineral and other non-living resources as an important part of its engagement in the Arctic affairs. Factors capable of influencing China's engagement are multifaceted, each having varying degrees of influence. The following are some possible factors that may have effect on China's engagement in Arctic resource development.

### *Changing Landscape of Arctic Geopolitics*

As the Ukrainian crisis that devolved in 2014 drags on, the tension between the U.S. and Russia has been constantly impacting the stability of the Arctic region, in particular cooperation on the development of oil, gas and mineral deposits. The list of sanctions imposed by the U.S. and its allies against Russia touched upon the economically significant Arctic energy sector as Western countries banned the transfer of state-of-the-art technology and equipment for deep-water drilling, prospection of oil fields in the Arctic and shale oil extraction. Constraints were also put on investment and financing of oil/energy projects (Astaknova et al., 2014). Energy firms based in Western countries, ranging from energy giants (e.g. Exxon Mobil, Shell, Total, etc.) to smaller oil services and engineering groupings, withdrew from operations involved in the development of Russia's Arctic offshore zones (Farchy, 2014). This opened up space for emerging stakeholders (e.g. China, India, Vietnam, etc.) to become engaged in Arctic energy development by providing much-needed financing instruments and technology transfer. In view of these circumstances, it becomes increasingly important for Russia to cooperate with partners that are unaffected by the influence of the U.S. so as to sustain its Arctic development strategy. The changing landscape of Arctic geopolitics represented by the spill-over effect of extra-regional tensions onto the Arctic, have served as a catalyst to accelerate China's Arctic engagement.

### *Resource Development Policies of Arctic States and their Bilateral Ties with China*

The resource development policies of Arctic states are either inclined toward responsible development or driven by protective purposes. While the U.S. and Canada designated parts of their Arctic waters as "off limits to offshore oil and gas leasing" (White House, 2016), Russia and Norway, bordering the mostly ice-free Norwegian Sea, Barents Sea and Kara Sea, have been active in both onshore and offshore energy development activities. China's bilateral ties with North America are somehow in stagnation, and in comparison, China's cooperation with Russia and Nordic states in the Arctic affairs is developing rapidly and is prioritized in its Arctic diplomacy.

Russia's resources-oriented strategy corresponds with China's agenda eyeing on securing diversification of energy supply and related maritime transport. The bilateral cooperation commenced in 2013 with China National Petroleum Corporation (CNPC) acquiring a 20% share of the Yamal Arctic LNG project, and further expanded the development of Northern Sea Route

and Russia's Arctic logistics and infrastructure. The two parties consolidated their Arctic collaborative ties in the form of the joint initiative of the Ice (or Polar) Silk Road. Nordic states have been playing an indispensable role in facilitating China's involvement in Arctic affairs. Iceland was the first state to conclude with China a bilateral framework agreement and a memorandum of understanding back in 2012 to strengthen cooperation on marine and polar policy coordination, forecasting and monitoring, technology and research on the Arctic sea routes (State Oceanic Administration of China, 2012). Arctic cooperation emerges as a distinct highlight in the China-Denmark comprehensive strategic partnership concluded in 2015 and in the China-Finland future-oriented cooperative partnership established in 2017. In December 2016, China and Norway normalized bilateral diplomatic ties after a 6-year freeze, and aimed to hereafter "promote mutually beneficial and win-win cooperation in polar issues" (Xinhua, 2016). China demonstrated its interest in several infrastructure projects in the Nordic Arctic as well, including the Arctic Corridor project that builds a railway to connect landlocked Finland with an outlet to the Arctic Ocean (Cui, 2018), and the submarine communications cable beneath the Northeast Passage linking Nordic Europe, Russia and Northeast Asia. The benign bilateral relations between China and certain Arctic states strengthen their economic complementarity in Arctic development. China's market potential, robust financing instruments, as well as expertise in infrastructure construction and engineering manufacture, are appealing to its Arctic partners, and such complementarity constitutes the cornerstone of China's engagement in Arctic development cooperation.

