

SHANGHAI INSTITUTES FOR INTERNATIONAL STUDIES

# ARCTIC GOVERNANCE AND CHINA'S ENGAGEMENT

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# Introduction

In 2004, Gunnar Palsson, Chairman of the Senior Arctic Officials (SAOs) of the Arctic Council, travelled to Beijing to visit the Ministry of Foreign Affairs of PRC on behalf of the Council members. He spoke highly of the work of the Arctic Council, especially the leading role it was playing in raising people's awareness of climate change through the Arctic Climate Impact Assessment. The message he was trying to deliver was explicit and straightforward: the Arctic matters to the rest of the world and countries outside the Arctic need to pay attention to the changes in the Arctic. Around 2004, China was the second largest emitter of CO<sub>2</sub> after the United States. Therefore, the Arctic countries were very keen to engage China in addressing climate change.

In 2013, together with Japan, South Korea, Singapore, Italy and India, China was granted the formal observer status by the Arctic Council. The representatives from the United States and the Nordic countries played a very important role in the approving process. This move could be considered as an important step for the United States and Europe to succeed in persuading the Chinese government to make further commitments to addressing climate change.

In 2015, the Chinese government took more proactive measures to promote global climate governance, making a historic contribution to the Paris Agreement on post-2020 global cooperation on climate change. In 2016, China officially ratified the Paris Agreement. The Chinese government steadfastly supported the Paris Agreement, even as

the Trump administration of the United States set significant obstacles to global climate governance. In September 2020, Chinese leaders announced at the General Debate of the 75th UN General Assembly that China would increase its nationally determined contributions. Since then, the Chinese government has put forward more ambitious goals like reducing carbon dioxide emissions, developing non-fossil fuels and increasing forest stock and has set a timetable for achieving carbon peaking and carbon neutrality. China is shouldering more responsibilities in addressing the challenges of climate change and loss of biodiversity by fulfilling its international commitments.

In the white paper "China's Arctic Policy" released in 2018, the Chinese government has also stated its position on addressing climate change issues related to the Arctic more clearly. "Addressing climate change in the Arctic is an important part of global climate governance. China consistently takes the issue of climate change seriously. It has included measures to deal with climate change such as Nationally Determined Contributions in its overall national development agenda, and has made significant contributions to the conclusion of the Paris Agreement." In the white paper, the Chinese government reiterated its contributions and responsibilities to climate change related to the Arctic. China's emission reduction measures have a positive impact on the climatic and ecological environment of the Arctic. Chinese scientific teams have done their best to study the substance and energy exchange process and mechanisms of the Arctic, evaluating the interaction between the Arctic and global climate change, predicting potential risks posed by future climate change to the Arctic's natural resources and ecological environment, and advancing Arctic cryospheric sciences. China has raised the public's awareness of the Arctic issues related to climate change through strengthening publicity and education.

In retrospect of the historical process we can draw the following conclusion: since 2004, the Arctic Council has been lobbying big countries outside the Arctic to pay attention to changes in the Arctic for example, the loss of biodiversity, caused by climate change and greenhouse gas emission. In the case of lobbying China, such diplomatic effort has been proven fruitful. It is a remarkable achievement for

both the Arctic countries and China, as well as improving the global mechanism to address climate change.

As a non-Arctic state and globally important economy, will China be a positive contributor or a burden to Arctic governance? In recent years, the world has paid increasingly great attention to China's engagement in Arctic affairs.

The Arctic is a unique region that is vulnerable to global climate change and increasing human activities. Therefore, it needs joint protection by the international society. Collaboration between Arctic and non-Arctic states is part of Arctic cooperation, either bilaterally or within the frameworks of regional fora and international organizations, on scientific research, environmental protection, and sustainable development. Incorporating non-Arctic states into the Arctic Council is determined by the needs of Arctic governance and the trends of world development. Moreover, important non-Arctic states can help to provide the public goods necessary for Arctic governance, which can play a direct role in fulfilling the tasks of governance.

Arctic and non-Arctic states are partners rather than competitors. To enhance cooperation, Arctic and non-Arctic states should strengthen communication, increase mutual understanding and trust and act on common interests. Recognizing and respecting each other's rights constitutes the legal basis for cooperation between Arctic and non-Arctic states. The Arctic states hold sovereignty and enjoy sovereign rights and jurisdiction in the Arctic region, while non-Arctic states enjoy relevant rights of navigation and scientific research. Some Arctic states tend to "be inclusive when sharing the responsibilities of environmental protection, but be exclusive to non-Arctic states when sharing the interests." Under such circumstances, non-Arctic states should not pursue their interests in the Arctic region only by resorting to power politics, but rather by resorting to the reconciliation between international mechanisms and domestic policies. Seeking common interests, reducing conflicts of interests and creating new shared interests require full assessment of the change of the natural environment and the politico-economic order in the Arctic region and full exploitation of the existing international mechanisms to acquire and protect legitimate interests.



China is highly valued by some Arctic states for its capital, market and capabilities in infrastructure construction. The international scientific community regards Chinese polar scientists as an important contingent in addressing polar scientific conundrums. Since Arctic governance needs a system involving land-based, marine, aerial and space technologies to monitor environmental changes, China is exactly one of the few countries equipped with those technological systems needed to provide public goods for arctic science and economic activities.

While China is enjoying the rights of participating in Arctic affairs and acquiring relevant rights according to the existing international laws, it should also assume the global responsibility of keeping peace and maintaining environmentally friendly, sustainable development in the Arctic region. Only a peaceful Arctic guarantees environmental and economic benefits to China. Therefore, respecting the sovereignty of the Arctic states is the legal basis for China to view the current international order in the Arctic. In the process of China's participation in Arctic affairs and interaction with the Arctic countries, China should make and demonstrate its contributions to the fields of Arctic research and environmental protection to guide the international community to understand its Arctic policy as moving from "benefits oriented" to "contributions oriented" and to create a favorable image among international communities. Besides realizing win-win bilateral interests, China should express its humanitarian and environmental concerns in the host countries in connection with investment and cooperation, especially the concerns shared by the indigenous people.

2013 was a remarkable year for China's participation in the Arctic affairs. In addition to being granted the formal observer status by the Arctic Council, Beijing's Belt and Road Initiative (BRI) was first proposed by the government in 2013. In the same year, Chinese shipping company Cosco's vessel Yongsheng conducted the country's first commercial trial voyage to the Arctic Ocean.

China's Belt and Road Initiative, including the Polar Silk Road proposed by Beijing in a white paper in 2018, is a response to the global economic slump triggered by the financial crisis of 2008. Facing the

crisis, Chinese policymakers felt that global economic flows had become stagnant. The US government's response was to pull manufacturing investment back to the U.S. and regain trade advantages through aggressive bilateral trade negotiations. Based on its own development phase, China found that joining and facilitating regional and world economic flows was the best way to deal with the economic downturn. Facilitating regional economic flows and consumption can transfer China's excess manufacturing capacity abroad; and in the meantime, it can also prepare new markets for future prosperity. For China, these economic flows entail goods flows, capital flows, technology flows and the flows of construction capacity. The joint efforts to build a blue economic passage linking East Asia and Europe via the Arctic Ocean is generally in line with the spirit of facilitating global economic flows.

In the Arctic, the Chinese government has the willingness to bring opportunities for parties concerned to jointly build a "Polar Silk Road" and facilitate connectivity and sustainable economic and social development of the Arctic. It encourages its enterprises to participate in the infrastructure construction for the Arctic sea routes and conduct commercial trial voyages in accordance with the law to pave the way for their commercial and regularized operations. China stands for steadily advancing international cooperation on the Arctic. It has worked to strengthen such cooperation under the Belt and Road Initiative according to the principle of extensive consultation, joint contribution and shared benefits and emphasized policy coordination, infrastructure connectivity, unimpeded trade, financial integration, and closer people-to-people ties. Concrete cooperation steps include coordinating development strategies with the Arctic States, encouraging joint efforts to build the Arctic sea routes, enhancing Arctic digital connectivity, and building a global infrastructure network. China hopes to work for the common good of all parties and further common interests through the Arctic.

The above historical review is based on my personal observation close to the facts and events. In the past twelve years, as a researcher and leader of a Chinese think tank, I have been very fortunate to have witnessed and contributed to the important interaction between

China and the Arctic. Through cooperation and exchanges, I have also met many far-sighted scholars, smart diplomats, and outstanding businessmen. Getting acquainted with them has given me a broader understanding of the planet we live in and the times we are in now. This historical process is very unusual whether it is viewed in the context of dealing with global challenges or from the perspective of China's relationship with the world.

In the process of participating in the exchanges between China and the Arctic countries, I have also recorded my observations and thoughts. My observation mainly covers the following questions: What is the uniqueness and development logic of Arctic affairs in the global order? What are the interests and responsibilities of non-Arctic states participating in Arctic affairs? What are the mechanisms and characteristics of the interaction between non-Arctic states and Arctic states? What important motivations does China's Arctic policy reflect on China's participation in Arctic affairs? How will China's economic cooperation with the Arctic countries develop under the framework of the Polar Silk Road? China has carried out international cooperation in many Arctic-related fields. What are the experiences and models of these international cooperation? My thinking and observations are shared in this book on these above issues.

As to participating in many academic activities on Arctic governance, as a Chinese scholar, I have had many opportunities to present my views at international conferences, and I am honored to have collaborated with excellent scholars from the Arctic countries. I have published many papers related to Arctic governance in the past few years in Chinese and in English. In this book, I have selected 11 papers. Readers can see the changing process of a Chinese scholar's understanding of the Arctic issues, as well as the process of China's interaction with the world on the Arctic issues. These chapters are divided into four parts. The first part mainly analyzes the Arctic governance and international relations, including Chapter 1 that discusses the Arctic governance and trends, and Chapter 2 that delves into "the relationship between the intra-regional and extra-regional countries in the process of Arctic governance". The second part focuses

on discussing "China's Arctic Policies and Practices". Chapter 3 is an academic interpretation of the "White Paper on China's Arctic Policy" issued by the Chinese government in 2018. Chapter 4 provides a preliminary assessment of China's performance after being accepted as an observer to the Arctic Council. Chapter 5 makes a systematic introduction to China's polar science and technology system and its reform process. Several chapters in the third part mainly introduce the Polar Silk Road, which are very concerned by the outside world, including Chapter 6 that examines China's international cooperation within the framework of the Polar Silk Road, Chapter 7 that explores the opportunities and challenges of jointly building of the Polar Silk Road, and Chapter 8 that focuses on the role of Arctic gas in the Sino-Russian political and economic relations. The fourth part introduces the specific areas of international cooperation in the Arctic that China has participated in. I hope these introductions can help readers learn more about the details of China's international cooperation in Arctic and with the Arctic states, such as the establishment and development of CNARC, an academic cooperation platform between China and Nordic (Chapter 9), international cooperation between China and the Arctic countries in the Bering Sea region (Chapter 10), and technological innovation trends of polar marine equipment and related international cooperation (Chapter 11).

Correct judgments on the Arctic governance system are the basis for us to set Arctic governance goals and implement Arctic governance rules. Chapter 1 is originated from my paper coauthored with Oran R. Young (Bren School of Environmental Science and Management, University of California Santa Barbara) and Andrei Zagorski (Institute of World Economy and International Relations, Russian Academy of Sciences). We jointly reviewed the historical conditions under which the international order in Arctic took shape in the 1990s, and comprehensively analyzed the challenges and demands for Arctic governance. The Arctic in the 2020s has emerged as a critical arena in the global climate emergency and as an area of increasing sensitivity in terms of great power politics. It is pointless to ignore the growing links between the Arctic and the global system and to perpetuate the

belief that the currents of great power politics will not spill over to affect the treatment of issues on the Arctic policy agenda. At the same time, this should not blind us to the success of the ongoing efforts to promote international cooperation on specific issues and to the prospect that similar opportunities will continue to arise in the 2020s. This paper treats the “new” Arctic as a zone of peaceful competition in which there are opportunities to cooperate on specific issues, even though the interests of major players diverge. Specific opportunities and the adjustments include developing codes of conduct to avoid armed clashes, responding to climate change, managing commercial shipping, protecting biodiversity, and meshing scientific activities. Opening the Arctic Council to new voices and taking advantage of the Council's convening power to manage the emerging Arctic regime complex while taking steps to protect its distinctive features will enhance the prospects for success in these areas. The necessary adjustments in existing practices that are individually modest but together could make a real difference in addressing Arctic challenges arising in the 2020s.

China's participation in Arctic affairs is a process of interaction between Arctic states and a non-Arctic state with a huge size of economy. How the Arctic states view the role of non-Arctic states, and how to define the responsibilities and identities of non-Arctic states participating in Arctic affairs are all issues worth discussing. Chapter 2 tries to illustrate the interaction process of intra-regional countries with extra-regional countries, examines the change of the Arctic governance mechanisms and takes China as an example to explain the responsibility and definition of interests on the part of the important non-Arctic states in participating the Arctic governance and their role of improving the governance mechanisms. The performance of regional governance largely depends on the ability and the willingness of each actor to contribute to public goods. Governance goals will fail to be fulfilled if public goods are insufficient. Incorporation of extra-regional countries into the Arctic Council is determined by the huge demands of the Arctic governance. The contributions of the extra-regional actors are beneficial to the improvement of the Arctic governance system, yet bold behaviors of extra-regional countries may also cause concerns of the Arctic states.

The non-Arctic states especially the large economies such as China may take a cautious and gradual approach to engaging themselves in Arctic affairs complying with overall international laws and fulfilling their international obligations to the polar environment.

On January 26, 2018, the Chinese government released the white paper *China's Arctic Policy*. By issuing *China's Arctic policy*, the Chinese government has shown its concept, policy and responsibility to participate in Arctic affairs through joint efforts to seek effective responses to the global challenges. The philosophy of "the shared future of mankind" is fully embodied. The goals and basic principles of *China's Arctic policy* mainly stem from the basic concepts of Chinese diplomacy, the discretion on the world development trends, its identity and the awareness of the main contradictions in Arctic affairs. As a "near Arctic state", China is an important stakeholder. The advantages in diplomacy, economy, technology and market capacity will help China play an active role in maintaining Arctic peace, sustainable use of Arctic resources with green technology and balancing the interests of between the Arctic states and the rest of world.

Chapter 4 overviews and sorts out the practices of China's participation in Arctic affairs since 2013 when it was accepted as a formal observer to the Arctic Council at the Kiruna ministerial meeting. As a formal observer, China has attended most meetings of the Working Groups, Task Forces and Expert Groups of the Council, including the meetings of PAME working group, CAFF working group, AMAP working group, and the Scientific Cooperation Task Force (SCTF). China is a newcomer as an observer of the Arctic Council, and is accumulating experience and familiarity with the situation. Chinese representatives and experts have maintained good working relations with the Arctic Council in all aspects. The roles that China has played in these working groups is complementary to other participants. China's participation in the joint efforts of the working groups is gradually integrated. However, due to the lack of experience and domestic procedure of overseas travel management in China, many Chinese research institutes cannot guarantee that the most suitable experts are able to continuously participate in all activities of the working groups.

China's polar science and technology team is an important force in filling the knowledge gap in the Arctic, and the Arctic scientific expedition is China's most important activity in the Arctic. So it has also attracted the attention of all parties. As the white paper points out, China supports and encourages research activities in the Arctic by constantly increasing investment in scientific research, building modernized research platforms, and improving the research capacity on the Arctic. China has so far built a polar observation network of air, shore, vessel, sea, ice, and seabed-based infrastructure to provide logistic support for the Antarctic and Arctic expeditions, and has made remarkable progresses in polar survey and scientific research. Chinese scientists have carried out geographical, climatic, glaciological, geological, ecological and oceanographic studies and made important discoveries. However, there still exists a substantial gap between China and other countries in several major aspects of polar research and exploration. Chapter 5 presents an in-depth analysis and assessment on the state-of-the-art China's polar research from following dimensions, namely, mechanism of policy making on polar affairs, mechanism of science diplomacy and polar governance, mechanism of on-spot research expedition management, mechanism for allocation of scientific funds, mechanism of forming polar scientific team, especially on the management system of Chinese National Arctic and Antarctic Research Expedition (CHINARE). From an integrated perspective of natural and social sciences, we present a vision for future reform of these mechanisms. We hope that our analysis can illustrate China's polar activities and their global influence to help readers understand the current polar research by the Chinese team.

