

Lessons and prospects of Sino-Russian Arctic cooperation

BAI Jiayu^{1*} & Alexandr Voronenko²

¹ Ocean University of China, Qingdao 266100, China;

² Consultant Interregional Association for Economic Interaction (Far East and Transbaikalia), st. Chehova 4 – 212, 680022, Khabarovsk, Russian Federation

Received 15 April 2016; accepted 30 July 2016

Abstract The strategic partnership between China and Russia is creating solid ground for the cooperative development of the Arctic. These two states' joint development of the Northern Sea Route will not only provide additional impulse to the export-oriented economy of China and allow further diversification of supply routes to China, but will also promote investment into the infrastructure and economic growth of Russian northern territories. Climate change in the Arctic has forced China and Russia to acknowledge the sustainable use of the Arctic. On the one hand, exploration of the region should not harm indigenous people's rights and should help this population improve their standard of living by providing qualified healthcare and opportunities for commercial fulfillment of traditional crafts. On the other hand, this exploration should also include elimination of harmful anthropogenic impact and provide support for environment self-restoration. Sino-Russian Arctic cooperation will help humans discover eco-friendly approaches to use Arctic resources, promote rational use of the Arctic and inspire sustainable development of the region.

Keywords Arctic cooperation, Arctic Ocean, sustainable development of the Arctic region, Northern Sea Route

Citation: Bai J Y, Voronenko A. Lessons and prospects of Sino-Russian Arctic cooperation. *Adv Polar Sci*, 2016, 27: 185-191, doi: 10.13679/j.advps.2016.3.00185

1 Introduction

In the 21st century, the Arctic region has become more and more attractive for major players in the context of natural resource potential. The research by U.S. Geological Survey in 2008 shows that the Arctic contains nearly 83 billion barrels of crude oil, which is 13% of the world's undiscovered reserves, and 1550 trillion cubic meters of natural gas which accounts for 30% of the world's undiscovered reserves^[1]. Inland Arctic holds unique deposits of copper-nickel ore, tin, platinum group elements, rare-earth metals, gold, diamonds and other minerals. Despite skeptical declarations from some energy market stakeholders about the difficulty of Arctic shelf deposit exploration in the present economic situation, the Arctic remains the main fallback supply of mineral resources for future generations and a key element of energy security not only for Northern Europe, but also for Southeast Asia.

In addition, transit lanes connect Asia with Europe

via the Arctic Ocean. Though they are currently not very prosperous, their advantages over traditional sea routes through the Suez and Panama canals mean their attractiveness and will increase with the appearance of new technology and organizational decisions. In light of this possible future use, it is important to encourage and develop Arctic transportation.

There has been increasing focus on the Arctic. In recent years, major states with considerable global influence have frequently put the issue of developing the Arctic into their diplomatic agendas. In addition to Iceland, Finland and Sweden, which have territories within the Arctic Circle, Arctic coastal states (Russia, the United States, Canada, Norway, and Denmark) have marine jurisdiction in the Arctic. The Arctic does not only benefit these surrounding states, but also some further afield, such as Southeast Asia. Arctic strategies and other documents concerning Arctic policies have been more or less adopted in over 25 states. It is necessary for all participants to figure out how to cooperate with each other and conduct sustainable development without damaging the interests of other states.

* Corresponding author, E-mail: gracefulgl@hotmail.com

Amid this increased attention, Russia and China, owing to a relationship established by *Sino-Russian Joint Statement* and mutual trust, have a unique opportunity to organize comprehensive cooperation in the Arctic region to thus fulfill national interests of both states and contribute to the sustainable development of the region^[2]. Furthermore, joint Sino-Russian engagement regarding this issue could set an example of and provide motivation for further multilateral models of Arctic cooperation.

2 Russian and Chinese interests in the Arctic region

Russia has the largest border in the Arctic region; practically half of the Arctic shoreline and much of Arctic waters are under Russian sovereignty or jurisdiction. For this reason, the Russian Federation has legal and justified economical and geopolitical interests in the Arctic. Under fierce competition in the region, it is vital for Russia to implement effective policy and concrete measures to protect its interests in the Arctic.