#### *Realistic Restrictions Affecting Economic Viability and Operational Feasibility*

The changing landscape of Arctic geopolitics and the benign bilateral relations with certain Arctic partners tend to be favorable to China's engagement in Arctic resource development at the current stage. However, China still confronts a number of realistic restrictions in terms of economic viability and operational feasibility. Operations in the Arctic generate higher costs than those in lower latitudes, making it more difficult to attain profitability. Profitability is the foremost concern for operators and is meanwhile highly dependent on world commodity prices, which vary greatly.

Developing resources in the Arctic is subject to the limitations of infrastructure as well. Take Russia for example. There is lack of infrastructure in the underdeveloped regions of East Siberia, the Arctic offshore and continental shelf, where new extraction, processing and refinement facilities, and logistic networks need to be constructed. Foreign investors favor resource development projects with pre-installed infrastructures, in which short- and medium-term economic returns tend to be foreseen more easily. The lack of infrastructure in Arctic resource development projects, including the absence of port infrastructure and land transportation (railway, highway and pipelines) and the insufficient capacity for emergency response and search & rescue, pose uncertainties and risks for Chinese companies that have limited knowledge or field experiences of Arctic operations.

### ***Social Factors and Indigenous Concerns***

Social factors could be unpredictable and at certain moments be fundamental in determining the outcome of an investment. Such factors were underestimated by Chinese actors in their early practices regarding the Arctic, but are now giving enhanced considerations after a few lessons learnt, for example the one involving the Isua iron ore mine in Greenland. In this incident, the UK-based *London Mining*, which was backed by Chinese capital, was accorded a 30-year license to operate the Isua iron ore mine in southwest Greenland in October 2013 (McCrae, 2013). Earlier in the year, the Greenlandic self-rule government announced lifting the ban on the extraction of uranium ores, and introduced the *Large-Scale Projects Act* with the aim of facilitating the entry of foreign labor. The autonomous government encouraged the flow of China's capital to Greenland so as to procure economic sustainability, paving the way for Greenland's future independence. The Greenlandic community and the Danish media reacted immediately to the license issuance and expressed strong concerns over the social dumping engendered by the potential influx of Chinese labor, which could cause reductions in local welfare and labor standards. This incident inevitably affected potential investors who became more cautious and kept a low profile. The London Mining project was thus indefinitely postponed. Although Chinese firms have been engaged in sporadic acquisitions or joint-venture investments in Greenland afterwards, none of these projects have ever advanced to production phase.

Even though China's investments in Arctic resource development will always abide by the domestic regulations of relevant states with regard to environmental protection, land use and labor standards, Chinese actors appear however unable to provide the necessary disclosure to satisfy the transparency demands of the Indigenous community or offer an explicit explanation on the intentions underlying their investment at all times. They also have difficulty in navigating through the confusing relations and conflicting interests of central governments, regional administrations and Indigenous communities in general as these parties have varied perspectives towards Arctic resource development within their respective sovereignties or regional/local administrative competences.

## **Shipping Matters: How Accessibility Shapes China's Preference for Arctic**

### **Resource Development**

This article argues that accessibility, specifically reliable, economical and time-saving maritime connections linking Arctic resource production sites with the market outside the Arctic, plays a decisive role in shaping China's interests for Arctic resource development. For Arctic states, resources extracted in the Arctic can be transported southwards to domestic markets by land traffic or via inland waterways. International customers eyeing Arctic resources, however, are largely dependent on reliable and economical maritime transportation. This indicates that China's

engagement in Arctic resource development is inseparable from its development of Arctic shipping.

Rapid melting of Arctic sea ice indicates a long-term tendency favorable to the development of Arctic sea routes, which present maritime shortcuts connecting the major economic agglomerations in East Asia, West Europe and North America. Of the three Arctic waterway routes, the Northern Sea Route (NSR) in Russia features lighter ice conditions than the Northwest Passage (NWP) in Canada and the Transpolar Sea Route across the Arctic Ocean; the littoral infrastructure and pilotage & icebreaking services are better established as well in Russia. In 2017, 10.7 million tons of freight was transported in Northern Sea Route waters, marking a steady increase of 42.6% compared with the previous year (Epanchintsev, 2018). Just-in-time delivery requirements and highly unpredicted viability of ice conditions may render the use of Arctic waterways economically unviable for container shipping. However, shipment of Arctic resources to world markets could potentially lead to future increases in freight transport throughout the Arctic waterways.