The Polar Silk Road is a part of China's Arctic policy and an extension of the Belt and Road Initiative. The introduction of the "Polar Silk Road (PSR)" into the first comprehensive white paper on Arctic policy offers the world an economic perspective to understand China's engagement in the Arctic. The Polar Silk Road is tantamount to international cooperation initiative between China and the related Arctic countries, which is intended to achieve common development and joint governance of the Arctic through knowledge accumulation,

helps to promote interconnectivity and sustainable development in the region. Over the past few years, China has achieved policy synergies and launched industrial, scientific and technological cooperation with Russia and the Nordic countries. Chapter 6 introduces China's major investment projects and economic cooperation initiatives in the Arctic. With the enhanced capabilities, China is becoming a preferred partner for Russia and some Nordic countries in a number of infrastructure, energy and transportation projects within the Arctic region. The PSR framework to advance Arctic cooperation under the Belt and Road Initiative (BRI) presents both economic opportunities and environmental challenges for Chinese enterprises to balance the utilization and protection of the Arctic.

China and Russia are two major powers, and they are strategic partners of cooperation. Therefore, the cooperation between China and Russia in the Arctic has attracted worldwide attention. Chapter 7 explores the opportunities in the cooperation between China and Russia in the framework of PSR. The PSR provides a new growth pole for China-Russia pragmatic cooperation. China focuses on the coordination of national interests and strategies regarding development of Arctic sea routes and infrastructure projects with Russian part. Due to the fragile natural environment, China's cooperation in the framework of PSR prioritizes knowledge accumulation and scientific research as the guiding principle for cooperation, and promotes green technology solutions. Knowledge and capacity gaps among participants as well as economic and technological uncertainties are major challenges for feasibility and efficiency of cooperation, requiring more in-depth scientific research, comprehensive assessments and regular coordination and communication among all stakeholders.

Sino-Russian cooperation in the field of Arctic energy had caused widespread concern. Because of the Crimea issue and the Ukraine crisis in 2014, Western countries imposed a series of severe economic sanctions on Russia. As a consequence, Russia does not have access to technology, markets and capital it needs from the United States and other Western countries to support its Arctic energy development plans. Will China, which is not a party engaging in the sanctions but remains one of the



world's most important economies with both available capital and a large potential market, take this opportunity to participate in Russian Arctic development projects? Would China's choice to partner with Russia cripple the effect of the sanctions against Russia? Additionally, would China's cooperation in the Arctic be seen as a sign that the Sino-Russian strategic coordination partnership is strengthening? Would these new Sino-Russian relations lead to a new alliance bloc? Chapter 8 explores the political and economic consequences of Sino-Russian Arctic energy cooperation. The two economies are complementary to each other in many ways and the leaders of the two countries have laid good foundation of political trust that promotes greater economic cooperation. Western countries' sanctions and containment policy are providing an external force to promote a closer strategic partnership between China and Russia. Even though the two countries have not formed a formal alliance, the two leaders agreed that the two countries should coordinate more closely on major international and regional issues, in order to jointly safeguard the security of the region around them. There is a huge demand in Russia for sophisticated, multi-functional and digitalized equipment that can improve productivity. Russian manufacturers are unable to produce these by themselves due to the lack of related know-how and technologies. China's aspiration for sustainable development and environmental ecological security leads to higher demand for oil and natural gas imports from Russia. Establishing a long-term stable arrangement for oil and gas supply is in line with China's national interests. The exploitation of oil and gas resources in the Arctic is accompanied by the construction of the NSR. For China, the value of this Arctic sea route will continue to increase with the further exploitation of Arctic oil and gas resources as well as normal business shipping in the NSR.

The five Nordic countries are all Arctic countries. They share similar political and economic systems, as well as common values and cultures. As a whole, the five Nordic countries have a broad international vision and an inclusive attitude, and advocate cooperation at the global, regional and bilateral levels. The five Nordic countries support granting China the formal observer status in the Arctic Council.

In April 2012, when the then Premier Wen Jiabao visited Iceland, China and Iceland signed the Memorandum of Understanding on Marine and Polar Science and Technology Cooperation. The signing of the Memorandum promoted specific cooperation projects such as the Xuelong polar scientific research vessel's visit to Iceland in August 2012 and the construction of a joint aurora observatory in 2013. At the same time, cooperative research and exchanges between China and other Nordic countries in the fields of natural sciences and social sciences have also developed smoothly. Chapter 9 introduces the cooperation between China and the Nordic countries in the Arctic, taking the China Nordic Arctic Research Center as a case, and summarizes the effects achieved by China and the Nordic countries in the dissemination of polar knowledge and the coordination of governance policies. In December 2013, the China-Nordic Arctic Research Center was officially inaugurated. The center has built a cooperation platform and a network of scholars, and carried out cooperative research and international exchanges around major Arctic issues. The practice of CNARC has extensive and far-reaching significance and influence. First, CNARC established a cognitive community to facilitate the transfer of Arctic knowledge from the Nordic countries to China. Second, CNARC has become an important channel for policy advocacy and information release in China and the Nordic countries. Third, the concept of governance is widely reflected in China's Arctic cooperation, and Chinese companies have taken specific actions to implement the governance concept. Finally, through the exchange platform CNARC, China's Arctic governance proposition has been positively responded.

Oran R. Young conceived a very important concept at the North Pacific Arctic Conference-- the North Pacific Lens. This concept broadened and deepened our understanding of the Arctic by looking at the region through a new lens. Most contemporary thinking about the Arctic reflects the experiences of peoples and societies oriented toward the North Atlantic even today. But there are other perspectives on the Arctic. The North Pacific Lens filters our thinking about Arctic affairs through a frame of reference highlighting global concerns. The six key states in North Pacific including Canada, China, Japan, Korea,

Russia, and the U.S., which account for more than 50 percent of global emissions of greenhouse gases and three of them are the world's largest economies. As a result, this lens draws our attention to the importance of global-Arctic interactions. These alternatives have the virtue of introducing new dimensions into our thinking, creating a more complex picture of a region of growing global importance. Chapter 10 echoes Oran R. Young's concept, reviewing international cooperation in the Pacific-Arctic region (especially cooperation around the Bering Sea) and China's contribution. The chapter introduces Pacific Arctic Group (PAG), a noteworthy example of scientific cooperation in this region and China's contributions and also reviews China's participation in the cooperation on Arctic shipping governance and fishery governance in the Pacific Arctic region.

As is known to all, technology is an important aspect of addressing Arctic governance needs. The accumulation of knowledge about the Arctic, the improvement of Arctic governance mechanisms and the decarbonization of Arctic economic activities all rely on technological innovation. Chapter 11 explores the main innovations in marine technology and equipment in the context of a growing need for more robust Arctic governance, and explores ways to enhance international cooperation in the development of Arctic marine technology and equipment innovation. A recent increase in human activities in the Arctic has been made possible by advances in marine technology with shipbuilding as the core. Innovations in marine technology can and do play an important role as tools in the governance of the Arctic. This chapter tries to establish links between the development of ocean technology and the needs of Arctic economic development and Arctic governance. The orientations of innovation in Arctic ocean technology and equipment can be divided into four categories: innovations driven by traditional thinking; innovations for environmental protection; innovations for local application and innovations for observing information systems. Marine technological innovation in the Arctic requires updated knowledge, the latest technologies, and extensive international cooperation. East Asian countries can continue to make more contributions to marine tech innovations in future regarding the

governance goals. As leading countries in tech innovation, China, South Korea, and Japan are all potential good partners of the Arctic countries in providing marine equipment, and such cooperative relationship, if formalized, is expected to make long, sustained contributions to the marine technology innovations.



# **Part I**

## **Arctic Governance and International Relations**



# Chapter 1

## The “New” Arctic as a Zone of Peaceful Competition<sup>1</sup>

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### KEY POINTS

The Arctic in the 2020s has emerged as a critical arena in the global climate emergency and as an area of increasing sensitivity in terms of great power politics. Some see this “new” Arctic becoming a zone of conflict; others react to these developments by doubling down on the view of the Arctic as a zone of peace. An alternative narrative treats the “new” Arctic as a zone of peaceful competition in which there are opportunities to cooperate on specific issues, even though the interests of major players diverge. Specific opportunities include developing codes of conduct to avoid armed clashes, responding to climate change, managing commercial shipping, protecting biodiversity, and meshing scientific activities. Opening the Arctic Council to new voices and Taking advantage of the Council’s convening power to manage the emerging Arctic regime complex while taking steps to protect its distinctive features will enhance the prospects for success in these areas.



## 1. THE ARCTIC IN THE 2020s

Conditions arising in the Arctic today differ substantially from those prevailing in the aftermath of the Cold War, when the Arctic states took the initiative to create a distinctive regional governance system by launching the Arctic Environmental Protection Strategy in 1991 and then moving on to establish the Arctic Council in 1996 as a “high level forum” with a mandate to promote “cooperation and interaction among the Arctic States, with the involvement of the Arctic indigenous communities and other Arctic inhabitants on common Arctic issues” (Arctic Council 1996). Underpinning this arrangement was a vision of the Arctic as a somewhat peripheral region in international affairs primarily of interest to the Arctic states and featuring a policy agenda of its own focused, for the most part, on issues relating to environmental protection and, somewhat more broadly, sustainable development (Young 2020). On this account, it made sense to foreground the role of the eight Arctic states in the Arctic Council, to provide Indigenous peoples’ organizations with the special status of Permanent Participants, and to restrict others to the status of Observers.

Now, twenty-five years on, changing conditions are raising fundamental questions about the adequacy of this vision as a basis for addressing issues of Arctic governance arising in the 2020s. It has become clear that the high latitudes of the northern hemisphere play a crucial role in the dynamics of the Earth’s climate system. The Arctic’s deposits of natural resources, including large reserves of hydrocarbons, have attracted the attention of policymakers not only in Arctic states but also in outside states such as China and in international corporations such as TotalEnergies, ExxonMobil, and Shell. Shifts in the political configuration of international society as a whole have heightened tensions among China, Russia, and the United States. While the Arctic itself is not a locus of severe conflicts, great power politics are spilling over into the Arctic, raising growing questions about the status of the Arctic as a peaceful region somewhat separated from the mainstream of international affairs (Brigham et al. 2020).

Some have responded to these developments by deploying a neorealist or geopolitical narrative and treating the Arctic as an emerging arena for the interplay of great power politics. As former

U.S. Secretary of State Pompeo asserted in a speech preceding the 2019 Ministerial Meeting of the Arctic Council, “the region has become an arena of global power and competition” (Pompeo 2019). On this account, the trajectory of Arctic affairs in the coming years will be driven in large measure by spillovers from global interactions among China, Russia, and the United States into the regional arena. Increasingly prominent among journalists looking for provocative angles on current developments in the Arctic, this narrative is also evident among foreign policy analysts and students of international relations who have a limited grasp of the details of Arctic affairs and little difficulty applying a neorealist narrative of great power politics to events unfolding anywhere in the world.

Others have responded by doubling down on the appropriateness of the governance system for the Arctic put in place in the 1990s. They ground their thinking in the terms of the vision statement adopted at the 2013 Arctic Council Ministerial Meeting asserting that the Council “has become the pre-eminent high-level forum of the Arctic region and [has] made this region into an area of unique international cooperation” (Arctic Council 2013). At the 2021 Ministerial Meeting, ministers adopted a Strategic Plan for the Council that reaffirmed this vision and asserted, “[i]n 2030 we envision the Arctic to remain a region of peace, stability and constructive cooperation, that is a vibrant, prosperous, sustainable and secure home for all its inhabitants, including Indigenous Peoples,” and “the Arctic Council will remain the leading intergovernmental forum for Arctic cooperation” (Arctic Council 2021). While it may make sense to consider modest adjustments in the architecture of Arctic governance (e.g. enhancing opportunities for Arctic Council Observers to participate in specific projects), there is no need to entertain more far-reaching proposals for adjustments in the existing Arctic governance system in this account (e.g. altering any of the constitutive features of the Arctic Council).

In this article, we argue that neither of these responses provides an adequate point of departure or interpretive framework for coming to terms with Arctic issues in the 2020s. The geopolitical or neorealist narrative ignores a range of areas where the major players have clear-cut common interests in devising cooperative responses to Arctic issues. For its part, the strategy of doubling down on existing

arrangements ignores fundamental changes that limit the effectiveness of arrangements established under the conditions prevailing in the 1990s. To unpack these propositions and to explore their implications for Arctic governance, we proceed in three steps. In the next section, we provide an introduction to the “new” Arctic highlighting the ways in which conditions prevailing in the 2020s differ from those of the 1990s. This sets the stage for an examination in the following section of a number of areas where there is common ground giving rise to opportunities to devise cooperative responses to Arctic issues coming into focus in the 2020s. It also provides a point of departure for an additional substantive section in which we discuss adjustments to the existing architecture of Arctic governance needed to achieve success in taking advantage of these opportunities. The result, we emphasize in the conclusion, would be an Arctic governance system retaining key features of the existing system but also incorporating significant adjustments designed to enhance the prospects for success in dealing with the Arctic as a zone of peaceful competition during the 2020s.

## 2. THE RISE OF THE “NEW” ARCTIC CALLS FOR INNOVATIVE PERSPECTIVES

An unusual constellation of conditions arising in the 1990s following the end of the Cold War and the collapse of the Soviet Union led many to embrace a perspective often referred to as Arctic exceptionalism. The essential elements of this perspective were the propositions that the Arctic itself was an area of low tension and that its status as a region peripheral to the main currents of world affairs made it possible to deal with Arctic issues on their own merits, with little reference to events taking place in the rest of the world. What we have come to know as the Arctic zone of peace narrative captured this perspective of the Arctic and provided the conceptual foundation for the development and operation of institutional arrangements like the Arctic Council.

From a variety of biophysical and socioeconomic perspectives, Russia is the preeminent Arctic state. But in the 1990s, Russia was struggling to come to terms with the impacts of the collapse of the Soviet Union. The new Russian Federation was preoccupied with the

challenge of creating the legal and political institutions needed to form the basis of a post-Soviet governance system. The capacity of the central government to exercise effective control over remote oblasts and republics was limited. The national economy had experienced a sharp decline. Russia was in no position to launch ambitious initiatives in the Arctic. Many Soviet military installations in the Far North were closed or abandoned; traffic on the Northern Sea Route declined sharply.

What we have come to think of as China’s economic miracle was in full swing during the 1990s, following the dramatic economic reforms initiated at the end of the 1970s. In due time, this would create the basis for China’s rise as an economic powerhouse on a global scale and ultimately for the emergence of China as a fully-fledged great power. It is worth noting that these years played an important role in establishing China’s preference for deploying economic instruments in efforts to exercise influence at the international level; a preference that has become a striking feature of China’s international activities in recent years. But there is no reason to believe that China’s policymakers were thinking about Arctic initiatives at this time, much less about the importance of articulating an explicit Chinese Arctic policy.

As a result, many thought of the United States during the 1990s as the sole remaining superpower. Whatever the merits of this characterization, it did not translate into policies featuring any explicit concern for Arctic affairs. The Clinton Administration, enjoying the benefits of a rising economy, focused largely on domestic issues. To the extent that the United States was active on the international stage during the 1990s, the center of attention was the consolidation of the nuclear nonproliferation regime, the violence associated with the breakup of the former Yugoslavia, and, to a lesser extent, continuing tensions arising in the Middle East. Preoccupied with its image as a global power, the United States showed little interest in regional concerns in low-tension areas such as the Arctic. Considering this connection, it is noteworthy that the United States, more than any of the other Arctic states, resisted ambitious Arctic initiatives and insisted on limiting the remit of the Arctic Council to matters of low politics such as environmental protection and sustainable development (English 2013).

Given these circumstances, the central premises embedded in the Arctic zone of peace narrative seemed perfectly reasonable. Contrast

this situation with the conditions arising in recent years and likely to dominate the politics of the Arctic during the 2020s. Russia has reemerged with a strong central government and a reconstituted economy heavily dependent on the exploitation of large deposits of natural resources and especially natural gas located in the Arctic (Mitrova 2020). Russian policymakers are understandably interested in an acknowledgement on the part of outsiders that Russia is a great power capable of exercising influence on a global scale. In the Arctic, this has led to a stream of developments, including the modernization of the Northern Fleet, the reoccupation or strengthening of old military installations, a rapid growth in the extraction of hydrocarbons in northwestern Siberia, and the development of the Northern Sea Route into an important commercial artery.