According to *the Russian Strategy of the Development of the Arctic Zone and Provision of National Security until 2020*^[3], which was enacted by the President of the Russian Federation on February 20, 2013, Russia's principle interests in the region include the following items:

(1) Socio-economic development of its northern territories by the means of natural resources development and extension of commercial use of the Northern Sea Route (hereinafter referred as NSR);

(2) Arctic ecosystem conservation;

(3) Preserving peace and stability in the region;

(4) Securing national sovereignty of the continental shelf and Arctic transit routes^[3].

At the same time, however, China views Arctic development as a global issue influenced by regional climate change, the threat of which directly affects China's interests in the Arctic. China's interests in the region could be interpreted as efforts to formulate a guide to prepare for future possibilities and consequences.

China began participating in Arctic affairs in the 1920s as a signatory of the *Svalbard Treaty*. Since the 21st century, the changing natural environment and exploration of Arctic resources have increasingly influenced China's climate, environment, shipping, and economic development. China has become a major stakeholder in the Arctic. Recently, Arctic affairs that China has participated in have been focused on scientific research, environmental protection, shipping and resource development.

Scientific research has always been China's primary interest in the Arctic. China has conducted many scientific expeditions in the Arctic using Chinese icebreakers, and also actively participates in the Arctic research collaborations. Additionally, China is interested in climate change research and control, and plays an active role in Arctic governance^[4]. Global climate change drives commercial navigation in polar waters. Chinese merchant ships have gradually realized the

possibilities of transit through new Arctic routes. Another reason for Chinese interest in the Arctic lies in the economic sphere. The use of Arctic sea routes and development of Arctic resources will provide both opportunities and challenges for China. China would like to cooperate with all the Arctic states, including Russia, to develop initiatives for sustainable co-exploration of oil and gas underneath the Arctic continental shelf or international seabed.

Proper and orderly development of the Arctic is an important principle of China's participation in Arctic affairs. Although China has not released any official documents about Arctic strategy, Chinese Foreign Minister Wang Yi introduced three principles (respect, cooperation and win-win) when China participated in *the Arctic Circle Forum* held in 2015. Based on these principles, Chinese Foreign Deputy Minister Zhang Ming specifically emphasized six specific policies that China will bring to bear on Arctic affairs:

(1) Further explore and understand the Arctic;

(2) Protect and rationally use the Arctic;

(3) Respect the inherent rights of Arctic states and the indigenous people;

(4) Respect the rights of non-Arctic states and the overall interests of the international community;

(5) Build a multi-tiered Arctic cooperation framework for win-win results;

(6) Uphold the Arctic governance system based on existing international law^[5].

Based on national interests, several prospective spheres of Sino-Russian cooperation in the Arctic can be identified. First, it is evident that both Moscow and Beijing are interested in developing the commercial use of the NSR and various natural resources, including hydrocarbons, in the region. This, in turn, is highly correlated with socio-economic growth in Russian northern territories. Concerning this sphere of cooperation, Russia is interested in Chinese investments and technology; in turn, Russia can grant China access to mineral resources and the NSR.

Second, both states are interested in conducting joint research on the Arctic ecosystem, climate change, and development of new eco-friendly technologies for mining, shipping and other economic activities in the Arctic. Through these endeavors in the environmental sphere, states can reconcile their efforts, experience and resources. Existing Russian ice-class research vessels and Arctic stations can become a major asset to Sino-Russian scientific cooperation in the region. Furthermore, through cooperation with Russia, China can expand its role in the Arctic council and the process of formulating the regional agenda. This paper will expand upon possible Sino-Russian cooperation opportunities in each of the aforementioned spheres in detail.