China is a major trading nation and energy consumer. The utilization of sea routes in the North and the development of Arctic resources may have huge impacts on its energy strategy and economic development. China is a late-comer in the utilization of Arctic passages. The *RV Xue Long (Snow Dragon)* undertook its first trial, a trans-Arctic transit in 2012, and China Ocean Shipping (Group) Company's (COSCO) ice-strengthened *MV Yong Sheng* conducted its first commercial voyage via the NSR in 2013. However, China acknowledges the significance of the Arctic sea routes in both economic and strategic terms, and the vision for the future utilization has appeared in several policy documents. The blue economic corridor that connects Europe with China via the Arctic Ocean was recognized as an integral component of China's Belt and Road Initiative for the first time in July 2017 in the *Vision for Maritime Cooperation under the Belt and Road Initiative* published by China's National Development and Reform Commission (NDRC) and State Oceanic Administration (SOA). In January 2018, China's newly published Arctic Policy Whitepaper proposed to all stakeholders to participate in the development of Arctic shipping routes, thereby building the "Polar Silk Road". It also encouraged Chinese companies to be engaged in the construction of infrastructure along the routes and to conduct trial commercial voyages, paving the way for normalized practices.

Fostered by these initiatives, China's utilization of Russia's NSR has expanded considerably. Regularized commercial operations have been established that can be categorized into trans-Arctic cargo transport, and destination transport related to Russia's Arctic energy development, namely the Yamal LNG project. In 2016, COSCO launched the Yong Sheng Plus Program, and a total of five vessels conducted six transits in the same year, marking the first time that a foreign-flagged operator had sent more than three vessels via this route in a single season. Two of the vessels were closely linked to China's engagement in Yamal; the semi-submersible *Xia Zhi Yuan 6* and *Xiang Yun Kou* delivered six air-cooled condensing modules to the port of Sabetta via the NSR. It is expected

that a single voyage could save approximately 7,000 nautical miles and 24 days in comparison with traditional sailing via the Suez Canal (COSCO, 2017). In December 2016, COSCO Shipping Specialized Carriers Co. Ltd. was founded, and has Arctic shipping as its core business. Since 2013, 10 vessels from COSCO conducted a total of 14 voyages (see Table 1). The normalization of China's Arctic commercial shipping operations indicates that the NSR can be economically viable and navigationally safe. Reliable marine access to Arctic waters reassures China in its interests and political intentions to be engaged in the development of Arctic energy and mineral resources.

**Table 1** – Transits of China Ocean Shipping (Group) Company's (COSCO) vessels via the Northern Sea Route (2013-2017)

Vessel Name	Departure	Destination	Cargo transported
<b>2013 – China's first commercial transit via the Northern Sea Route</b>			
Yong Sheng	China	Netherland	Rolled Steel
<b>2015 – China's first round transit via the Northern Sea Route</b>			
Yong Sheng	China	Sweden	Rolled Steel
Yong Sheng	Belgium, Germany	China	Ores
<b>2016 – Launch of “Yong Sheng Plus” Program</b>			
Yong Sheng	China	U.K.	Wind power equipment
Yong Sheng	U.K.	China	General bulk
Xia Zhi Yuan 6	China	Russia(Sabetta)	LNG processing modules
Tian Xi	Finland	China	Paper pulp
Xiang He Kou	Russia(Sabetta)	China	(unloaded)
Xiang Yun Kou	China	Russia(Sabetta)	LNG processing modules
<b>2017 – Operation under the COSCO Shipping Specialized Carriers</b>			
Lian Hua Song	China	Russia, Denmark	Subway shield machines, wind power equipment
Da An	China	Denmark, Germany	Shield machines, wind power equipment
Tian Jian	China	Russia, Denmark	Subway shield machines, wind power equipment
Tian Le	Norway	Japan, China	Yacht, agricultural product
Tian Fu	Finland	China	Paper pulp