China increasingly sees itself as a global power on a par with the United States, entitled to take an interest in issues arising in seemingly remote areas like the Arctic. Exercising its preference for economic policy instruments, China has proceeded to express an interest in the development of the Arctic's natural resources and the growth of commercial shipping using Arctic routes. Chinese actors have explored investment opportunities in a variety of projects ranging from Canada and Greenland in the North American Arctic to Iceland, Fennoscandia, and Russia. While many of these efforts have yet to bear fruit, China has become both a major investor in natural gas projects in northwestern Siberia and a market for liquefied natural gas (LNG) shipped in state-of-the-art tankers eastward along the Northern Sea Route (Yang and Tillman 2018).

For its part, the United States discovered soon enough that being the sole remaining superpower provided no assurance of success in dealing with specific issues arising in various parts of the world. Protracted and ultimately disappointing military interventions in Afghanistan and Iraq coupled with rising tensions associated with Chinese initiatives in areas like the South China Sea made clear the limits of the ability of the United States to deploy power effectively in specific situations. In the Arctic, these developments had the effect of increasing the sensitivity of the United States to actions on the part of others that could be interpreted as challenges to U.S. dominance in the realm of high politics. Concretely, the United States began to deploy

warships to Arctic waters adjacent to the North Atlantic, take steps to replenish its severely depleted fleet of icebreakers, and plan war games in cooperation with NATO allies such as Norway designed to enhance capacity to engage in effective operations under Arctic conditions.

A series of specific events unfolding during the 2010s served to focus and lend immediacy to these general trends, producing significant consequences for Arctic international relations (Lanteigne 2020). In 2014, Russian actions featuring the annexation of Crimea and intervention in developments unfolding in eastern Ukraine triggered an international crisis. The United States and its NATO allies reacted forcefully by imposing sanctions on Russia, including measures forcing the termination of activities on the part of companies like ExxonMobil engaged in collaborative activities in the Russian Arctic. Triggering an action-reaction process leading to a general deterioration in relations between Russia and the United States, this situation also gave rise to a pragmatic interest among Russian and Chinese policymakers in cooperation with regard to Arctic issues. China, which had unveiled its comprehensive Belt and Road Initiative in 2013, found it easy to extend the logic of this initiative to include collaboration with Russia and with Arctic actors more generally. The result was the articulation of the idea of a Polar Silk Road and the initiation of Chinese investments in specific projects like the extraction of natural gas on the Yamal and Gydan Peninsulas along with an interest in exploring the potential of the Northern Sea Route as a commercial artery.

The election of Donald Trump as president of the United States in 2016 added an element of volatility and unpredictability to the international relations of the Arctic. Trump made friendly gestures toward Vladimir Putin on a personal level. But the United States intensified post-2014 sanctions aimed at Russia and allowed several strategic arms limitation agreements to lapse. Trump initiated open conflict with China over issues of international trade, and decried what he saw as indications that China was seeking to achieve parity with the United States as a global superpower. The result was a growing sense of turmoil regarding the future of the global political order. With regard to the Arctic in particular, these developments had the effect of creating an atmosphere of tension and derailing efforts to promote international cooperation. In his speech on the eve of the 2019 Arctic

Council Ministerial Meeting, then U.S. Secretary of State followed his assertion that the Arctic had become an “arena of global power and competition” by noting that the United States was “hosting military activities, strengthening our force presence, rebuilding our icebreaker fleet, expanding Coast Guard funding, and creating a new senior military post for Arctic Affairs inside our own military” in response (Pompeo 2019).

What should we make of these developments? One striking result is a newfound interest in the Arctic among foreign policy analysts, students of international relations, and journalists who follow issues of international security broadly defined. Whereas those of us who thought about the Arctic as a region of rising importance during the 1990s found it hard to stir up any broad interest in Arctic affairs, a remarkable range of practitioners and analysts now seem eager to take on Arctic issues and to express their opinions about what could or should be done regarding a variety of Arctic concerns. In the absence of in-depth knowledge of Arctic issues, however, it is all too easy for commentators to fall back on general narratives about international politics applied to the Arctic with little concern about the extent to which these generic perspectives are well-suited to addressing Arctic issues.

More often than not, the result is the deployment of a neorealist narrative as a basis for organizing thinking about the international politics of the Arctic. On this account, nation states (especially major states) are self-interested actors motivated largely by a desire to maximize relative power in their interactions with their counterparts. Conflict among the major powers is the normal condition of international society; international institutions are of limited value in dealing with matters of high politics. It follows that individual states must assume others will pursue their own interests by all available means and make preparations to protect their interests in the face of all potential threats. While cooperation may be feasible regarding matters of low politics like environmental protection, there is no escaping the force of geopolitical pressures when it comes to dealing with matters of high politics arising in specific international regions. In the case of the Arctic—a region seen as a theater of operations for increasingly sophisticated military assets, as well as a critical source of raw materials such as natural gas still considered essential resources even in the face of

growing concerns about the impacts of climate change—this means that a three-way competition among China, Russia, and the United States is likely to dominate the 2020s are likely to be dominated by a three-way competition among China, Russia, and the U.S. in a region seen as a theater of operations for increasingly sophisticated military assets and as a critical source of raw materials such as natural gas still regarded as essential resources even in the face of growing concerns about the impacts of climate change (Pincus 2020).

Without losing sight of the political ambitions of both the Arctic states and other states with growing interests in the Arctic, it is easy to see that this narrative leaves a lot to be desired as a framework for organizing thinking about Arctic international relations today. All informed observers acknowledge that the Arctic remains an area of low tension. There are, of course, disagreements and even disputes about issues arising in the Arctic such as the legal status of the waters of the Northwest Passage, the legitimacy of Russian regulations pertaining to parts of the Northeast Passage, overlapping claims to jurisdiction over portions of the deep seabed in the Central Arctic Ocean, and the compatibility of Norway’s Svalbard Fisheries Protection Zone with the provisions of the 1920 Treaty of Paris. However, it is clear that these are not the sorts of issues likely to generate international crises, much less the outbreak of armed clashes. The key players have expressed repeatedly their commitment to the principles set forth in the UN Convention on the Law of the Sea and pledged to resolve these Arctic issues in a peaceful manner. None of these issues seems likely to become a focus of escalating claims and counterclaims on the part of the protagonists.

There is no doubt that links between the Arctic and the outside world have become stronger. This is true whether we think about the onset of climate change, the dynamics of global energy markets, or the efforts of countries such as Russia and China to hasten the decline of the American-dominated postwar world order. But it would be a mistake to jump from this observation to the conclusion that the (re) emergence of great power politics in the Arctic will ensure the failure of all efforts to promote international cooperation regarding specific Arctic issues (Brigham et al. 2020).

Russia is rebuilding and modernizing its armed forces as part of



its effort to reassert its great power status on a global scale. Given the geography of Russia, the Arctic inevitably figures prominently in this effort. But it is important to note that Russia has not sought to deploy its armed forces as a means of exercising influence over current Arctic issues. China is endeavoring to lend substance to the claim first articulated in its 2018 Arctic policy statement that it is a “near Arctic state.” So far, however, this effort has been limited to the modest growth of investments in projects involving the extraction of Arctic resources, a rising interest in the commercial potential of the Northern Sea Route, and the enhancement of Chinese scientific research in the Arctic. The various branches of the American armed forces have announced newfound interests in Arctic issues, at least at the declaratory level. But the departure of the Trump Administration has produced a toning down of American rhetoric about such matters, and there is little evidence to suggest that we will see a sharp rise in the deployment of U.S. military assets to the Arctic during the foreseeable future.

A reasonable conclusion is that the Arctic remains a peripheral area with regard to great power politics. The central focus of Sino-American strategic competition is located in the South and East China Seas; it does not extend farther north. The resumed mutual deterrence postures of Russia and the United States emphasize Europe and the North Atlantic. Recent Russian and U.S./NATO Arctic military activities are concentrated almost exclusively in the Norwegian and Barents Seas, properly understood as extensions of the North Atlantic. These areas of sensitive strategic competition have virtually nothing in common. They do not affect the core of the Arctic, which will remain inaccessible for conventional maritime operations except in the unlikely event that major players invest heavily in special capabilities that can operate sustainably in harsh conditions (Zagorski 2020).

Overall, the international relations of the “new” Arctic are hard to square with the Arctic Council’s vision that “[w]e have made this region into an area of unique international cooperation,” turning the Arctic into an exceptional oasis of peaceful cooperation in the overall landscape of international politics. In our judgment, the idea of Arctic exceptionalism is not helpful as a basis for addressing Arctic issues today. Great power politics will be a prominent feature of Arctic international relations during the coming years. Nevertheless, this does

not mean that the impact of securitization will turn the Arctic into a zone of conflict, precluding the pursuit of cooperation regarding a range of specific but significant issues arising in the Arctic during the 2020s.

The question is not whether the Arctic of the 2020s will be a zone of peace or a zone of conflict. There is room to address specific issues in a cooperative manner, without losing sight of the differences between the Arctic of the 1990s and the Arctic of the 2020s. In this regard, it is notable that at their May 2021 meeting the foreign ministers of the G7 countries included “peaceful, sustainable economic development and environmental protection in the Arctic” on a short list of issues where cooperation with Russia is desirable and feasible, despite the continuing stalemate on other issues (G7 Communique 2021).

### 3. COMPETITION AND COOPERATION ARE NOT MUTUALLY EXCLUSIVE IN THE ARCTIC

In our view, it makes sense to shift attention away from broad efforts to characterize the international relations of the “new” Arctic as either cooperative or conflictual and to direct attention instead toward specific issues where the interests of the Arctic states and other interested parties are evolving in ways that generate opportunities for fruitful cooperation. The result, we argue, is a more complex picture in which mixed-motive interactions can give rise to cooperation on specific issues, even while political maneuvering driven by developments unfolding on a global scale becomes more prominent. To flesh out this perspective on the Arctic as a zone of peaceful competition, we consider opportunities for cooperation in five areas: (i) avoiding armed clashes, (ii) climate change, (iii) commercial shipping, (iv) protecting biodiversity, and (v) scientific research. The initiatives we propose are innovative but still broadly compatible with themes outlined in the document entitled “Arctic Council Strategic Plan 2021-2030” adopted at the council’s May 2021 Ministerial Meeting (Arctic Council 2021).

**Avoiding armed clashes.** As we have said, the Arctic remains an area of low tension with regard to issues of military security. Yet this does not eliminate the need to develop informal but effective practices designed to minimize the danger of unintended clashes and to defuse

the prospect of escalation following the occurrence of isolated incidents. Several states are stepping up the deployment of advanced military systems in the Arctic. War games and military exercises of one sort or another are increasingly common, especially in the sector of the Arctic bordering on the North Atlantic. There are persistent reports of aircraft engaging in provocative activities leading others to scramble aircraft of their own to intercept them.

No one stands to benefit from the occurrence of armed clashes in the region, even in an era featuring a renewal of great power politics in the Arctic. But experience accumulated in many parts of the world involving numerous states makes it clear that unintended incidents do occur in settings of this sort and that such incidents can lead to ugly developments that are harmful to the interests of all concerned. What is needed in such settings is the development of codes of conduct designed to minimize the likelihood of armed clashes and to deescalate tensions arising when incidents do occur. Even during the Cold War, such codes of conduct emerged and played a constructive role in interactions between Soviet and American armed forces. With regard to the Arctic, there have been repeated calls to resume the informal Arctic Chiefs of Defense Forum broken off in 2014 in the wake of the conflict over the annexation of Crimea. No doubt, the resumption of these meetings would be helpful. But more specific measures are needed.

Recently, the United States and Russia reinvigorated arrangements based on an agreement dating back to 1972, designed to prevent the occurrence or escalation of dangerous military incidents at sea and in the airspace above it. These arrangements are applicable to the Barents and Norwegian Seas where operations of Russia's Northern Fleet and the reactivated American 2nd Fleet overlap. Military risk reduction mechanisms covering activities of China, the United States, and some of its allies are also in place for the Western Pacific. China does not deploy military assets in the Arctic and has no plans to do so during the foreseeable future. But in the unlikely event of a future extension of Chinese naval operations farther North, it would be possible to make use of these mechanisms.

The most urgent need for an effective code of conduct pertains to the Barents Sea. The United States and its NATO allies are now carrying out naval operations in the Barents, which provides homeports for

Russia’s Northern Fleet including the bulk of Russia’s nuclear-powered submarines equipped with sea-launched ballistic missiles. A concern of particular importance involves the operations of U.S. attack submarines in the vicinity of Russia’s naval bases and the reliance of Russian attack submarines on the Barents Sea to move back and forth between their bases on the Kola Peninsula and the North Atlantic.

Responding to climate change. The impacts of climate change are showing up more rapidly and more dramatically in the Arctic than anywhere else on the planet. Accelerating losses of sea ice and glaciers, severe coastal erosion, rapid thawing of permafrost, massive wildfires, uncontrolled flooding, and rising threats to wildlife are current realities in the Arctic rather than future prospects (Blunden and Boyer 2020). Despite American denialism under the Trump Administration and recurrent expressions of hope on the part of some Russian policymakers that climate change may produce positive effects in the Russian North, almost everyone now understands that issues relating to climate change are moving to the top of the Arctic policy agenda. Both the most recent Russian Arctic strategy adopted in 2020 and the Russian program for its 2021-2023 Chairmanship of the Arctic Council, for example, indicate clearly that there is no time to waste in taking steps to counter this rising threat (Russian Arctic Strategy 2020, Arctic Council 2021a). With regard to Arctic cooperation, this development suggests two avenues for fruitful initiatives: 1) measures designed to facilitate adaptation to the impacts of climate change in the Arctic itself and 2) Arctic initiatives that may help promote global efforts responding to the onset of climate change.

Whereas reductions of emissions of greenhouse gases anywhere contribute to efforts to mitigate climate change on a global scale, efforts to adapt to the impacts of climate change are typically local in scale. Still, there is much to be said for encouraging collaboration in efforts to protect the integrity of socioecological systems in the Arctic. Communities throughout the Arctic face similar threats arising from coastal erosion, permafrost thaw, and riverine flooding. There is considerable room for comparing notes and exchanging expertise with regard to the effectiveness of concrete measures to come to terms with these threats. The Arctic Council might well become a clearinghouse for those seeking to identify strategies that have proven successful

in responding to specific problems caused or intensified by climate change. Educational activities, designed especially for young people and coordinated by the University of the Arctic, also may help to increase adaptive capacity.

Although the Arctic itself is not a significant source of emissions of greenhouse gases, initiatives in this region may offer opportunities to get the ball rolling on measures that could be taken up and amplified in other settings. A promising case in point involves growing interest to take initiative on black carbon and methane, both of which are important short-lived climate pollutants (Miller, Zaelke, and Andersen 2021). The Arctic Council has adopted a framework for action to reduce emissions of these short-lived pollutants in the Arctic and beyond. To this end, it has established an Expert Group on Black Carbon and Methane which has advanced a pan-Arctic aspirational goal of reducing emissions of these pollutants by 25-33% below 2013 levels by 2025. Going forward, the Council may provide a convenient venue for those interested in promoting a binding agreement on these pollutants extending ultimately to both Arctic and non-Arctic states. An Arctic agreement on black carbon and methane would not solve the global threat associated with emissions of these pollutants. But it would constitute a start in dealing with a major concern that could play a role in energizing efforts to come to terms with these pollutants on a global scale (Smieszek 2021).

Managing commercial shipping. International cooperation relating to the regulation of commercial shipping in the Arctic has increased markedly over the last twenty years. Starting with voluntary guidelines in 2002 and stimulated by the Arctic Council's 2009 Arctic Marine Shipping Assessment, the International Maritime Organization (IMO) developed the legally binding Polar Code whose provisions were agreed upon within the relevant committees of the IMO in 2014-2015 and became legally binding in the form of amendments to existing conventions (SOLAS and MARPOL) at the beginning of 2017. Featuring measures dealing with both maritime safety and environmental protection, the Polar Code stands as a clear example of the feasibility of making progress in devising cooperative measures to address concrete issues of real importance when the interests of key players can be brought into alignment. There is every indication that

commercial shippers are taking the necessary steps to comply with the provisions of the Polar Code in its current form.