3 Cooperation in the sphere of Northern Sea Route's development and commercial use

Nowadays, the interest in the NSR as a transit sea route

between Asia and Europe, which will reduce the distance, time and cost of shipping in comparison with traditional routes through the Suez Canal up to 40%^[6], is rising. The path through the NSR is 2440 nautical miles shorter than that via the Suez, and reduces shipment period by 10 days; additionally, it saves approximately 800 tons of fuel per average-size vessel. For China, the largest trading partner with Europe and America, access to the NSR represents a significant opportunity, not only because of the reduced distance, but also because the NSR creates substitute routes from the traditional ones and improves the reliability of Chinese shipments.

From the Russian perspective, the development of commercial navigation through the NSR means not only regular revenue for vessel transit voyages, but also extends opportunities to supply its northern territories and export mineral resources from Arctic deposits, and provides additional motivation for socio-economic growth in Russian polar regions.

To establish win-win cooperation on this issue, Russia and China should first form the mechanism and legal framework for NSR use that will satisfy both states. Both would benefit from signing a long-term agreement between Russian NSR administration and the national nuclear corporation Rosatom, and several Chinese state shipping companies, which would be based on the United Nations Convention on the Law of the Sea, rules of shipping in the NSR, and Russian Federal law regarding the NSR. The agreement should provide privileged terms for passing through the NSR for Chinese shipping companies, including icebreaker escorts, based on a specified frequency of Arctic transit. In addition, this agreement could set the mechanism for formation of fleets out of cargo vessels several times a year to make the pass cheaper. The long-term contract between the Rosatom and Novatek corporations regarding icebreaker assistance, which was signed on 12th November 2012, could act as an example for the agreement proposed above^[7].

Furthermore, it is necessary to upgrade existing and build new infrastructure, including navigational, meteorological and safety tools, along the NSR. Russia has already conducted work in this area. Russian Ministry for Emergencies established 10 Search and Rescue centers in the Arctic from 2013 to 2015. Such centers were opened in Archangelsk, Narian-Mar, Murmansk, Tiksi, Anadyr, Pevek, Provedenia, Dudinka, Nadym and Vorkuta. They are in a state of permanent readiness and provide urgent response for any emergency in the NSR area. The centers have a crew size of 974 people, and are equipped with 14 aircraft, 37 rescue vessels, 54 rovers and other search-and-rescue and fire protection hardware^[8-10].

Under the federal "Socio-Economic Development of the Arctic Zone of the Russian Federation for the period until 2020" program, the construction of deep-water Arctic port Sabetta is ongoing in the Yamal region of Russia. The modernization of Arctic ports Tiksi, Pevek, Hatanga, Dudinka, Dikson and building of new port complexes in

Harasavey, Varandey and Indiga are planned. As a result, by the end of 2020, Russia will have 9 modern ports in High North territories along the NSR. It is symbolic that the Chinese corporation Poly Group intends to take part in the Archangelsk deep-water port reconstruction^[11].

Furthermore, the installation of Arctic navigation stations for global satellite positioning system GLONAS/GPS is unfolding alongside the NSR. Three stations on Oleniy Island in the Kara Sea, in Sterligov Cape and at the inflow of the Indigirka River have already been put into operation. Several more outposts on the Stolbovoi and Andrea islands in the Laptev Sea are under reconstruction. By the end of 2020, the network of such navigation stations will be complete along the entire NSR.

At the same time, the fulfillment of all aforementioned plans demands huge investments and implementation of cutting-edge technologies. It is expected to require \$10 billion of the federal budget of Russia, and to attract \$20 billion from private investments^[12]. Cooperation with China in this area can accelerate the construction of necessary infrastructure. Additionally, under the agreement mentioned above it can be regulated so that some funds obtained from Chinese transit shipments through the NSR will be invested in infrastructure construction.