Source: Website of COSCO Specialized Carriers Co. Ltd. ([www.coscol.com.cn](http://www.coscol.com.cn))

The Yamal LNG project is a remarkable paradigm that demonstrates how Arctic sea-route utilization and Arctic resource development complement each other and reinforce China's engagement in Arctic development. This mega-sized LNG complex launched in 2013 is located in the Yamal Peninsula above the Arctic Circle. The integrated project encompasses LNG production, liquefaction and shipment. It is designed for an annual production capacity of 16.5 million metric tons of LNG to be transported via the Northern Sea Route to Asian and European customers (Filimonova & Krivokhizh, 2018). In the near future, expansion of the scale of production will necessitate extensive transportation infrastructure, including enlargement of the deep-sea port in Sabetta and construction of railway connections to the southern territories.

China is an important financing agent for the Yamal LNG project and contributes to alleviating the financial difficulties faced by the project since sanctions have been put in place following Russia's annexation of Crimea. Together, China National Petroleum Corporation (CNPC) and Silk Road Foundation (SRF) form the second largest shareholder of the Yamal Project; CNPC concluded an agreement with Novatek acquiring a 20% equity stake and Silk Road Foundation acquired a 9.9% stake in the project. Besides, financing agreements were signed with the Export-Import Bank of China and China Development Bank on 15-year credit line facilities for a total amount equaling to approximately 12 billion USD in 2016 (Yamal LNG, 2016). The investment secures reliable LNG imports to China as part of strategy of diversification of energy supply. CNPC concluded a binding contract with Novatek securing the supply of 3 million tons of LNG per annum for 20 years (Yamal LNG, 2014). This direct purchase accounts for nearly 20% of the total capacity of the first three production trains in the Yamal project. As the remaining production volumes are expected to be delivered to the Asia-Pacific region via the Northern Sea Route, indirect purchase from China is highly possible, which would further increase the proportion of China's procurement.

The Arctic waterways offer a shortcut for the transport of energy resources, as well as the delivery of equipment and engineering materials needed for project development. China, being a major investor and importer of Russia's Arctic energy production, has its eyes on more ambitious goals of all-round participation in Arctic regional economic development. It aims to be involved both upstream and downstream of energy development, bringing into play its expertise and technology in permafrost and offshore engineering, equipment and infrastructure construction. China is the key supplier of core kits to the Yamal project. China's engineering corporations, i.e. CNPC Offshore Engineering Company, China National Offshore Oil Corporation's (CNOOC) Offshore Oil Engineering Company, and BOMESC Offshore Engineering Company, have been actively engaged in producing the modules for the project. The air-cooled condensing modules were delivered to Sabetta by COSCO's semi-submersibles via the Northern Sea Route and were afterwards assembled on the construction site onto a prepared foundation. Compared with conventional methods, the use of prefabricated modules shortened the construction period by 1.5 years, and massive on-site construction was avoided, reducing impacts on the fragile eco-system

(Wang, 2016). The involvement of China's Honghua Group Ltd. is another example. This world's largest manufacturer of drilling rigs showcases its expertise in designing the Arctic land rigs capable of drilling 7,000 meters and withstanding temperatures of minus 60 degrees (Honghua, 2015). The Yamal cooperation represents China's very first export of core kits for LNG production to a foreign country. It signals China's entry into the international high-end oil & gas equipment market, and demonstrates how China's advantages in capital, market size and expertise in permafrost engineering could be integrated into its engagement in Arctic infrastructure and energy development projects.

Associated with Arctic shipping, China's shipbuilding industry has also made advances. Guangzhou Shipyard International Company is committed to the construction of semi-submersibles for the transportation of module structures, ocean platforms and floating decks for the Yamal project. It received orders alongside with other East Asian counterparts, Daewoo Shipbuilding and Marine Engineering of Korea and Mitsui Engineering and Shipbuilding of Japan, to build LNG carriers with ice-breaking capacity classified as Arc-7 to guarantee the delivery of LNG to world markets in all seasons (GSI, 2016).