As commercial shipping continues to grow in Arctic waters and as concern regarding the environmental impacts of shipping continues to rise, however, it has become clear that there is more to be done regarding the regulation of commercial shipping in the Arctic and related matters such as the improvement of hydrographic charts and the strengthening of search and rescue capabilities. At this stage, the campaign to ban the combustion and carriage of heavy fuel oils in the Arctic has emerged as the top priority. But other concerns are coming into focus as well, including ship strikes on marine mammals, underwater noise pollution, the dangers of invasive species making their way to the Arctic, and potential interference with the subsistence activities of residents of coastal communities. Progress will not be easy regarding any of these issues, given the divergent interests of shippers, environmentalists, residents of coastal communities, and others. The recent decision by the IMO to strengthen the Polar Code by including a ban on heavy fuel oils in the Arctic from 2024, to take a concrete example, has come in for intense criticism from environmentalists as inadequate to address what many see as a pressing problem (Reuters Staff 2020). What is likely during the coming years is a pattern of incremental advances that environmentalists criticize as inadequate but shippers fear as increasingly burdensome. There is no reason to conclude that the conditions prevailing in the Arctic during the 2020s will present insurmountable obstacles to the process of hammering out mutually acceptable additions to the governance system for commercial shipping that has been evolving over the last several decades.

Protecting biodiversity. There is a substantial record of international cooperation regarding the development and implementation of measures to protect wildlife moving across international boundaries in the Arctic or living in or migrating through Arctic waters. Aboriginal subsistence whaling is managed under the provisions of the 1946 International Convention on the Regulation of Whaling. The 1973 Agreement on the Conservation of Polar Bears provides for coordination of the efforts of the five Arctic coastal states to protect polar bears throughout their range. There are bilateral arrangements that have proven useful in protecting wildlife and conserving habitat essential to their welfare.

Prominent examples are the bilateral regime between Norway and Russia dealing with environmental protection in the Barents Sea region and the bilateral arrangement between Canada and the United States dealing with the conservation of the Porcupine caribou herd that migrates annually across the border between Yukon and Alaska. A recent addition to this network of arrangements is the Arctic Migratory Bird Initiative, an activity spawned by the Arctic Council's Working Group on the Conservation of Arctic Flora and Fauna and designed to foster collaboration among states with jurisdiction over components of the Australasian Flyway stretching from Siberia and Alaska in the North to Australia in the South. A notable feature of these arrangements is that they have provided a basis for effective cooperation among issue-oriented agencies located in relevant governments without reference to the overarching dynamics of high politics among the participating states.

What new needs of this sort are coming into focus today? Specific threats to wildlife in the Arctic are associated with biophysical changes and with the impacts of climate change in particular. The dramatic decline of sea ice in the Arctic threatens the welfare of ice-dependent species such as polar bears and walrus. The welfare of terrestrial species such as caribou/reindeer is threatened by an increasing difficulty in accessing adequate food supplies during the winter months. Changing conditions in areas such as the Bering Sea are triggering largescale die offs of a number of species of seabirds. Ultimately, responding to these challenges will require effective responses to the problem of climate change on a global scale. In the meantime, however, there are opportunities to launch protective measures in the Arctic to alleviate some of these threats. A particularly promising approach is to focus on the maintenance of biodiversity in ecologically or biologically significant marine areas (EBSAs): taking steps to protect these areas from the impacts of human activities including fishing and shipping, as well as monitoring them closely to provide early warning of developments likely to prove harmful to key species (Convention on Biological Diversity 2021). Another significant initiative is the development of the Arctic Council's Regional Action Plan on Marine Litter (Arctic Council 2021b).

Meshing scientific research. Unlike Antarctica where scientific

research constitutes the principal ongoing human activity, the Arctic is a region providing a permanent home for millions of people and affected by intensive human activities ranging from fishing and the extraction of natural resources to the deployment of armed forces. Nevertheless, all the Arctic states and a number of non-Arctic states support sizable research programs in the Arctic, and cooperation regarding issues relating to science has emerged as a prominent endeavor. This has provided the basis for the development of a web of cooperative arrangements. The International Arctic Science Committee, established in 1990, has 23 members (mostly national academies of sciences) and represents the views of the science community regarding priorities and opportunities for cooperation in the conduct of Arctic science. Starting in 2016, ministers of research and education (or their functional equivalents) have developed an informal practice of meeting on a biennial basis to exchange information on their Arctic work and discuss opportunities for collaboration at the level of national science programs. In 2017, the eight Arctic states entered into a legally binding agreement designed to enhance scientific cooperation through practical measures like improving access to field sites, easing restrictions on the movement of scientific equipment and materials, and facilitating the exchange of data.

These are all constructive steps. What is missing at this stage is an effort to harmonize this web of discrete arrangements so that agencies responsible for funding research work closely with the science community regarding the identification of research priorities. Moreover, representatives of foreign offices who control the movement of people and materials across national boundaries can work more closely with the national funding agencies and representatives of the science community to minimize the obstacles to conducting research within their jurisdictions, as well as support the activities of multinational teams of researchers working in areas beyond national jurisdiction. Some constructive responses to this need are currently underway. A case in point is the ICES/PICES/PAME Working Group on Integrated Ecosystem Assessment for the Central Arctic Ocean (WGICA). But there is much more to be done to mesh the activities of scientific organizations, funding agencies, and those who control access to Arctic sites in order to move scientific cooperation to a new and more



productive level.

Science programs often reflect the interests of governments and other organizations that support them, which means that priorities sometimes diverge, and there are significant limits to cooperative practices even in the world of scientific research. Nevertheless, there are substantial common interests in this realm, and cooperation in the conduct of scientific research can play a constructive role in the coproduction of knowledge needed to implement international agreements effectively. A current example involves the development of knowledge required to operationalize the “precautionary approach” called for under the terms of the Central Arctic Ocean Fisheries Agreement that entered into force in June 2021 (Balton and Zagorski 2020). We should be on the lookout for other cases in which scientific cooperation can play a helpful role in the creation and implementation of international agreements dealing with matters of common concern to the Arctic states and key non-Arctic states.

This account of opportunities for international cooperation regarding specific Arctic issues is not meant to be exhaustive. Our purpose in providing these examples has been to demonstrate that the conditions prevailing in the Arctic during the 2020s do not rule out focused efforts to promote international cooperation. In effect, we seek a middle way in this realm. The idea of Arctic exceptionalism is no longer realistic as a basis for dealing with the international relations of the Arctic. But neorealist accounts stressing the reemergence of great power politics in the Arctic convey an excessively pessimistic view regarding the prospects for cooperation in the Arctic. We suggest that a perspective avoiding both extremes is needed, as is a process designed to flesh out this perspective as a basis for thinking constructively about concrete issues arising in the 2020s. For shorthand purposes, we characterize this as a narrative of peaceful competition.

#### 4. WE CAN ADJUST THE ARCHITECTURE OF ARCTIC GOVERNANCE TO ADDRESS THE ISSUES OF THE 2020s

The existing architecture of Arctic governance, with the Arctic Council as its centerpiece, has proven more effective than many of

those present at its creation anticipated. While the Council lacks the authority to make binding decisions and the capacity to take the lead in implementing substantive programs, there is convincing evidence regarding the constructive roles it has played in a number of areas (Barry et al. 2020). Yet the exceptionalist narrative underlying the creation of the Council in 1996 and articulated explicitly in the vision statement adopted at the 2013 Ministerial Meeting does not offer an appropriate lens for viewing issues arising under conditions prevailing today. Nor does this narrative provide a convincing rationale for framing cooperative measures to address the issues discussed in the preceding section. What adjustments in the existing architecture would improve the performance of these arrangements going forward? Are there ways to approach such adjustments that would maximize their acceptability to all parties concerned? In this section, we respond to these questions, starting with a discussion of adjustments in the practices of the Arctic Council and moving on to observations relating to the overall architecture of Arctic governance.

Adjusting the Arctic Council. The constitutive provisions of the Arctic Council are set forth in a ministerial declaration rather than in an international, legally binding instrument (Arctic Council 1996). Some view this as a weakness; their inclination is to take steps as quickly as possible to turn the Council into a fully-fledged intergovernmental organization with a recognized legal personality. In our judgment, this line of thinking reflects a mistaken view regarding the role of the Council in addressing issues of governance in the high northern latitudes. The Arctic Council is not destined to become a body capable of making and implementing authoritative decisions on a range of issues of interest to the Arctic states and others with growing interests in Arctic affairs. Rather, the influence of the Council lies in its capacity to provide early warning regarding emerging issues, mount well-respected monitoring services, offer an informal venue to hammer out the terms of agreements regarding a variety of specific issues, and exercise convening power allowing a wide range of parties to interact with one another and explore issues of common concern on an informal basis. Adjustments in the existing practices of the Council should seek to strengthen these forms of influence, while avoiding changes that would serve only to muddy the waters or even undermine its contributions.

With regard to early warning, agenda formation, monitoring, and the incubation of innovative policy initiatives, the key to the success of the Arctic Council lies in the work of the Council's working groups. To illustrate, consider the work of the Arctic Monitoring and Assessment Programme (AMAP) in enhancing understanding of the role of the Arctic in the Earth's climate system; the initiatives of the Working Group on the Protection of the Marine Environment (PAME) in identifying the need to regulate commercial shipping in the Arctic and framing issues for treatment in the IMO; and the efforts of the Working Group on the Conservation of Arctic Flora and Fauna (CAFF) in incubating the Arctic Migratory Bird Initiative. What is needed at this stage is an effort to reconfirm the central role of these activities in the work of the Council, while avoiding developments likely to detract from the role of the working groups in handling such matters. In this connection, we recommend reverting to the early practice of the Council treating all meetings of the Senior Arctic Officials (SAOs) as opportunities to engage in extensive and substantive conversations between the leaders of the working groups, representatives of the foreign ministries of the Arctic states, and the Indigenous-led organizations with Permanent Participant status in the Arctic Council.

There is also a need to proceed with care in articulating the mission of new arrangements such as the recently created SAO-based Marine Mechanism (SMM). In the specific case of the SMM, the danger is that its activities will overlap with the work of PAME, running the risk of politicizing the Council's work on marine issues in a manner that detracts from PAME's efforts to address similar concerns. The Arctic Council created the SMM in 2019 following a failure to agree on a mandate for a new subsidiary body to employ an ecosystem-based approach to marine management in the Arctic. So far, the activities of the mechanism have been confined to organizing webinars dealing with a range of marine issues of current interest (e.g. shipping, marine litter). To achieve a distinct and lasting place in the architecture of the Arctic Council, the SMM must take advantage of the convening power of the Council to provide a venue in which a wide range of players are able to engage in policy-relevant discussions of marine issues on an informal basis (Young 2021).

An important development in the practices of the Arctic Council

dating from 2009 centers on the establishment of task forces to provide an informal setting for those engaged in efforts to hammer out the terms of agreements that are not formally Arctic Council agreements. As the cases of the 2011 search and rescue agreement, the 2013 oil spill preparedness and response agreement, and the 2017 scientific cooperation agreement make clear, task forces have produced significant results even in the face of the shifting conditions prevailing in the Arctic during the 2010s. It is notable that Russia and the United States served as co-leads for all three of these task forces. In our judgment, the key issue in this realm going forward is a need to clarify the relationship between working groups and task forces and to exercise extreme care in framing the remit of any new task force created to deal with a specific issue. Though misunderstandings have arisen in several cases, it should be possible to draw a clear distinction between the roles of the working groups and those of the task forces. The working groups are ongoing bodies with mandates that cover a broad range of concerns such as the protection of the Arctic marine environment or the conservation of Arctic flora and fauna. The task forces are transient bodies intended to focus on a specific issue such as search and rescue and to go out of existence once that issue is resolved. Exercising care in formulating the remit of task forces should help to clarify this distinction.

The convening power of the Arctic Council has grown substantially in recent years. With the participation of representatives of 38 Observers divided almost equally among non-Arctic states, intergovernmental organizations, and nongovernmental organizations, meetings of the Senior Arctic Officials now bring together most of the important players concerned with issues arising in the Arctic. Such gatherings provide opportunities for informal consultations regarding emerging issues over and above the issues on the formal agenda of the SAOs. Adjustments to the Council’s existing practices can enhance this important function. The goal should be to welcome input from the Observers, without triggering opposition arising from sensitivities relating to matters of terminology. Constructive measures may include eliminating obsolete procedural rules dealing with the suspension of Observers, self-reporting as a condition for the continuation of observer status, and financial contributions on the part of Observers (Zagorski 2019). The recent practice of organizing special sessions of the SAOs in which Observers

are given the floor is a step in the right direction. Taking advantage of the Council's convening power, there may also be opportunities to organize special sessions the day before or the day after SAO meetings in which all participants can discuss issues of current interest in a setting not subject to the Council's formal rules of procedure. No doubt, other innovations are worthy of consideration. But the general point is clear: There is a need to encourage constructive engagement on the part of many actors, without distorting the architecture of the Arctic Council or undermining its unique features.

Coordinating the Arctic regime complex. While the Arctic Council is the centerpiece of the existing Arctic governance system, what is developing is an extensive network of the sort that analysts call a regime complex or, in other words, a collection of discrete institutional arrangements dealing with interrelated issues but not organized in the form of a hierarchical structure (Young and Kim 2021). Thus, we have distinct arrangements dealing with fishing, shipping, oil and gas development, wildlife management, environmental protection, and scientific research that apply to all or parts of the Arctic but that are not linked to one another in any explicit way. An interesting observation in this regard is that new arrangements featuring international cooperation on specific issues are continuing to emerge, despite the onset of great power politics highlighted in neorealist accounts of the "new" Arctic. The Central Arctic Ocean Fisheries Agreement entered into force in June 2021. The IMO is in the process of forging measures designed to regulate and eventually ban the combustion and carriage of heavy fuel oils on ships operating in the Arctic. There are preliminary indications of an emerging interest in the development of an Arctic agreement dealing with methane and black carbon. Regarding the future, this development raises two issues: One dealing with the content of specific additions to this regime complex and the other dealing with the need to coordinate the various elements of the complex to avoid fragmentation and to promote harmonization.

With regard to specific elements, there is no alternative to proceeding on a case-by-case basis. The next step in the Central Arctic Ocean Fisheries Agreement, for example, is to establish the machinery needed to move this arrangement from paper to practice. Fortunately, there are indications that both Russia and the United States are able and

willing to join forces to make this happen. In the case of commercial shipping, the challenge is to push the parties to accept a ban on the combustion and carriage of heavy fuel oils with real teeth and, at the same time, to advance the dialogue on related matters like the problems of ship strikes on marine mammals and underwater noise pollution. With respect to methane and black carbon and similar issues that are just now coming into focus, the next steps involve framing the issues in a manner suitable for consideration in specific policy arenas and enlisting the support of players in a position to move the issues toward the top of crowded policy agendas. Perhaps the way forward in this realm is to provide opportunities for those working on specific issues to compare notes regarding their experiences, and to encourage constructive exchanges between practitioners working to achieve progress on specific issues and analysts who think more generally about effectively promoting international cooperation.

As the density of the Arctic regime complex increases, the need to pay attention to avoiding fragmentation and encouraging harmonization is rising (Biermann et al. 2020). How should we deal with the interface between the regulation of commercial shipping in the Arctic and arrangements regarding marine mammals, such as whales and walrus, and the human harvesters of these species? Is there a need to think about interactions between emerging proposals dealing with Arctic sea ice restoration as a means of coping with climate change and regimes dealing with artisanal and commercial fishing, commercial shipping, and offshore oil and gas development (Strawa et al. 2020)? In our judgment, the case for creating a new mechanism to deal with this function is not compelling; nor is it likely that proposals for such a mechanism would gain traction under the conditions prevailing in the 2020s. Proceeding with care, it should be possible to use the forum provided by the Arctic Council to address this matter effectively. In this connection, the Council’s convening power may provide the key to success. SAO meetings today bring together representatives of most of the major players, including key non-Arctic states such as China, relevant intergovernmental organizations such as the IMO, and important nongovernmental organizations such as IASC, that need to be consulted in efforts to coordinate the expanding Arctic regime complex. What would be helpful at this stage is to recognize this function of the

Council explicitly and to institute informal practices aimed at enhancing this role. For example, it would be relatively easy to organize informal consultations on specific issues among interested parties alongside formal SAO meetings.