For the development of commercial navigation through the NSR, extension and modernization of the ice-class fleet, including icebreakers, is needed. According to estimates by the Russian NSR Administration, transit shipments through the NSR will reach 5 million tons by 2020, which will require 170–180 icebreaker escorts; in 2030, the quantity of escorts will increase to greater than 200 per year. More than that, inter-Russian cargo flow through the NSR, mostly intended for development of the Yamal LNG project, will reach 50 million tons per year by 2020^[13]. As a result, by 2020, for year-round NSR tracks work and Arctic port maintenance Russia will need 5–6 nuclear icebreakers with 60–110 megawatt power capacity, 6–8 nonnuclear icebreakers with 25–30 megawatt power capacity and 8–10 nonnuclear icebreakers with 16–18 megawatt power capacity. Currently, Russian icebreaker fleet is sufficient and two additional nuclear powered icebreakers are already under construction and will be in operation by 2020^[14].

At the same time, an icebreaker fleet needs regular maintenance. Additionally, the development of the NSR will increase the demand for ice-class cargo vessels. It provides China, as a major shipbuilding country, another opportunity to participate in the extension of the NSR and international Arctic cooperation.

The development of the NSR is closely related to Chinese fleet navigation through Arctic sea routes. From July 22 to September 7 in 2012, the Chinese icebreaker *XUE LONG* completed China's first use of Arctic sea routes via the NSR^[15]. This icebreaker's use of the NSR is a practical element of the foundation of Sino-Russian cooperation on this sea route.

Furthermore, China can play a bigger role in NSR

commercial shipments by making one of the existing Eastern Chinese ports the logistic hub for Arctic route operation. Fleets of cargo vessels from all over Asia for Arctic transit voyages can be formed in this hub. Dalian, Qingdao, Shanghai or Radjin ports (leased from the Democratic People's Republic of Korea) are best suited for this purpose.

In the summer of 2013, China Ocean Shipping Company's (COSCO) merchant vessel *Yong Sheng* became the first Chinese merchant ship to successfully reach Europe via the Bering Strait, through the NSR. The *Yong Sheng* set sail again in 2015, when it twice passed through the Bering Strait, round the Arctic sea route and successfully travelled from Europe and China. In summer 2016, COSCO implemented the "*Yong Sheng* +" program, which means the *Yong Sheng* will continue sailing the Arctic sea routes in the form of an "Arctic return trip" on the basis of its navigation of the NSR in 2013 and 2015. In addition, commercial fleets will also implement a single individual sailing voyage through the Bering Strait.

4 Cooperation in the sphere of Arctic natural resources development

Another important area of Sino-Russian cooperation wherein the interests of both states practically coincide is development of Arctic natural resources. China is interested in gaining access to the deposits, including well-stocked Arctic Ocean fisheries located in Russian jurisdiction. China may facilitate bilateral agreements with Russia to exploit those in Russian jurisdiction. At the same time, Russia owns mineral resources in the Russian Arctic that are estimated to exceed \$30 trillion^[16], even though the country cannot fulfill several huge resource development projects on its own because of a lack of industrial, financial, technological and economic potential. This is exacerbated by the adoption of sanctions against Russian, which were intended to limit Russian capabilities and cooperation between Russian and Western partners in this sphere. In this context, increased cooperation with China, a country that never joined these sanctions, has a swiftly growing demand for mineral resources, and significant technical, industrial and financial potential, appears logical.

Project Yamal Liquefied Natural Gas (hereinafter referred as LNG) is a great example of prosperous Sino-Russian cooperation in the area of mineral resources development. Chinese state corporation China National Petroleum Corporation (hereinafter referred as CNPC) holds a 20% share in the enterprise and jointly conducts the deposit exploration with a Russian partner Nova Taco. In the beginning of 2016, China's New Silk Road Foundation owned another 9.9% share of this project, the investments of which are estimated at \$27 billion. LNG shipments to China are planned to comprise up to 3 million tons per year, and LNG plant capacity is projected at 16.5 million tons per year. Proven reserves of the deposit contain 907 billion cubic meters of natural gas. The first stage of the LNG processing

plant will be put into service in 2017. Chinese participation in the Yamal LNG project is limited not only by investments and LNG purchasing, but also the building of relevant modules. Thirty-six LNG proceeding modules for the project will be built in the city of Qingdao (China). Two of them have already shipped to Yamal.