From the perspective of Arctic resource development, the Arctic waterways facilitates the distribution of the Arctic resources to China's market in a more reliable and economic approach in comparison with the conventional shipping routes via the Suez Canal and the Malacca Strait that feature occasionally escalating tensions in South China Sea and Gulf of Aiden, coupled with rampant piracy and relevant escort fees. The significance of the Arctic waterways lies both in its advantages in the savings of delivery time and shipping costs, and also in its added value that enables China to be engaged in Arctic resource development within a wider circumpolar economic perspective.

The Yamal project, however, is not China's first investment in resource development above the Arctic Circle. As early as 2010, Jilin Jien Nickel Industry Co. Ltd. completed the acquisition of Canadian Royalties, which had discovered and delineated considerable mineral deposits (nickel, copper, cobalt, platinum, palladium and gold) in Canada's Nunavik region. The Nunavik nickel project in Northern Québec represented an active attempt of Chinese capital to invest in Arctic mining assets that were facing financial difficulties. It envisioned the shipment of mineral ores extracted in the Nunavik region to the European and East Asian markets by taking advantage of the Northwest Passage, with long-term goals to establish logistics networks for the resource transport in the Canadian Arctic, thereby boosting local employment, infrastructure construction and socio-economic development of Canadian Arctic Indigenous communities. The first commercial voyage via the NWP linking the Canadian Arctic with East Asia was a shipment of 23,000 tons of extracted nickel concentrates to the port of Bayuquan in northeast China in September 2014 (Nunatsiaq News, 2014). However, the economic viability of navigation via the NWP turned out to be less attractive than expected. The navigable window time strictly limited in the summer seasons would compromise costumers' demands of timely delivery, and the saving of

shipping distance could be easily offset by the lowering of navigation speed in the harsh and unpredictable conditions; in addition, the fee for ice navigator and ice-breaking services would generate extra expenses. The project eventually encountered financial difficulties and made cutbacks from 2015 (China Securities Journal, 2016). Resource development in the Arctic inevitably implies higher production costs, and stricter environmental and societal criteria, and it is even more easily susceptible to the fluctuations of the global market and commodity prices. When shipping – bringing Arctic resources to the world market – no longer serves as an advantage or even impairs economic viability, any foreign investor, including China, would become more cautious and pragmatic.

### **Conclusion: What can be Inspired From the Yamal Cooperation?**

China's engagement, or more precisely its intention to be engaged in Arctic resource development, continues to receive wide international attention along with China's growing influence in Arctic affairs. It should be noted, however, that apart from the Yamal LNG project it is difficult to name other concrete projects that have stepped into the implementation stage. The Yamal cooperation may offer some hints on how such projects could become a reality.

First, complementarity between China and Russia in the Arctic geo-economy lays at the foundation. The vast expanses of Russia's Far North are rich in energy and mineral reserves, but lack sufficient infrastructure, financing instruments and labor forces to sustain development. More than any other Arctic state, Russia possesses a strong will, motivation and resolve to develop its Arctic resources. Whereas China has a substantial need to diversify its energy imports, it also plans to decrease its excessive dependence on the Strait of Malacca by developing new maritime routes via the Arctic Ocean in order to secure its energy supply. Thus, Russia could be an ideal partner for China in these endeavors.

Second, shipping constitutes the cornerstone of Arctic bilateral cooperation. Melting Arctic sea ice facilitates the long-term utilization of Arctic sea routes. In addition, Arctic littoral states' demands for port infrastructure offer China an opportunity to be engaged in Arctic development by means of direct investment and export of China's manufactures and engineering techniques that are adaptable to the Arctic environment. Russia, on the one hand, is a leading country that aims to revive the Arctic maritime corridor and make it "competitive, universal and desired for transportation of all types of goods, from raw materials to containers" (Putin, 2017). For China, on the other hand, the utilization of Arctic waterways will greatly enhance its presence and influence in Arctic affairs and expand new domains of cooperation with other Arctic stakeholders, notably Russia. Arctic shipping has been mainstreamed in bilateral cooperation since the very beginning. In December 2015, the Joint Communiqué of the 20<sup>th</sup> Meeting between Chinese and Russian Prime Ministers iterated that the two parties would "strengthen the cooperation on the development and utilization of the Northern Sea Route and launch research projects on the Arctic