## 5.A CONCLUDING OBSERVATION

We have sought to articulate a view of Arctic international relations during the 2020s that recognizes the limits of the Arctic exceptionalism embedded in the Arctic zone of peace narrative but that also provides an alternative to the proposition that the Arctic has become what a former U.S. Secretary of State has called an “arena of global power competition.” We characterize our perspective as a view of the “new” Arctic as a zone of peaceful competition. It is pointless to ignore the growing links between the Arctic and the global system and to perpetuate the belief that the currents of great power politics will not spill over to affect the treatment of issues on the Arctic policy agenda. At the same time, this should not blind us to the success of ongoing efforts to promote international cooperation on specific issues and to the prospect that similar opportunities will continue to arise in the 2020s. We have suggested a number of specific areas where cooperative initiatives seem feasible and discussed ways to adjust the existing machinery of Arctic governance to capitalize on such opportunities. This is not a matter of wholesale restructuring of arrangements like the Arctic Council or calling for an effort to negotiate the terms of a comprehensive Arctic treaty. What is needed at this stage, we argue, are adjustments in existing practices that are individually modest but that, taken together, could make a real difference in addressing Arctic challenges arising in the 2020s.

## NOTE

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<sup>1</sup>This chapter is originated from a joint paper prepared for the 2021 North Pacific Arctic Conference, co-authored with Oran R. Young (Bren School of Environmental Science and Management, University of California Santa Barbara) and Andrei Zagorski (Institute of World Economy and International Relations, Russian Academy of Sciences).

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## Chapter 2

### The Arctic Governance and the Interactions between Arctic and Non-Arctic Countries<sup>1</sup>

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The natural environment in the Arctic region is changing far faster than what people have anticipated. Human society must make [] the necessary adjustments to their experience, production and social functions and build up new social governance mechanisms to adapt to the new natural surroundings. The Arctic Council established in 1996 has gradually become the most important mechanism of the regional governance.

Notwithstanding, the Arctic environmental change is not purely due to the intra-regional factors in the Arctic, let alone its impacts, such as the melting of ice which has crossed beyond the Arctic border to influence the whole planet. Besides, it is unreasonable and unsustainable that the non-Arctic actors are denied access to the Arctic economic opportunities in this globalized world. Thus, the Arctic governance has been concerned with whether or not to, and how to engage non-Arctic countries, since the very beginning. In its Ministerial Meeting held in Kiruna, Sweden in May 2013, the Arctic Council granted the formal observer status to China, India, Italy, Japan, Singapore and South Korea.

This essay illustrates the interactions of intra-regional countries with extra-regional countries, examines the change of the Arctic governance mechanisms and makes China as a case to explain the responsibility and definition of interests on the part of the important non-Arctic countries in participating the Arctic governance and their role of improving the governance mechanisms.

## 1. REGIONAL PUBLIC GOODS BEARING ON PERFORMANCE OF ARCTIC GOVERNANCE

In the process of regional governance, common demand and interest unite nations in the region that work together to design a set of mechanisms or institutions and share the cost of such governance. These mechanisms and institutions that exclusively serve the region and only applicable only to the region and whose cost is born commonly by regional countries are called "regional public good".<sup>2</sup>

The key to evaluate the performance and effectiveness of an international governance regime is usually understood as the extent to which an institution help in solving or ameliorating the specific problem it was set up to address.[O. S. Stokke, 'Examining the Consequences of Arctic Institutions,' in O. S. Stokke and G. Hønneland (eds.), *International Cooperation and Arctic Governance: Regime Effectiveness and Northern Region Building*, London, Routledge, 2007, pp.15-22.] The evaluation mainly includes: 1, whether or not it can access the information on the emergence and evolution of the issue, and acquire the knowledge and skill to solve it; 2, whether or not the regime can set up mandatory and legally binding international norms. To put it in another way, to which degree it has the capability to regularize the behavior of the relevant actors and make the violators pay a high price; 3, whether or not it is capable of coordinating and mobilizing the resource owners, be it intra- or extra-regional, or from foreign ministries or other departments of government, to make them consistent with the value of governance and willing to use their resources to provide the public goods in concern.

By examining the governance process of the Arctic Council,

one might find that the member countries put the priority on the contradiction between resource exploitation and environmental and ecological protection. Therefore, for the Arctic governance organizations and the Arctic countries, it is unavoidable to face the contradiction between the interests of the Arctic countries and the common interests of mankind, and to introduce new factors in order to come up with more efficient governance mechanisms.

As the natural conditions of the Arctic are harsh and the area is almost uninhabited, mankind has little knowledge about it. The six working groups established by the Arctic Council have embarked on their work actively and reached certain accomplishment in designing the environmental assessments and governance programs. However, the Arctic Council lacks necessary resources and ability in respect of mobilizing a wider range of international scientists dedicated to the scientific discovery, technological innovation and invention of the Arctic governance mechanism. The Arctic Council has long been a loose and forum-like governance mechanism in need of mandatory laws and enforcement means. At the Nuuk meeting held in 2011, the member states signed the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, which has become the first legally binding agreement since the founding the Arctic Council 15 years ago. It coordinates life-saving international maritime and aeronautical search and rescue (SAR) -coverage and -response among the Arctic States across an area of about 13 million square miles in the Arctic.

Many of the Arctic governance programs, such as the protection of the Arctic maritime environment, the reduction of Arctic pollution, and the protection of Arctic fauna and flora, are confined to the working programs or international cooperation, but they are in need of mandatory measures for the enhancement of effectiveness and performance of governance. The Arctic Council is quite limited in its ability of political mobilization and political integration. Gaps between parties of this Arctic governance mechanism remain extraordinarily large in terms of quality and quantity. They geographically lie across Northern Europe, North America and Northern Russia. The United States, Russia and other world powers, as well as important

international organizations all have their influences converged and overlapped in the region. For example, the conflicts between NATO and Russia, and that between Canada and EU are yet to be settled. The Arctic Council appears incapable to coordinate such power relations.

The performance of regional governance largely depends on the ability and the will of each of the actors to contribute to provide public goods. Governance goals fail to be fulfilled if public goods are insufficient. When marginal revenue is unequal to marginal cost on the side of the public goods supplier, the market will fail. The public goods for the Arctic governance can include categories of development, environmental protection, mechanisms, security, funds and infrastructure, knowledge, technological instrument, and so on. Which public goods Arctic governance supplies is nevertheless questionable.

The difficulty of public good supply exists in Arctic governance compared to domestic public good supply, which are easier to implement and regulate due to the existence of the government and clearly defined boundaries. The government provides public goods through legislation with taxation money, and regulates public good supply with systems of checks of balances. Regional public goods does not carry a mandatory 'taxation system' that requests shareholders to bear a necessary amount of expenditure, nor is there a powerful and clearly obligated "regional government' that produces and provides public goods. Moreover, the differences between the Arctic countries in their sizes and quality and in their abilities to provide public goods are so large that they often bargain on the issues of who should provide the public goods.

Arctic governance is a multi-tiered mechanism that includes a global level, a regional level and a national level. The needs of Arctic governance will not be fully met through regional public goods alone. The Arctic Council can, as a regional multilateral body of governance, coordinate the allocation of public goods provided by the member states so as to secure the greatest possible gains. Rational allocation of public goods can prevent unduly intergovernmental expenditures, and stir up interests on transnational infrastructure projects. Externally, the Arctic Council can serve as an independent part for cooperation with extra-regional actors to address international issues, which will guarantee the

greatest regional interests, cut down the cost caused by extra-regional actors in the most efficient way, and increase the will of extra-regional actors to contribute to providing public goods.

## 2. ARCTIC COUNCIL AND MEMBER COUNTRIES' TACTICS OF INCORPORATING EXTRA-REGIONAL FACTORS

### 2.1 Arctic Governance: Exclusiveness and Inclusiveness.

Like all other regional governance out there in the world, Arctic governance is faced with the issue of exclusiveness and inclusiveness. Any regional organization will make the considerations on the issue as follows: (1) efficiency of governance policy. The more member states there are, the more difficult it is to reach regional agreement and the longer it will take to negotiate on platforms of taking actions. (2) allocation of interests. Regional interests should be allocated as exclusively within the region as possible, which can prevent external competitors. (3) the capability of extra-regional actors to provide public goods. (4) the extent to which the external actors will become a cost to governance. Anyway, if a governance regime cannot effectively incorporate important factors, internal and external alike, the cost cannot be better controlled and efficiency will be low.

The nature of market allocation of the Arctic resources and the nature of non-market Arctic environmental governance oblige the Arctic countries to take an exclusive or inclusive proclivity respectively. Resource allocation in the Arctic is market-oriented. In other words, under market conditions, the volume of interests to be allocated is limited. Thus, limited resources will compel the regional members to deny newcomers or competitors. In case when newcomers are undeniable, a good alternative is to raise the threshold of entrance or to introduce discriminative arrangements. The Arctic Economic Council is a new example. In the 2013 Kiruna Declaration, Ministers from the eight Arctic Council states decided to establish a task force to facilitate the creation of a circumpolar business forum. In December 2013, The Task Force to Facilitate the Circumpolar Business Forum (TFCBF)

proposed a new name for the circumpolar business forum, 'the Arctic Economic Council', which Senior Arctic officials approved in January 2014. The Arctic Economic Council will foster business development in the Arctic, engage in deeper circumpolar cooperation, and provide a business perspective to the work of the Arctic Council.<sup>4</sup> The question is whether or not the Arctic Economic Council will exclude the non-Arctic economies regardless of possibly having been granted permanent observer status.

Arctic governance on the other side is non-market-oriented, in terms of environmental protection and climate change. In other words, enlarging the group will not necessarily bring about competition, but rather bring more members to share interests as well as costs, hence fewer costs to original members. Exactly for the two considerations--seeking fewer sharers of interests and more investors of public goods, the Arctic countries are prone to take an open and inclusive attitude on issues of climate change, environment and ecology by seeking common interests and common responsibility with extra-regional actors, while taking exclusive policies on issues of resources. Just as Olav Schram Stokke puts it, when it comes to resource allocation, the less members the better; when it comes to sharing of cost, the more members the better.<sup>5</sup>

In sum, considering only their own interests, the Arctic countries are fully justified in either incorporating or denying extra-regional participants. In this case, it is an option not to categorically accept extra-regional countries in the Arctic governance mechanism. Any candidate member should prove itself to be associated with the club to a very large extent and its contribution should be greater than its share of interests. Moreover, extra-regional participants should not exert overdue influence on the policy decision of the regional club, lest intra-regional countries lose their predominance over regional affairs.

## 2.2 Tactics and Diplomatic Practices of the Arctic Countries

The Arctic countries vary in their considerations over whether they should incorporate extra-regional countries, which countries or

national organizations should be accepted, and in what way to be accepted. Relatively speaking, Russia and Canada, two big powers in the region, attach more importance to sovereignty and demarcation lines in Arctic affairs, while the Nordic countries and the United States are more in favor of international cooperation. The former Secretary of State Hilary Clinton expressed discontent of the exclusive meeting arranged by Canada in Chelsea, Québec in March 2010 by saying that the tasks of the Arctic affairs are so heavy and time is so urgent that the Arctic Council needs broad participation.<sup>6</sup> The following Nuuk meeting and the Kiruna meeting have basically formed the tactics of the Arctic Council on how to cope with its relations with important non-Arctic countries.

First, on the issues of allocating resource interests, which are also to the interests of external actors, the Arctic countries have effectively divided them into two levels, national level and regional level, by treating the environment and climate change issues as issues of international cooperation, while leaving the ownership of resources to the disposal of national governments, thus successfully preventing extra-regional countries from affecting the allocation of the Arctic resources through participating in regional platforms. The Arctic Council thus applies either the form of a formal organization or a form of informal consultation to handle intra-regional relations and interregional relations separately, which can ensure that public goods are provided by extra-regional actors and also restrain extra-regional actors from sharing interests.

Second, the Arctic Council has raised the threshold and separated the rights of intra-regional countries from the rights of extra-regional countries to ensure policy exclusiveness and prevent extra-regional countries from organizing alternative mechanisms should they be denied access to the Arctic Council. An alternative mechanism outside of the Arctic would have confronted the intra-Arctic regional mechanism. 'Except other reasons, the non-Arctic countries will manage to establish alternative forum if the East Asian countries are denied of formal observatory states,' said Alexander Sergunin, a Russian scholar, when talking on Russia's change of position in the last minute agreeing East



Asian countries to become formal observatory states.<sup>7</sup> Thus, the Arctic countries finally decided to handle the issue of extra-regional countries' participation in the Arctic affairs by granting limited access and discriminative rights.

The Ministerial Meeting of the Arctic Council in 2013 passed the Kiruna Declaration which welcomed the extra-regional countries of China, South Korea and others to become formal observer states and emphasized the responsibility of the observer states to contribute through their provision of scientific and expertise knowledge, information and financial support.<sup>8</sup> The Observer Manual released at the time of the meeting made it clear, 'Decisions at all levels in the Arctic Council are the exclusive right and responsibility of the eight Arctic States with the involvement of the Permanent Participants. All decisions are taken by consensus of the Arctic States. The primary role of observers is to observe the work of the Arctic Council. Furthermore, observers are encouraged to continue to make relevant contributions through their engagement primarily at the level of working groups.'<sup>9</sup> This dichotomy is apparently aimed at restricting extra-regional countries' participation in the decision-making process, and at the same time encouraging external contribution to the areas mentioned above.

The Nuuk documents and Observer Manual have clarified the relationship between the Arctic states and extra-regional countries, and specified the standards, methods and paths of introducing external influence.<sup>10</sup> Before becoming observer states, the non-Arctic countries have to recognize the sovereignty and jurisdiction of the Arctic countries, they must not put forward governance proposals that transcend the policy goals of the Arctic countries and permanent participants, they must not challenge the legal framework that are already established and recognized by the Arctic Council and they must respect the culture, interests and values of the Arctic region. Obstacles to the observer states are designated at the operational level as well. Firstly, the participation is indirect, i.e., the bill of observer state must be submitted indirectly through the Arctic countries. Secondly, the influence is ceilinged, i.e., contribution of project funding must not be larger than the Arctic countries'. Thirdly, the identity is passive in that the participation status

is non-permanent or needs to be reappraised continuously, which can be used as weakening the influence of the extra-regional countries in the Arctic and their legitimacy of participating governance.<sup>11</sup> By admitting extra-regional countries' participation in this way, the Arctic Council has reached its dual goals of restriction and exploitation, and effectively enhanced the Arctic importance in the global politics.

### 3. THE SIGNIFICANCE AND RESPONSIBILITY OF NON-ARCTIC COUNTRIES' PARTICIPATION IN THE ARCTIC AFFAIRS

The article shall take China as an example to explore how to improve the Arctic governance mechanism by incorporating non-Arctic factors and how to rationally and legitimately realize the extra-regional countries' interests in the Arctic.

#### 3.1 Extra-regional Participation: Beneficial for Improving the Governance System and Realizing Goals of Governance.

Incorporation of extra-regional countries into the Arctic Council is determined by the Arctic governance needs and the world development trend. In view of the economic theory of social institutions, if the original institution can no longer ensure the efficiency of regional governance and a positive result, it is necessary to replace it with a more efficient one. If a new institutional arrangement can take into account the aggregate costs and benefits, it will increase the general social benefit and economic benefit.<sup>12</sup>

The presence of the extra-regional competitors is beneficial to the improvement of the governance system. Just as Susan Strange has put it, what a global governance system lacks is a competitor or an opponent, which is an instrument which is used to ensure the free countries to assume the responsibility of democracy. If an authority wants to be acceptable, efficient and respectable, a sort of united strength must be available that can check the abuse of power for self-interest, and ensure the use of power at least in part is in favor of public interest.<sup>13</sup> The Arctic countries approach Arctic governance by 'sharing the burden inclusively

while enjoying the interests exclusively'. This will prevent the Arctic governance from effectively incorporating new factors, which will lead to ignoring important issues of governance. Participation of important extra-regional countries can replenish the factors possibly ignored by the Arctic countries for sake of self-interest, and put forward important programs, especially ones that help to address the contradiction between the interests of the Arctic countries and the common interests of the mankind, and to solve the institutional lagging of the Arctic governance mechanisms. Taking China as an example, at the global level, China is a global economic power, a Permanent Member of the UN Security Council, a signatory to the United Nations Convention on the Law of the Sea (UNCLOS), and an important constructor of many international regimes of environmental protection. This status determines that China can play a leading and coordinating role in peace-keeping, rationally handling contradiction between state sovereignty and the common heritage of mankind, balancing between interests of the Arctic countries and those of the non-Arctic countries, and protecting the fragile Arctic environment and common home of mankind.