This project shows the potential of Sino-Russian cooperation in the sphere of Arctic resource development, including construction of hardware on Russian and Chinese companies and shipyards, joint development and implementation of new technologies, and geological exploration in the Northern Sea. China and Russia should use the positive experience of the Yamal LNG project to further strengthen and develop Sino-Russian cooperation in this sphere.

Additional opportunities may arise upon completing the Power of Siberia gas pipeline, which will create another route for resource shipments from northern Russian to China. The pipeline will be finished in 2017 and the first shipments to China are planned for 2018. The expected volume of gas supplied to China through this pipeline is 38 billion cubic meters per year.

As for further cooperation between Russia and China, there are currently several projects under consideration. As of now, the Russian state corporation Rosneft and Chinese companies CNPC, Sino Pec and Chem China Petrochemical Corporation are discussing opportunities for joint work on the Arctic shelf. The agreement about the exploration of shelf sections in Barents and Pechora seas is already signed, and an additional contract for the development of the Shtokmanov gas deposit is on the way. Additionally, China is considering taking part in the shelf oil production project Pirazlomnoe. In return for this involvement, the Russian government is ready to provide favorable conditions for Chinese partners, including tax holidays^[17].

Cooperating in the exploration of rare-earth metals would be of significant importance to China, which suffers a shortage of this resource. Big deposits of rare-earth metals (vanadium, molybdenum and wolframium) have been discovered in the Kola and Taimyr Peninsulas and in northern parts of the Sakha Republic (Yakutia). Today China explores rare-earth metal resources in Greenland, but considering overall strategic relations between Russia and China, working with Russian partners is equally, if not more, attractive. Talks on behalf of several projects between Russian company Nornickel and China's General Nice Group are in progress.

5 Cooperation in the sphere of sustainable economic development of Russian northern territories

Successful development of NSR commercial navigation and natural resource exploration is impossible without securing the sustainable socio-economic growth of the Russian polar territories. Commercial sea shipments can be profitable, but only in the case of satellite trade opportunities along the route. Cargo vessels enter intermediate ports along their

way to load and unload goods for cargo optimization and increased profitability. In the Arctic, such opportunities are limited. Therefore, an appealing element of the NSR is the development of the economic potential of nearby Russian northern territories. The presence of assistant productions, human resources, scientific and technological potential, and extended infrastructure also have significant importance for the implementation of resource extraction projects.

In addition, Sino-Russian cooperation in the sphere of sustainable Arctic development, including fulfilling social and ecological projects, will not only provide long-term economic profit, but will also help states reinforce their positive public image and validate their activities in the region. It will demonstrate the serious long-term intentions of Russia and China, thus presenting them as responsible players in the Arctic in front of the world community, which often accuses Moscow and Beijing of chasing here-and-now profit without accounting for further consequences.

Russia has already been taking certain measures in this direction. In February 2013, the President of the Russian Federation ratified *Russian Strategy of the Development of the Arctic Zone and the Provision of National Security until 2020* and in April 2014 the Russian government enacted the federal program *Socio-Economic Development of the Arctic Zone of the Russian Federation for the period until 2020*. The supervisor of the program is the vice-premier of Russia, D. Kozak.

The main purpose of the program is to accelerate the socio-economic development of the country through involvement in exploration of the Arctic's resources based on principals of resource efficiency and nature conservation. Targets of the program are: fulfillment of significant investment projects in the Russian Arctic; creating transport, energy and IT infrastructure, as well as security and environmental control systems in the region; and shaping the regulatory, organizational, technological and scientific framework for the development of Russian northern territories and enhancement of governance.

Implementing this program requires \$28 billion U.S. dollars. The Russian federal budget plans to allocate \$10 billion U.S. dollars. For the program during the period from 2014 to 2020. The remaining funds are expected to be obtained from local governments and private investors^[18].