shipping” (Ministry of Foreign Affairs of China, 2015). This marks the first time that Arctic shipping appears in a high-level official document and shipping will undoubtedly become the most promising and effective area of bilateral cooperation in the Arctic. Two years later, on the occasion of his state visit to Russia, China’s President Xi Jinping, together with Russia’s Prime Minister Dmitry Medvedev proposed that the two parties jointly build the Polar Silk Road to “conduct cooperation in Arctic sea route and implement relevant connectivity projects” (Luo, 2017). Bilateral cooperation on shipping between both states opens the window for China’s engagement in a wider spectrum of Russia’s Arctic economic development.

Third, policy coordination and strategy docking consolidated bilateral cooperation to a higher level. Policies were coordinated on diverse levels: at the national level, China’s Polar Silk Road initiative incorporated into the broader agenda of the Belt and Road Initiative corresponded to Russia’s Trans-Eurasian Development Plan; with regard to regional development plans, China’s revitalization of industrial bases in the Northeast provinces converged with Russia’s East Siberia and Far East development plans. And in the energy sector, China’s vision for the diversification of energy supply and Russia’s objective of strategic translocation of resource bases to the North and the East were complementary. Coordination between policies guaranteed that the Arctic would be incorporated into the bilateral cooperation agenda, fostering mutual trust and establishing normalized cooperative regimes and exchange channels. Through these channels both parties can become fully aware of each party’s needs. The smooth development of the Yamal LNG project is backed by such coordination and is likely to encourage China to further engage in facilitating improved connectivity and sustainable socio-economic development in the Russian Arctic. Several Chinese companies have expressed interest in investing in port infrastructure (Arkhangelsk deep-water port) and railway connections (Belkomur) that are closely linked with the logistics of Russia’s Arctic resource development.

However, whether the Yamal model could be replicated is very conditional. As known, Russia prioritizes nearly 150 projects for Arctic development worth over 5 trillion rubles, but of which 4 trillion is expected from non-budgetary or private sources (Sputnik, 2017). Some of these projects, for instance, the White Sea-Komi-Ural (Belkomur) railway and the Murmansk Integrated Transport Hub have been proposed for years, but no significant progress has been witnessed so far. The majority of ongoing projects in the whole Arctic region are either in the very preliminary stage of license issuance and fund-raising, or dealing with infrastructure construction and mineral extractions in which short-and-medium profitability is hardly foreseen. The huge gaps of funding and risks of investment returns constitute the greatest concerns for Chinese operators. In addition, in the process of project implementation, some discrepancy begins to emerge with respect to the vision of Arctic development. For instance, Russia’s interpretation of Arctic shipping development refers to the rejuvenation of a domestic sea-lane along the Northern Sea Route, while China considers its destinational traffic related to Russia’s Arctic development projects as part of the endeavors of the opening of high-latitude corridor (the Northeast Passage) linking Northeast Asia

with Nordic and West Europe through Russia's Arctic waters. This is reflected in Russia's adoption of protectionism measures, notably the recent legislation that entitles the Russian vessels or foreign vessels flagged/registered in Russian departments to exclusive rights for shipment of energy resources along the Northern Sea Route (Staalesen, 2018). Whereas China, for its part, is seeking for broader cooperation and diversified partners as the notion of the Polar Silk Road is extended from a bilateral initiative to include all stakeholders concerned in its Arctic whitepaper. Such discrepancies may widen, or be overcome by closer policy coordination.

To conclude, the initiative of the Polar Silk Road demonstrates the heightened significance of the Arctic in China's foreign policy. In its engagement in Arctic resource development, China has been seeking ways to translate cooperative intentions into concrete projects. Still, the Yamal cooperation is a pilot project that offers a potential model. It indicates that China's engagement in Arctic resource development does not rest solely on the import of resources, but also attaches importance to fostering China's all-round engagement in Arctic regional economic development. This includes involvement in resource production, infrastructure construction, technology transfer and logistics support, achieving a win-win situation for all partners involved.

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