Moreover, important extra-regional countries can provide public goods, and thereby play a direct role of fulfilling the tasks of Arctic governance. China is highly valued by some Arctic countries for its capitals, market and capabilities in infrastructure construction. The international scientific community regards Chinese polar scientists as an important contingent in addressing polar scientific conundrums. Since Arctic governance needs a system involving land-based, marine, aerial and space technologies to monitor and prevent outbreaks of incidents, China is exactly one of the few countries equipped with those technology system to provide the Arctic R&D and economic activities with the public goods.

### 3.2 How Do Non-Arctic Countries Substantiate Their Self-interest and Bear Their Responsibility?

Although extra-regional countries do not own territories and territorial seas in the Arctic region, they can equally enjoy rights ruled by

international laws. Oran R. Young, the internationally famous theorist of governance, claimed that extra-regional countries are entitled to use a series of marine rights, like navigation rights, rights of fishing in blue-waters, rights of laying submarine cables, and rights of overfly.<sup>14</sup>

Take China as an example. China is a signatory of important international treaties like the Svalbard Treaty, or the Spitsbergen Treaty and the UNCLOS. Like other signatories, China assumes due obligations as well as enjoying rights in many aspects in the Arctic region. According to the Svalbard Treaty, Chinese ships and nationals shall enjoy equal rights to fishing and hunting in the territories specified in the treaty and in their territorial waters. Furthermore China shall have equal liberty of access and entry for any reason or object whatever to the waters, fjords and ports of the territories, and carry on there without impediment of any maritime, industrial, mining and commercial operations on a footing of absolute equality. According to the UNCLOS, Chinese ships and aircraft enjoy the freedom of navigation and overfly across the exclusive economic zones (EEZs) of the Northern circumpolar countries, freedom of navigation in the international seas of the Arctic Ocean, and enjoy the rights of a flag state specified in the treaty.

Important extra-regional countries including China claim their interests in the Arctic mainly comprise environmental interest, navigation interest, resource interest, maritime scientific exploration interest and so on.<sup>15</sup> As an emerging power that accounts for one-sixth or more of the global population, China is home to the energy utilization, product processing and consumption on a world scale. China is also an important market to the Arctic economies. As a big power of trade in the Northern hemisphere, the legal system of maritime navigation bears directly on China's navigation interest. Any change in the nature of the Arctic region will have impacts on the sea waters and the climate of China's periphery. Therefore, the Arctic scientific exploration and research will exert far-reaching impacts on China's social economy and development of science and technology.

Although extra-regional countries enjoy justifiable and legitimate rights in the Arctic, the Arctic countries care very much about any extra-regional countries 'claim of their interests in the Arctic, and in particular,

they are suspicious of the fast economically rising of China. In this circumstance, extra-regional countries should not realize their interests in the Arctic region only by resorting to their own interest and ability, but rather by resorting to the reconciliation between international mechanisms and domestic policies. As for its role in the Arctic affairs, China should conduct adjustment among the three variables: the Arctic countries' expectation and definition of China, the non-Arctic countries' expectation and definition of China, and China's definition of itself, seeking commonality in the contradictions. Seeking common interests, reducing conflicts of interests and creating new shared interests require cautious and correct assessment on the change of the natural environment and the change of politico-economic order in the Arctic region and full exploitation of the existing international mechanisms to acquire and protect legitimate interests.

In participating in the Arctic affairs and realizing its interests in the Arctic, China should observe these three principles of 'following': follow the cardinal principles of the international laws; follow the trends of the economic globalization; and follow the necessity of the bilateral interests between China and relevant countries. While China is enjoying the rights of participating in the Arctic affairs and acquiring relevant rights according to relevant international laws, China should also assume the global responsibility of keeping peace and maintaining environmental-friendly, sustainable development in the Arctic region.

Major extra-regional countries' responsibility in the Arctic should be carried out in multiple levels. First, they should assume big-country responsibilities at the global level, such as the responsibility in global organizations like the United Nations to make their own contribution to the Arctic environmental governance, climate change and ecological protection, insist on the importance of environmental protection and oppose any exploration at the cost of the environment. Second, they should play a positive role in the Arctic regional organizations, strengthen ties and communication with governance organizations such as the Arctic Council, and highlight the necessity of the extra-regional countries' participation. They should also increase the vigor of their participation in domains and functional issues of navigation,

environmental protection, tourism and resource exploration, in order to allow the future mechanisms and arrangements take in to account global interests, extra-regional countries' interests and the interests of the big trader from other part of world. Third, they, as the cooperators in the Arctic, should pay great attention to the social responsibility while conducting economic and scientific and technological cooperation with the Arctic countries. Besides realizing win-win bilateral interests, they should demonstrate humanitarian concerns and environmental concerns in the host countries to its investment and cooperation.

## NOTES

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<sup>1</sup>This chapter is originated from a paper in *Asian Countries and the Arctic Future*, edited by Leiv Lunde, Yang Jian, Iselin Stensdal, World Scientific, 2016.

<sup>2</sup>Y. Fan et al, '*Regional Public Good :Theory and Practice*' Shanghai Renmin Press, 2011, p.16.

<sup>3</sup>O. S. Stokke, 'Examining the Consequences of Arctic Institutions,'in O. S. Stokke and G. Hønneland (eds.), *International Cooperation and Arctic Governance: Regime Effectiveness and Northern Region Building*, London, Routledge, 2007, pp.15-22.

<sup>4</sup>Arctic Council, 'Arctic Economic Forum', <http://www.arctic-council.org/index.php/en/arctic-economic-council>, 28 January, 2014, (accessed 24 July 2014).

<sup>5</sup>Speech by Olav Schram Stokke, 'Arctic Change and International Governance' at SIIS-FNI workshop on Arctic and global governance, Shanghai, 23 November, 2012.

<sup>6</sup>K. Bergh, 'The Arctic Policies of Canada and the United States: Domestic Motives and International Context', (Atockholm, Stockholm International Peace Research Institute), *SIPRI Insights on Peace and Security*, No. 2012/1, July, 2012, p. 11.

<sup>7</sup>A. Sergunin, 'Russia and the East Asian Countries in the Arctic: An Emerging Cooperative Agenda?', Paper presented at the SIPRI/IMEMO International Workshop, Moscow, October 1, 2013.

<sup>8</sup>Arctic Council, 'Kiruna Declaration, On the occasion of the Eighth Ministerial Meeting of the Arctic Council', *MM08-15*, Kiruna, Sweden, 15 May, 2013, <http://www.arctic-council.org/index.php/en/document-archive/category/425-main-documents-from-kiruna-ministerial-meeting>, (accessed 24 July 2014).

<sup>9</sup>Arctic Council, 'Observer Manual For Subsidiary Bodies', <http://www.arctic-council.org/index.php/en/document-archive/category/425-main-documents-from-kiruna-ministerial-meeting>, (accessed 24 July 2014).

<sup>10</sup>The Seventh Ministerial Meeting of the Arctic Council, "Nuuk Declaration. On the occasion of the Seventh Ministerial Meeting of the Arctic Council", Nuuk, Greenland, 12 May, 2011, <http://www.arctic-council.org/index.php/en/document-archive/category/5-declarations>, (accessed 24 July 2014).

<sup>11</sup>Arctic Council, 'Observer Manual For Subsidiary Bodies', <http://www.arctic-council.org/index.php/en/document-archive/category/425-main-documents-from-kiruna-ministerial-meeting>, (accessed 24 July 2014)..

<sup>12</sup>X. Huang, Contemporary *Western New Political Economics*, Shanghai, Shanghai People's Publishing House, 2008, p. 163.

<sup>13</sup>S. Strange, *The Retreat of the State: The Diffusion of Power in the World Economy*, Cambridge: Cambridge University Press, 1996, p23.

<sup>14</sup>O.R. Young, 'Informal Arctic Governance Mechanisms: Listening to the Voices of Non-Arctic Ocean Governance', in O. R. Young , J. D. Kim, and Y. H. Kim (eds.), *The Arctic in World Affairs: A North Pacific Dialogue on Arctic Marine Issues*, Seoul, KMI press, 2012, p. 282.

<sup>15</sup>T. Qu et. al. (eds.), *The Arctic Studies*, Beijing, Maritime Press, 2011, p. 283.

# **Part II**

## **China's Artic Policy and Practice**





## Chapter 3

### An Interpretation on *China's Arctic Policy*<sup>1</sup>

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On January 26, 2018, the Chinese government released the white paper "China's Arctic Policy" (hereinafter referred to as the white paper). By issuing the white paper, the Chinese government shows the world its understanding of Arctic affairs and its position, policy, and responsibility to actively participate in Arctic governance including addressing global challenges. The publication of the policy paper will help enhance mutual understanding between China and the Arctic states and other stakeholders in Arctic affairs, as well as helping the Chinese people and Chinese enterprises to understand the changing conditions that impact the whole earth system. At the same time, as an official document the white paper clarifies the position, goals and principles that the Chinese government will take in engaging Arctic affairs, it can be taken as the guidelines and paths that China will follow when participating in Arctic affairs. It will effectively coordinate and guide the actions of different Chinese governmental departments, different institutions, and different industries in the Arctic. By analyzing the timing of the publication of the white paper and interpreting China's

identity and basic principles for participating in Arctic affairs, this paper reveals the key orientations of the Chinese government's participation in Arctic affairs and contribution to Arctic governance, and at the same time analyzes China's ways of thinking on international cooperation and joint construction of "the polar silk road".

## 1. THE TIMING OF CHINA'S ARCTIC POLICY

### 1.1 Embody the concept of "a community with a shared future for mankind" adopted by China's government.

Participating in global governance to address the grand challenges on a planetary scale is the international obligation of a responsible peace-loving country. On behalf of China, Xi Jinping put forward the conception of global governance with the core value of "a community with a shared future for mankind", which reflects China's adherence to environmental friendliness, international cooperation to address climate change, and protection of the earth system on which mankind depends as our only homeland.<sup>2</sup> The Arctic region is a barometer of global climate change, extreme weather and vulnerable environment, and is a key region for international cooperation to address global climate challenges. The 19th National Congress of the Communist Party of China put forward its conception of ecological civilization in sense of respecting nature, conforming to nature, and protecting nature, as well as the concept of global governance centered on "a community with a shared future for mankind", have been fully reflected and implemented in the white paper "China's Arctic Policy".

The time when the white paper was published coincided with the first anniversary of President Xi Jinping's speech at the UN headquarters in Geneva. In January 2017, President Xi Jinping pointed out in his speech entitled "Building a Community with a Shared Future for Humanity" that the earth is the only homeland on which human beings can depend on to survive, and cherishing and taking care of the earth is the only choice for human beings.<sup>3</sup> He proposed to take the "community with a shared future for mankind" as the guide, to

make the deep sea, polar regions, outer space and cyberspace new areas of cooperation between all parties, and proposed that the keywords --“peace, sovereignty, universal benefit, and co-governance” should be used as the principles to manage these new areas. President Xi Jinping also called on all parties to jointly promote the implementation of the Paris Agreement and not let the achievement of the Paris Agreement go to waste. He promised that China will continue to take actions to address climate change and undertake 100% of its obligations.

## 1.2 China has generally completed its preparation for accumulating its experience and knowledge in the Arctic.

Experience accumulation and knowledge preparation are necessary prerequisites for China's participation in Arctic governance. Although China joined in the Spitsbergen Treaty as early as 1925, it had not been substantially involved in Arctic affairs and scientific expeditions in the Arctic until the 1980s. Arctic temperatures are rising twice as fast as the global average. Changes in the polar regions and oceans pose challenges to the human living environment while the knowledge accumulation and the understanding of the changes in the socioecological systems in the Arctic are still very limited, and the knowledge reserves are not sufficient to support sustainable Arctic governance. By the end of 2017, China had carried out eight scientific expeditions in the Arctic Ocean and conducted research for 14 years with the Yellow River Station research station in Svalbard as the base. Using its research vessel and stations as platforms, China has gradually established a multi-discipline observation system covering the sea, ice and snow, atmosphere, biological and geological system of the Arctic. Chinese scientists have become the main force in global Arctic scientific cooperation to implement the proposition of "from knowledge to action", and have made Chinese contributions to the accumulation of knowledge and system improvement in Arctic governance.

In 2013, China became an accredited observer to the Arctic Council. China has conducted bilateral dialogues on Arctic affairs with Russia, Canada, the United States and the Nordic countries, and

actively participated in important international Arctic forums such as "The Arctic: Territory of Dialogue", "The Arctic Circle", "Arctic Frontiers" and the Arctic Science Ministerial Meeting, in promoting exchanges and cooperation among the stakeholders. As an international Arctic research cooperation platform, the China-Nordic Arctic Research Center (CNARC) has been established to strengthen information communication and policy coordination between China and the Nordic countries. The Chinese delegation maintains good communication with all parties on international platforms such as the International Maritime Organization and the United Nations Framework Convention on Climate Change (UNFCCC) to share information on developments of Arctic issues and the needs of Arctic governance.

Chinese companies have also begun to accumulate experience in economic activities in the Arctic region. In 2013, the "Yongsheng Ship" owned by China COSCO Group crossed the Northeast Passage of the Arctic for the first time. In 2017, all five ships of COSCO Group's special shipping company passed through the Arctic Northeast Passage. Chinese shipping companies have conducted regular operations in the Arctic Northeast Passage. The practice in the *Polar Silk Road* by Chinese shipping companies has expanded the connotation of the "Belt and Road", and has played a very positive role in the formation of the Arctic economic circle and in facilitating Asia-Europe trade.<sup>4</sup> At the end of 2017, the first production line of the Arctic Yamal LNG project, co-invested and constructed by Chinese companies and companies from other countries, has been put into use.<sup>5</sup> Chinese companies train their personnel with the operation skills that are needed for conditions that characterize the Arctic environment.

### 1.3 Arctic countries expect China to make a positive contribution to Arctic governance with its economic and technological capabilities.

As the second-largest economy in the world, China possesses high capabilities in infrastructure construction and engineering technologies. It also plays an important role both in Arctic research and in global governance. Since the beginning of 2017, President Xi Jinping has met

with leaders of Russia, Denmark, Finland, the United States, Norway, and Canada to exchange views on major international issues and bilateral relations in which Arctic cooperation is also an important topic. When meeting with Russian Prime Minister Dmitry Medvedev, Xi Jinping pointed out that the "Belt and Road" construction should be well connected with the Eurasian Economic Union, and that joint efforts should be made to promote the implementation of projects such as the Arctic coastal international transport corridor, jointly carrying out cooperation in the development and utilization of the Arctic waterway, and jointly build the Polar Silk Road.<sup>6</sup> In 2017, President Xi Jinping visited Finland, which at the time held the rotating chairmanship of the Arctic Council. The leaders of both sides agreed to promote the implementation of the UN SDGs 2030 through Arctic cooperation. Norway has actively responded to the "Belt and Road Initiative" proposed by China and joined as a founding member of the Asian Infrastructure Investment Bank. When meeting with the Prime Minister of Norway Erna Solberg in April 2017, Xi Jinping emphasized that the two sides can carry out cooperation within the framework of the "Belt and Road" to jointly promote the interconnection and common development of Eurasia. China and Norway are willing to deepen cooperation in Arctic scientific research, regional environmental protection, and other fields, to maintain and promote the stability and sustainable development of the Arctic region.<sup>7</sup>

#### 1.4 There has been some noise from the Western media regarding China's participation in Arctic affairs.

The process of China's realization of its aspiration regarding the polar regions will be accompanied by increasing international interaction, and the process will be accompanied by external pressure and doubts. In recent years, with the increase of China's activities in the polar regions, some Western media frequently misinterpret China's activities in the polar regions with the viewpoints like "China's threat", "environmental destroyer" and "China's hunger for resources". Some of them are derived from the intentional for geopolitical reasons, and

there are misunderstandings and doubts caused by insufficient mutual communication about the intentions of China's participation in polar affairs. Therefore, it is an urgent task to clarify China's Arctic policy for increasing trust and decreasing doubts and building a harmonious international atmosphere for China's polar activities.

## 2.IDENTIFYING THE PRINCIPLES OF CHINA'S PARTICIPATION IN ARCTIC AFFAIRS

Arctic states and other Arctic stakeholders have both expectations and concerns about China's participation in Arctic affairs. They attach great importance to the identification of China's participation in Arctic affairs, which is related to China's attitude and interests in Arctic affairs. The white paper "China's Arctic Policy" highlights that China is an important stakeholder in Arctic affairs and is a "near-Arctic state" geographically. This identity definition is objective and accurate.