In this context, Chinese private and state investments and additional participation would be an asset. Additionally, the Russian government has prepared alterations to the Russian Revenue Code, including tax preferences for the participants of the program. These changes are planned for December in 2016^[19].

An important element of cooperation in the sphere of socio-economic development is interregional interaction. Administrations of the northern territories encompassed by the Far Eastern Federal District of the Russian Federation are ready to offer Chinese partners several socio-significant investment projects. The Russian side has already drawn up corresponding business plans. For example, the Kamchatka

region has offered to create tourism and recreation centers at thermal springs, ski resorts and outfield tourism resources. In the autonomous Chukchi and Magadan regions, there has been an offer to establish enterprises for reindeer husbandry and indigenous traditional hunting. In the northern parts of the Sakha Republic (Yakutia), there have been suggestions to enable the production of leather and fur goods on the ground of indigenous traditional crafts. Altogether, the Far East Russian Northern Territories offer 36 socio-significant projects. Participation in such projects also guarantees administrative and tax preferences from the local authorities^[20].

6 Cooperation in the sphere of non-traditional security and regulatory governance

Sino-Russian cooperation in the region should become the formation of international regulation regimes in the Arctic. Today, the Arctic is a place of peace and stability and it is clear that no country desires confrontation in the region. This peace is probably owing to the fact that any military activities in the Arctic region are expensive, technically hard to fulfill and could cause unpredictable consequences in the ecological sphere. However, a number of non-traditional security and regulatory governance issues have been gradually revealed, such as maritime search and rescue and marine environment protection issues. The Arctic states have concluded the *Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic*, which emphasized international cooperation in search and rescue issues *Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic*. Thus, non-Arctic states, like China, are able to join in such Arctic activities. The principal parts of this cooperation not only include the Arctic states, but also other Arctic stakeholders. The cooperation between China as an important stakeholder, and Russia as one of the major players in the Arctic, can certainly be extended to Arctic search and rescue and marine environment protection issues. The two states can play a major role in forming the system of international relations in the Arctic using their advantages and authority^[21].

China has observer status in the Arctic Council, and participates in Arctic affairs established on the basis of respecting the Arctic states' sovereignty, sovereign rights and jurisdiction. When related to these affairs, China often actively cooperates with the Arctic states. Russia and China could join in various Arctic Council working groups as an additional platform for inter-communication.

Furthermore, cooperation with Russia will give Chinese actions in the region more validity. In turn, Chinese support for Russian positions concerning non-traditional security and regulatory governance issues of the Arctic in international organizations, such as the UN and Arctic council, will strengthen Moscow's credibility and will provide more

opportunities for the fulfillment of Sino-Russian initiatives in the region. In addition, Russia and China could sign a memorandum or other document, which will contribute to the adjustment of national Arctic policies of the states, and establish a high-level dialogue platform for Arctic governance issues.

7 Scientific cooperation

Global warming and climate change in the Arctic give birth not only to new economic possibilities, but also to significant problems for China. For example, climate change could lead to rising sea levels, the flooding of Chinese coastal territories and, as a result, threaten Chinese agriculture security. Thus, Beijing is interested in expanding its knowledge about the Arctic environment so that it is able to prevent and soften the circumstances of Arctic warming if the opportunity arises. To achieve these goals, China is developing national science and research cooperation in the Arctic.

In this context, cooperation with the Russian Federation, which has substantial potential in the area of Arctic science, including ice-class research vessels, polar scientific bases, as well as extensive field experience, will allow China to multiply its possibilities. Today Russia has 30 scientific vessels, 14 of which regularly travel Arctic waters, including the newest, the *Academic Treshnikov*, built in Saint Petersburg. Four ice-class modern scientific vessels are currently under construction in Russian shipyards. Their category of ice sailing will not be less than Arc-7, making high Arctic zones available for research^[22-23].