### 2.1 Identifying China as a “Near-Arctic State”.

First of all, regarding the identification of China as a near-Arctic state, it is determined that China belongs to the category of a non-Arctic state, that is, it does not own land or hold sovereignty in the Arctic region except for its legitimate rights and interests in accordance with relevant international law. Second, the near-Arctic state identity expresses China's geographic proximity. China is a large country in the northern hemisphere, and its climate is greatly affected by the Arctic's climate system. The natural conditions of the Arctic area and their changes have a direct impact on China's climate system and ecological environment, and, in turn, on its economic interests in agriculture, forestry, fishery, marine industry and other sectors relating to the stability of China's ecosystem and the safety of agricultural production. In terms of academic research, the identification as a near-Arctic state was first proposed by Professor Lu Junyuan.<sup>8</sup> China is a neighbor to Russia, the largest Arctic nation. The main source of the Ob River, which flows into the Arctic Ocean, is in Xinjiang of China. The coastline

of China is integrally connected with the Arctic coastline, and it is also the migration route of Arctic migratory birds.

According to research by scholars, there are three criteria for near-Arctic states: one is geographic proximity, the other is transportation connection, and the third is mutual impact.<sup>9</sup> According to these criteria, some countries like China, Japan, South Korea, the United Kingdom, the Netherlands, and Germany should belong to the category of being a near-Arctic state. China is not the only state outside the region that identifies itself as a “near-Arctic state.” The government of the UK used the term “the nearest neighbour to the Arctic” in official documents a few years ago to establish its basic identity in Arctic affairs.<sup>10</sup> In its document, the UK government says: “The UK is the nearest neighbour to the Arctic” and it would like to step up the UK’s engagement in Arctic affairs. The document reads, “the UK is the nearest neighbour to the Arctic and has been engaged in Arctic issues for hundreds of years”. “The breadth of the UK’s interests in the Arctic demonstrates its importance to the UK and that the UK must be fully engaged with the region”. The UK is an important part of many international organizations related to the Arctic, and has hosted a series of scientific, academic, legal, financial, business and trade experts to address polar issues.<sup>11</sup>

## 2.2 Identifying China as a “stakeholder in Arctic affairs”.

The Chinese government’s white paper states that “China is an important stakeholder in Arctic affairs”.<sup>12</sup> China’s geographical proximity to the Arctic, as well as the relevance of interests and the contribution of knowledge and technology, determine that China is an important stakeholder. The natural conditions of the Arctic and their changes have a direct impact on China’s climate system and ecological environment, and, in turn, on its economic interests in agriculture, forestry, fishery, marine industry and other sectors. At the same time, China is closely related to cross-regional and global issues in the Arctic, especially issues such as climate change, environment, scientific research, waterway utilization, and resource exploration in the Arctic, which are related to the common interests of countries outside the Arctic,



including China. The climate, environment, economic development and technological progress of the Arctic are closely linked with the rest of the world through natural systems and socio-economic systems. For this reason, the non-Arctic countries and other actors in the Arctic have their own interests and concerns. The EU document has clearly stated that The EU has a strategic interest in playing a key role in the Arctic region.<sup>13</sup> Oceanic island nations such as the Maldives are far from the Arctic, as climate change may lead to the melting of ice caps and the rise in sea levels could wipe out the entire country. As a stakeholder, Maldives has expressed its concerns at international forums on Arctic governance on many occasions.

China is not only a stakeholder in Arctic affairs, but also the rights holder and responsibility holder of Arctic affairs. Politically, China is a permanent member of the UN Security Council and shoulders the important mission of jointly maintaining peace and security in the Arctic. Economically, China is a major trader and energy consumer in the world, and the development and utilization of Arctic sea routes and resources may have a huge impact on China's energy strategy and economic development. In terms of rights and interests by international law, China enjoys the right to carry out corresponding activities stipulated in international treaties such as the United Nations Convention on the Law of the Sea, the Spitsbergen Treaty and other international law. From the perspective of providing public goods for Arctic governance and economic development, Chinese capital, technology, markets, knowledge and experience can play an important role. As an emerging economic power and an important stakeholder, China should cooperate with Arctic countries and other relevant countries to further understand and protect the Arctic, and make efforts to achieve sustainable development in the Arctic.

### 2.3 The principles to guide the activities in the Arctic.

The white paper puts forward the keywords “respect, cooperation, win-win result and sustainability” as the basic principles for China's participation in Arctic affairs. China regards respect as the basis,

cooperation as the effective means, win-win result as the value pursuit, and sustainability as the fundamental goal for China's participation in Arctic affairs. After the identity is determined, the basic principles of participating in Arctic affairs will become clearer. These principles are mainly derived from the basic concepts of China's diplomacy, China's judgment on world development trends, China's awareness of its own identity, and its understanding of the main contradictions in Arctic affairs. China pursues an independent foreign policy of peace and follows the Five Principles of Peaceful Coexistence.<sup>14</sup> Its main judgments on the world order are that the world today is moving towards greater multi-polarity, economic globalization, and cultural diversity, and is becoming increasingly information-oriented. The global governance system and international order are undergoing trend changes. Countries are increasingly interconnected and interdependent. People from different parts of the world are facing common challenges, such as climate change which is becoming increasingly severe. There are several problems in Arctic affairs, such as the problem of lagging governance mechanisms, the problem of Arctic environmental protection, and the problem of the sometimes conflicting relationship between national interests and the common interests of mankind. Solving the above-mentioned problems and achieving effective governance of the Arctic requires the concerted efforts of all countries.

An important function of the white paper is to explain clearly China's major policies and positions regarding its engagement in Arctic affairs. In response to some comments from foreign media that China is not comfortable with the existing order in the Arctic, the white paper made an explicit response. Firstly, it consistently emphasizes that China conducts its Arctic activities in accordance with relevant international law. Secondly, it emphasizes international cooperation and beneficial dialogues with all Arctic countries and other important stakeholders to promote the development of the Arctic and regional stability. Thirdly, it emphasizes respecting the role of major Arctic governance mechanisms such as the Arctic Council. At the press conference introducing the white paper, the spokesperson described China's way of participating in Arctic affairs as "being a part of it, but never overstepping "(不缺位,不越位).<sup>15</sup>

In response to the concerns about the pressure on the environment caused by China's economic activities in the Arctic, the white paper emphasizes that China regards sustainability as the fundamental goal of participating in Arctic affairs and emphasizes that activities in the Arctic follow the United Nations Convention on the Law of the Sea and the relevant rules of the International Maritime Organization, and comply with the national regulations of the Arctic countries on environmental protection in Arctic region. At the same time, the Chinese government also promised to require all Chinese legal persons and citizens participating in Arctic activities to abide by relevant laws and protect the environment through domestic coordination. It requires its enterprises to conduct environmental assessments for resource exploration. In response to the remarks of "China's aggressive hunger for Arctic resources", the white paper expounds that all activities to explore and utilize the Arctic should proceed in a sustainable way on the condition of properly protecting the eco-environment of the Arctic and respecting the interests and concerns of the indigenous peoples in the region. China will work with the Arctic States to strengthen clean energy cooperation, increase exchanges in respect of technology, personnel and experience in this field, explore the supply of clean energy, and pursue low-carbon development.

There are two main ways for China to use Arctic resources. The first way is that China provides its domestic market to the resources and products of relevant Arctic countries by conducting bilateral trade under the framework and rules of world trade mechanism. For example, oil and gas products from Arctic countries such as the United States are imported into China, and Arctic Ocean aquatic products from Iceland, Denmark and Norway enter the Chinese market. The bilateral trade enriches China's market supply while promoting the economic development and employment of residents in the Arctic region. The second way is that China conducts economic activities in the Arctic region of relevant countries as a shareholder and investor. For example, China participated in the Yamal LNG project in Russia as one of the investors, and Chinese companies participated in the investment in the Greenland mining project. These projects have all undergone

environmental assessments by the governments of the host countries, and the markets of many projects include Europe and East Asian countries. China is just one of their destination countries.

As a non-Arctic state geographically close to the Arctic, China respects the international legal framework and major governance systems related to the Arctic, respects the sovereignty, sovereign rights, and jurisdiction enjoyed by the Arctic countries in this region and the concerns of Arctic indigenous people. The white paper also reiterates that the rights and freedom of non-Arctic States to carry out activities in this region in accordance with the law and overall interests of the international community in the Arctic should be respected as well. The Chinese government has confirmed that it will jointly understand, develop and protect the Arctic through international cooperation of equality and mutual benefit, and assume international responsibilities to achieve mutual benefit and win-win results.

### 3. DEALING WITH THE THREE MAJOR CONTRADICTIONS RELATED TO ARCTIC GOVERNANCE

The reason why the Arctic has become one of the major concerns of the world over the past few decades is because of climate change. Glaciers retreating, species extinction and ocean acidification in the context of rapid global climate change have put the world in a period of frequent natural disasters. There are three major contradictions in global governance in the Arctic: the first is the contradiction between the development and utilization of Arctic resources and the protection of the Arctic environment; the second is the contradiction between the increase of human activities in the Arctic and the relatively lagging governance mechanism; the third contradiction is the contradiction between the interests of the Arctic states and the common interests of mankind. It can be seen from the white paper "China's Arctic Policy" that the Chinese government has taken an active role in properly handling these three contradictions. The Chinese government has set its Arctic policy goals as "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.”<sup>16</sup>

### 3.1 The contradiction between the utilization of resources and the protection of the environment and ecology

The Arctic region is rich in oil and gas and other resources, and climate warming has greatly improved the exploitation conditions of these resources. The opening of the Arctic sea routes will promote the overall growth of the economic belt around the Arctic, and will bring many changes to the global trade and shipping patterns. The exploration for and utilization of Arctic resources and sea routes will bring opportunities to the world economy, but with the climate warming and the increase of human activities in the Arctic, the vulnerable ecological environment in the Arctic is also facing huge challenges, such as the retreat of glaciers, the melting of permafrost, and the melting of sea ice etc. The feedback mechanisms triggered by these changes reduce the reflectance of sunlight on the Arctic sea surface, altering the trajectory of Earth's climate system. The accidents from oil-spill and construction waste caused by human activities will cause irreparable damage to the ocean and permafrost environment, and even threaten the survival of Arctic animals.

As a builder and contributor to Arctic governance, the Chinese government has clarified its responsibilities and obligations in the Arctic environment and ecological protection in the white paper. Focusing on the protection of the Arctic, the white paper states that China will actively respond to climate change in the Arctic, protect its unique natural environment and ecological system and promote its own climatic, environmental and ecological resilience.<sup>17</sup> China is willing to cooperate with all parties to promote environmental protection and sustainable development in the Arctic, to achieve the harmonious coexistence of man and nature, and to achieve intergenerational equity between the interests of the current and future generations. The marine environment is a key area for Arctic environmental protection. China supports the Arctic coastal States in their efforts to reduce pollutants in

the Arctic waters from land-based sources and commits itself to raise the environmental responsibility awareness of its citizens and enterprises. In terms of marine protection, China works with other countries to strengthen the prevention and control of various marine environmental pollutants such as ship emissions, ocean dumping, and air pollution abiding by the Polar Code. In terms of biodiversity, the Chinese government promises to carry out scientific assessments of the impact of global change and human activities on the Arctic ecosystem, strengthen the protection of Arctic migratory birds and their habitats, and enhance the adaptability and resilience of the Arctic ecosystem. On the issue of Arctic fisheries, China adheres to the stance of scientific conservation and rational utilization and advocates that all countries have the right to engage in research, development and utilization of fishery resources in the high seas of the Arctic Ocean in accordance with the law. At the same time, China supports the establishment of an institutional arrangement for the high sea fishery in the central Arctic Ocean based on the principles of the United Nations Convention on the Law of the Sea, and undertakes the obligation to conserve fishery resources and protect the ecosystem.

### 3.2 The contradiction between the increase of human activities and the lag of the Arctic governance mechanism

With the accelerated temperature rise and the rapid melting of sea ice in the Arctic, human activities such as commercial shipping, exploitation of oil and gas, mineral extraction, aquatic fishing and tourism have increased rapidly. The actors involved in Arctic activities are becoming more and more diverse. Governments, international organizations, enterprises, scientists, and travellers are all involved in various activities in the Arctic. The current Arctic governance mechanism has failed to keep pace with the new trend of increased human activities, showing serious lag. In the white paper, China advocates the establishment and improvement of the Arctic governance mechanisms, and China upholds the current Arctic governance system with the UN Charter and the UNCLOS as its core. China attaches

great importance to the role of the Arctic Council as the main platform for Arctic affairs. China hopes to play a constructive role in Arctic governance and safeguard the common interests of all countries and the international community.

While the Chinese scientific community makes knowledge contributions to Arctic governance, the Chinese government makes institutional contributions to the improvement of Arctic governance mechanisms at the global, regional, multilateral, and bilateral levels. At the global level, China actively participates in devising the rules in the fields of global governance on the environment, climate change, maritime affairs, and high seas fishery management. China continuously strengthens the cooperation in environmental protection with other countries and international organizations and urges developed countries to fulfill their commitments to provide support for developing countries to realize the goals set by the United Nations Framework Convention on Climate Change, the Kyoto Protocol and the Paris Agreement. China constructively participates in the governance activities of the International Maritime Organization, participates in the process of devising "the International Code for Ships Operating in Polar Waters" (Polar Code), and participates in the revision and improvement of various international institutions on ensuring the safety of maritime navigation and preventing ships from causing pollution to the marine environment. China has actively participated in negotiations on the management of high seas fisheries in the Arctic Ocean and has worked with relevant countries to study and formulate legally binding agreements to manage high seas fishery resources in the central Arctic Ocean. At the regional level, as an observer state, China is willing to fully support the work of the Arctic Council. China supports and actively participates in Arctic Science Ministerial Meeting to coordinate global intellectual capital in Arctic science and technology to jointly address global challenges such as climate change. At the multilateral and bilateral levels, China actively conducts information sharing and policy coordination in the fields of climate change, scientific research, environmental protection, ecological diversity, and resource utilization, and promotes the bilateral implementation of the Arctic governance

mechanism. Chinese scientific research institutions and think tanks conduct a series of academic exchanges with foreign counterparts and provide intellectual support for the improvements of the Arctic governance mechanism. When participating in Arctic governance activities at all levels, the Chinese government has also made it clear in its white paper that it will effectively strengthen the overall coordination of China's foreign policies and affairs related to the Arctic affairs, and regulate and supervise the Arctic activities of Chinese citizens and legal persons through domestic legislation and supervision.

### 3.3 The contradiction between the national interests of the Arctic countries and the common interests of mankind.

Generally speaking, the national interests of the Arctic countries are consistent with the common interests of mankind, but there are also some inconsistencies in between. One category is the contradiction between the attempts of some Arctic states to expand their maritime rights in the Arctic Ocean and the preservation of the common heritage of mankind in the high seas of the Arctic. Another category is the contradiction between responsibility sharing and benefit sharing in Arctic affairs. Some Arctic countries adopt an open and compatible attitude on climate, environment and ecological issues, hoping to obtain more public good supply in environmental protection, while adopting an exclusive policy on the issue of Arctic economic benefit sharing. As Nordic scholars have said, in terms of the number of members of the Arctic Club, when considering the distribution of benefits, the fewer members the better; when considering the cost-sharing of environmental governance, the more members the better.<sup>18</sup>

Such a contradiction is not difficult to reconcile in the context of the grand global challenges that the Arctic is facing. First of all, in the white paper, the Chinese government highly respects the core interests and important concerns of Arctic countries. The white paper recognizes and respects the territorial sovereignty and sovereign rights of the eight Arctic countries in the Arctic, and points out that " Certain areas of the Arctic Ocean form part of the high seas and the Area." It emphasized



that non-Arctic countries should respect the sovereignty, sovereign rights and jurisdiction of Arctic countries, and the freedom of all States on the high seas in accordance with international law and the rights in respect of scientific research, navigation, overflight, fishing, laying of submarine cables and pipelines in the high seas and other relevant sea areas in the Arctic Ocean should be respected and protected. Second, it emphasizes that in accordance with a series of international law related to the Arctic, the interests of countries in the region, the interests of countries outside the region, and the interests of all human beings should be taken into account. In addition, the contracting Parties to the Spitsbergen Treaty enjoy the liberty of access and entry to certain areas of the Arctic, the right under conditions of equality and, in accordance with law, to the exercise and practice of scientific research, production and commercial activities such as hunting, fishing, and mining in these areas. The Chinese government insists on upholding the current Arctic international governance system centered on the UN Charter and the UN Convention on the Law of the Sea, safeguarding the legitimate interests of all countries and the common interests of the international community. Third, it attaches importance to strengthening communication and coordination between Arctic states and non-Arctic states. China advocates the establishment of cooperative partnerships between Arctic countries and non-Arctic countries, and has currently conducted bilateral consultations on Arctic affairs with all Arctic countries. In addition, China also attaches great importance to developing cooperation with other countries outside the Arctic region. In 2016, China, Japan and South Korea launched a trilateral high-level dialogue on Arctic affairs. China also conducts bilateral dialogues with some European countries, namely Germany, the United Kingdom and France, on the law of the sea, Arctic affairs and polar science cooperation.