Russian scientists are conducting a program of research concerning natural geological hazards on continental shelves of the Arctic Ocean, which may have catastrophic consequences for oil and gas exploration. A new and complex Geophysical Information System for natural emergencies is under development in the framework of the above mentioned program. Recommendations for safe oil and gas exploration in Arctic conditions have already been implemented. In 2013, the base for sea bottom temperature monitoring in the Arctic Ocean was developed, and the System of Underwater Pipelines Status Online Control is currently under construction. Technology for evaluating climate change's influence on the Arctic ecosystem and population was developed. Altogether, more than 46 significant Arctic research projects are conducted in Russia today, including investigation on oil spill prevention, climate change, environment conservation, safe drilling technologies, and reduction of the carbon and methane emission in the Arctic^[24].

In turn, Chinese science and technical potential, financial resources, and unique perspective on regional problems will be a large asset to joint Arctic research activities. Additionally, Sino-Russian Arctic research cooperation will subsequently attract other states and form the conditions for systematization and coordination of international efforts in this area to discover effective technologies and measures for the environmentally safe economic development of the Arctic.

Today, several Sino-Russian research projects in the

region have already been conducted, as since 2012, Russia and China have held the yearly Sino-Russian conference on Arctic Cooperation. In 2014, Far Eastern Federal University and Shanghai Transport University established the East Asia marginal seas and Arctic Research Institute. In 2015, Far Eastern Federal University in cooperation with Chinese scholars conducted a research and educational project called "Ice School". In November 2015, Far Eastern Federal University, Saint-Petersburg State University, Shanghai Ocean University and Shanghai Transport University published a joint journal on Arctic affairs. In 2016, the first Sino-Russian Polar Ocean Expedition will have begun its voyage^[25-27].

8 Conclusion

Sino-Russian cooperation plays an important role in protecting the Arctic marine environment, achieving mutual economic development and promoting sustainable Arctic development. Russia could achieve the goal of the Strategy of the Russian Federation of the Development of the Arctic Zone and the Provision of National Security until 2020 and the Socio-economic development of the Arctic zone of the Russian Federation for the period until 2020 through this cooperation. China will also enhance the presence in the Arctic and realize its fundamental interests as Arctic stakeholders. Reasonable and orderly development of the Arctic is the foundation of Sino-Russian cooperation. China has always insisted that it conducts Arctic-related activities in compliance with the relevant international rules and Arctic states' national laws, which also meets the policy requirements of related Russian official documents. Sino-Russian cooperation requires the two states to respect the interests of Arctic indigenous people, and to protect the Arctic environment. On such a basis, Sino-Russian cooperation will become a model for cooperation between Arctic states and Arctic stakeholders to promote the development and stability of the Arctic.

Acknowledgements This article was supported by the National Social Science Foundation of China "Study on the Construction of a Cooperative Legal Regime for Arctic Governance and China's Effective Participation" (Grant no. 16BFX188).

References

- 1 CARA (Circum Arctic Resource Appraisal). Estimates of Undiscovered Oil and Gas North of the Arctic Circle. U.S. Department of the Interior, U.S. Geological Survey, 2008
- 2 Sino-Russian Joint Statement. 2016. http://www.fmprc.gov.cn/mfa_eng/
- 3 Russian Strategy of the Development of the Arctic Zone and the Provision of National Security until 2020. 2013. <http://www.arcticyearbook.com/index.php/commentaries-2013/74-russian-strategy-of-the-development-of-the-arctic-zone-and-the-provision-of-national-security-until-2020-adopted-by-the-president-of-the-russian-federation-on-february-8-2013-pr-232>
- 4 Jakobson L. China prepares for an ice-free Arctic. SIPRI Insights Peace Secur, 2010, 2: 1-16
- 5 China in the Arctic: Practices and Policies. Keynote speech by

- Chinese vice foreign minister Zhang Ming at the China country session of the third arctic circle assembly. 2016. <http://www.en84.com/nonfiction/remarks/201510/00016692.html>
- 6 Liu M J, Kronbak J. The potential economic viability of using the northern sea route (NSR) as an alternative route between Asia and Europe. *J Trans Geogr*, 2010, 18(3): 434–444
 - 7 Ruksha V, Smirnov A, Golovinskiy S. Problems of northern sea route. *Arctic: Ecol Economy*, 2013, 1: 81–82
 - 8 Vokuev A. Russia opens first Arctic search and rescue center. 2013. <http://barentsobserver.com/en/arctic/2013/08/russia-opens-first-arctic-search-and-rescue-center-27-08>
 - 9 Kondrashev V. Russian emergency ministry creates arctic safe and rescue centers. 2014. <http://pro-Arctic.ru/25/03/2014/news/7390/>
 - 10 Bulakov M. Russia will use nuclear fleet for rescue operations in the Arctic. 2014. <http://ria.ru/defensesafety/20140604/1010648777.html#ixzz34vImbH00/>
 - 11 Bondar E. Borders of Sabetta port are established by Russian Government. 2014. <https://regnum.ru/news/1791017.html/>
 - 12 Decree of the Government of Russian Federation. About Federal purpose programme “Modernization of transport system (2002–2010). 2016. <http://docs.cntd.ru/document/901807416/>
 - 13 Istomin A, Pavlov K, Selin V. Russian Arctic zone economy. *Society and Economics*, 2008, (7): 158–172
 - 14 Polovinkin V. How many icebreakers does Russia need. *Military-Industrial Courier*, 2013, (24): 17–22
 - 15 Bai J Y. Research on international legal issues about Chinese expedition ships sailing in the Arctic. *Tribune of Political Science and Law*, 2014, 32(5): 94–101 (in Chinese)
 - 16 Zhukov M., Filippov V. Selection criteria for the Arctic zone of Russian Federation. *Science and Education*, 2016 (1): 52–60. <http://no.ysn.ru/attachments/article/1627/08%20%D0%96%D1%83%D0%BA%D0%BE%D0%B2%2052-61.pdf>
 - 17 Yanovskiy A. Rosneft discusses participation of China in the Arctic shelf projects. 2015. <http://www.kommersant.ru/doc/2855224/>
 - 18 The Federal Program Socio-Economic Development of Arctic Zone of Russian Federation till 2020, ratified by the directive of the Government of Russian Federation No 366 on April 21. 2014. <http://government.ru/media/files/AtEYgOHutVc.pdf>
 - 19 Shmal G. The perspectives of oil and gas expansion in the Arctic. 2013. <http://www.angi.ru/>
 - 20 List of investment projects of the polar regions of Far Eastern Federal District of Russian Federation. <http://assoc.khv.gov.ru>
 - 21 Lukin Yu. Situation in Arctic against the background of return to Cold War instruments. *Vestnik MSTU*, 2014 (3): 515–522. http://vestnik.mstu.edu.ru/v17_3_n58/515_522_lukin.pdf
 - 22 Polovin S. Russian scientific fleet. 2016. <http://ocean.extech.ru/ships/>
 - 23 Antsev G, Kobilyanskiy V. Russian scientific fleet: is there a future. *Maritime Information-Management Systems*, 2013, (2): 41–54
 - 24 Laverov N. Contribution of the Russian Academy of Sciences to Modern Exploration and Development of the Arctic. *Arctic: Ecology and Economics*, 2014, (1): 31–33
 - 25 Bekker A. Development of Arctic. 2015. <https://www.dvfu.ru/program/history/the-project-arctic/>
 - 26 Namolova R. Chinese and Russian scholars will publish joint scientific journal about Arctic problems. 2015. <http://vestiprim.ru/2015/02/12/kitayskie-i-rossiyskie-specialisty-budut-izdavat-sovmestnyy-nauchnyy-zhurnal-po-problemam-arktiki.html/>
 - 27 Karmanov R. Joint Arctic researches. 2016. <https://professional.ru/Soobshchestva/politika/sovmestnye-issledovaniya-arktiki/>