At the global level, China is one of the largest economies in the world, a permanent member of the United Nations Security Council, a signatory of the United Nations Convention on the Law of the Sea, and an important builder of many international institutions for environmental protection. These identities determine that China can act

as a coordinator in maintaining peace, in handling the contradiction between national sovereignty claims of the Arctic countries and the common heritage of mankind, in balancing the interests of Arctic countries and non-Arctic countries, and in protecting Arctic environment. China has no sovereign interests in Arctic. China is willing to support the efforts of all parties concerned to maintain the security and stability of the Arctic, because peace and stability in the Arctic region is an important guarantee for carrying out various activities that are of benefit to the entire region and the world. Peace in the Arctic did not come easily. During the cold war, the Arctic was the place where the two superpowers, the United States and the Soviet Union, faced off against each other by nuclear deterrence. Although the Cold War has ended, the contradiction between NATO and Russia in the Arctic still exists, and some regional countries still have disputes over the territorial and maritime rights and interests in the Arctic. From the perspective of safeguarding the peace in the world, China advocates eliminating the Cold War mentality and resolving Arctic territorial and maritime disputes through peaceful means.

#### 4. HOW TO UNDERSTAND THE INTERNATIONAL COOPERATION IN THE JOINT CONSTRUCTION OF THE “POLAR SILK ROAD”

China's Arctic policy wrote: “The Silk Road Economic Belt and the 21st-century Maritime Silk Road (Belt and Road Initiative), an important cooperation initiative of China, will bring opportunities for parties concerned to jointly build a “Polar Silk Road”, and facilitate connectivity and sustainable economic and social development of the Arctic.”<sup>19</sup> From one perspective, the "Polar Silk Road" based on the Arctic sea routes is an integral part of China's Arctic policy. From another perspective, environmental protection and socio-economic development in the Arctic region are also an integral part of the Silk Road initiative, which complement each other. As an integral part of the Maritime Silk Road, the "Polar silk road" has the functions of policy coordination, facilities connectivity, unimpeded trade,

financial integration, and people-to-people bond. It also requires the cooperation of all parties to “embark on a path of green development, ocean-based prosperity, maritime security, innovative growth and collaborative governance”.<sup>20</sup> It can be concluded that the "Polar Silk Road" is a regional social-economic construction in which China and relevant Arctic countries accumulate knowledge through international cooperation, jointly develop green technology, promote the balance between ecological protection and economic development along the sea routes, and realize sustainable development in the Arctic.

#### 4.1 Economic prosperity

The Arctic Ocean is not only an integral part of the global ocean, but also the shortest sea route from East Asia to Europe. It is one of the important passages of global trade. “As globalization and regional economic integration progress, oceans have become a foundation and bridge for market and technological cooperation and for information sharing. Developing the blue economy has become an international consensus, ushering in a new era of increased focus and dependence upon maritime cooperation and development.”<sup>21</sup> The Chinese government advocates multilateral cooperation to jointly build the “Polar Silk Road”, and focuses its economic cooperation on forward-looking investments in the Arctic sea routes and energy sectors.

In recent years, the number of ships crossing the Arctic sea routes has increased rapidly. Ships from Germany, Norway, China, South Korea and other countries have successively used the Northern Sea Route for commercial shipping trials, realizing the cargo transportation between Europe and the Asia Pacific region. The exploitation of resources in the Arctic has begun. In December 2017, the first LNG production line in the Yamal peninsula in Russia was put into use, which is an important milestone in the exploitation of Arctic resources. The transportation of equipment, resources and other raw materials has promoted the formation of the Arctic shipping framework. The economic opportunities in the Arctic have increased, but the Arctic infrastructure is far from adequate. This provides an opportunity for

China, the world's second largest economy, to carry on international cooperation in the Arctic. Arctic development requires a lot of well-developed infrastructure. There is a significant demand for the Chinese market, capital and technology.

#### 4.2 Green development

The "Polar Silk Road" attaches importance to promoting the flow of major economic factors between the inland economy and the marine economy through facilitating connectivity, and also attaches importance to the convenience, safety and efficiency of transportation and trade. Compared to other parts of Belt and Roads, the "Polar Silk Road" has its particularity in sense of the vulnerability of the Arctic environment and the harsh on-site working conditions. Although the economic benefits driven by the opening of the Arctic sea routes will increase the speed of economic development in the Arctic, the extreme weather such as low temperature, magnetic storms and icy conditions will bring great challenges to shipping and threaten the safety of ships and crew. In addition, the Arctic environment is more vulnerable than other regions, and the oil spill pollution is more difficult to clean up and degrade, which poses a threat to Arctic animals and plants and the entire ecological environment. Moreover, the increase in emissions caused by economic activities in the Arctic region will also accelerate the melting of Arctic glaciers and tundra. Therefore, the balance between Arctic economic activities and environmental protection is the key to Arctic governance.

The particularity of the Arctic region forces mankind to think about the opportunity to develop a "green economy". Economic activities such as aquaculture, fishery, offshore energy, tourism, and marine biotechnology should strive to realize the transformation into a low-carbon economy. The development of sustainable energy systems is also the focus of the green development path, including offshore wind power, ocean tidal energy, geothermal energy and hydropower. China is committed in the white paper to strengthening clean energy cooperation with Arctic countries, exploring the supply and utilization

of geothermal, wind and other clean energy, and achieving low-carbon development. China is an important source of tourists for Arctic tourism. The Chinese government supports and encourages Chinese travel agencies to cooperate with Arctic countries to develop Arctic tourism resources. In addition, China is committed to improving tourists' awareness of environmental protection and actively advocating low-carbon tourism, ecotourism and responsible tourism in the Arctic.

#### 4.3 Technological innovation

The Chinese government recognizes that technology and equipment are the basic tools for understanding, utilizing and protecting the Arctic. The extremely frigid weather of the Arctic region also makes it an ideal place for applying smart technologies and other innovations. The development of the social-economic system has encountered energy constraints and environmental constraints. The harsh weather conditions and vulnerable environment require special technology and expertise to meet higher environmental standards.

The focus of Arctic technological innovation should be on addressing climate change, resources and environmental problems, so as to better serve Arctic governance and sustainable development. More stringent requirements for environmental protection and ecological protection should be adopted in response to the vulnerability of the Arctic biological system. In response to the global trend to accelerate emission reductions and in order to achieve a balance between development and protection, China has adopted more stringent requirements for designing and manufacturing equipment and has made great efforts to contribute to infrastructure and digital construction in the Arctic region. China is a country with innovative capacities in technology and equipment. The Chinese government encourages the development of polar technology and equipment focusing on environmental protection. In participating in the construction of Arctic infrastructure, for which China has improved the relevant technical standards and environmental protection capacity. By promoting the utilization of green technologies Chinese companies and institutions

have upgraded their scientific and technological expertise in ice exploration, atmospheric observation and marine monitoring, and have promoted the innovation of renewable energy, navigation technology and other engineering technologies suitable for polar environment and icy area.

The digital level of Arctic development also requires technological innovation. The Chinese government and enterprises are committed to promoting digital connectivity in the Arctic and gradually building an international infrastructure network. In addition to international cooperation in land-based digital technology, the satellite application and submarine optical cables are also the focus of China's participation in international cooperation in the technology application in the Arctic. In the Joint Communiqué of the 20th Regular Meeting between Chinese and Russian Prime Ministers in 2015, the two countries agreed that they will further strengthen practical cooperation in satellite positioning and navigation systems including enhancing the compatibility and interoperability between China's Beidou system and the Russian GLONASS system, as well as the functions of the systems and the capabilities to build land-based receiving stations, and promote the implementation of landmark cooperation projects in the fields of monitoring, evaluation and technology application.<sup>22</sup> China's Ministry of industry and information technology and China Telecom are cooperating with Finland on the planned trans-Arctic submarine optical cable project. This Arctic optical cable will pass through the Northeast Passage of the Arctic and will be led by China and Finland. Japan and Norway will also participate in cooperation and receive active support from Russia.<sup>23</sup>

#### 4.4 Social progress

The Arctic is a vast, cold and sparsely populated region. Due to the lack of transportation and communication infrastructure, the living conditions of the residents in the Arctic Circle are far from those of people living in the lower latitudes of the Arctic countries. Developing effective and convenient communication and accelerating

the construction of transportation infrastructure and information technology infrastructure will play an increasingly important role in promoting people's well-being and economic development, and help meet the needs of local social development, education, health, language and culture in the Arctic.

The Chinese government particularly emphasizes the need to respect the traditions and cultures of Arctic residents and indigenous people, protect their unique lifestyles and values, and respect the efforts of Arctic countries to strengthen social development and improve education and medical standards in the Arctic region. The "Polar Silk Road" initiative advocated by China should help to achieve the UN 2030 sustainable development goals and bridge the digital divide in the Arctic region. China's participation in international cooperation in promoting Arctic infrastructure and information technology has made Arctic residents and indigenous people the real beneficiaries.

#### 4.5 Cooperation and Governance

Arctic governance is an important part of global governance, focusing on maintaining the mutual support between the Arctic socioecological system and the global socioecological system, and realizing the stability and sustainability of the Arctic environment. In addition to participating in international cooperation at the regional level such as the Arctic Council, as an important member of the international community, China plays an important role in intergovernmental organizations such as the United Nations and some international organizations in specialized fields. The improvement of the international governance mechanism at the global level provides a good environment for international cooperation in Arctic governance. Although Arctic problems occur in the Arctic, they have global implications. For example, the melting of the Arctic ice cap will cause an overall rise in sea level. In turn, environmental protection and animal and plant conservation elsewhere in the world will help Arctic governance achieve better results. China actively promotes the implementation of the "United Nations Framework Convention

on Climate Change" and the affiliated "Kyoto Protocol" and "Paris Agreement", supporting the comprehensive solutions addressing climate change issues. China constructively participates in the governance process of the International Maritime Organization, jointly promotes the formulation of the "International Code for Ships Operating in Polar Waters (Polar Code)" with relevant parties, actively fulfills its international responsibilities such as ensuring the safety of maritime navigation and preventing ships from causing pollution to the marine environment, and seeks to achieve a global solution for transport-related greenhouse gas reductions.

In order to address global challenges, China has formed its concept of global governance with Chinese characteristics. The core idea of governance is "community with a shared future for mankind". The specific paths and objectives of governance include: (1) Pursue peace and common security on the basis of mutual trust, equality and cooperation. (2) Participate in global economic governance with an opening-up strategy characterized by mutual benefit and win-win results. (3) Jointly maintain the security and stability of the ocean with relevant countries, and jointly maintain the balance between economic development and the ecological environment. (4) Build a global governance ecology in the resource-environment field with the concept of balance, greenness and sustainability. (5) Actively assume the national responsibility for reducing greenhouse gas emissions and promote the realization of the global goal of addressing climate change. China's governance philosophy emphasizes goal-based governance, system optimization, rapid response and collective action.

Whether it is for Arctic governance or the joint construction of the "Polar Silk Road", international cooperation is an effective way. China hopes to establish multi-level, all-round and wide-ranging international cooperative relations in the Arctic. During President Xi Jinping's visit to Finland, the leaders of the two sides established a "new type of future-oriented strategic partnership". The Belt and Road Initiative is not a development goal of a single country. In the process of jointly building the Polar Silk Road, China attaches great importance to the alignment of development strategies with all Arctic countries.



## 5. CONCLUSION

The release of the white paper marks the official shaping of China's Arctic policy. It reflects China's efforts to reflect the core values of "common interests of mankind" and "common concerns of mankind" in participating in the international governance of the Arctic, and hopes that the world order will be adjusted in a more reasonable and fair direction. The white paper adheres to the concept of sustainable development and opposes any development at the cost of environmental damage. The white paper embodies a large country's responsibility for the polar environment, its compliance with overall international law, and its fulfillment of international obligations.

China takes a cautious and gradual approach to engaging in Arctic affairs. Under the guidance of the overall policy, relevant institutions and enterprises will participate in Arctic activities in a gradual and lawful manner, respecting the rules of the Arctic society and the law of harmonious coexistence between man and nature. In the global governance platform, China, as a participant, builder and contributor, is making its own contribution to the environmental governance, ecological protection and response to climate change in the Arctic. China will strengthen cooperation with relevant countries and international organizations and work together for the peace and sustainable development of mankind.

## NOTES

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<sup>1</sup>This chapter is originated from a paper published in *Pacific Journal* (Beijing), Vol. 26, No. 3, 2018, pp. 1-11.

<sup>2</sup>Xi Jinping: "Report at the 19th National Congress of the Communist Party of China", People's Publishing House, October 2017, pp. 57- 59.

<sup>3</sup>Xi Jinping: "Jointly Build a Community of Shared Future for Humanity", *People's Daily*, January 20, 2017, page 2.

<sup>4</sup>International Ship Network: "All 5 ships of COSCO SHIPPING have passed through the Arctic Northeast Passage", [http://www.eworldship.com/html/2017/ShipOwner\\_0922/132131.html](http://www.eworldship.com/html/2017/ShipOwner_0922/132131.html)

<sup>5</sup>People's Daily Online: " Russian President Vladimir Putin: Yamal Natural Gas Project Boosts Sino-Russian Cooperation" <http://world.people.com.cn/n1/2017/1209/c1002-29696294.html>

<sup>6</sup>[http://www.china.com.cn/news/world/2017-11/03/content\\_41840180.htm](http://www.china.com.cn/news/world/2017-11/03/content_41840180.htm)

<sup>7</sup>[http://www.xinhuanet.com/politics/2017-04/10/c\\_1120783405.htm](http://www.xinhuanet.com/politics/2017-04/10/c_1120783405.htm)

<sup>8</sup>Lu Junyuan: "Arctic Geopolitics and China's Response", Current Affairs Press, Beijing, 2001, pp. 338-340.

<sup>9</sup>Lu Junyuan, Zhang Xia: "Research on China's Arctic Rights and Policy", Current Affairs Press, 2016, p. 379.

<sup>10</sup>Secretary of State for Foreign and Commonwealth Affairs, "Government Response to the House of Lords Select Committee Report HL 118 of Session 2014-15: Responding to a changing Arctic", July 2015.

[http://www.parliament.uk/documents/lords-committees/arctic/50434\\_Cm%209093\\_accessible.pdf](http://www.parliament.uk/documents/lords-committees/arctic/50434_Cm%209093_accessible.pdf).

<sup>11</sup><https://publications.parliament.uk/pa/ld201415/ldselect/ldarctic/118/11809.html>.

<sup>12</sup>State Council Information Office: "China's Arctic Policy", People's Publishing House, January 2018.

<sup>13</sup>The Communication from the Commission, "An integrated European Union policy for the Arctic", (JOIN(2016) 21 final), Brussels, 27.4.2016 .

[http://eeas.europa.eu/archives/docs/arctic\\_region/docs/160427\\_joint-communication-an-integrated-european-union-policy-for-the-arctic\\_en.pdf](http://eeas.europa.eu/archives/docs/arctic_region/docs/160427_joint-communication-an-integrated-european-union-policy-for-the-arctic_en.pdf)

<sup>14</sup>The "Five Principles of Peaceful Coexistence" is a diplomatic principle put forward by the Chinese government in 1953, which includes: mutual respect for sovereignty and territorial integrity, mutual non-aggression, non-interference in each other's internal affairs, equality and mutual benefit, and peaceful coexistence.

<sup>15</sup>Chinese Vice Foreign Minister Kong Xuanyou said at a press conference on January 26, 2018 that "never overstep" means that China, as a non-Arctic state, will not intervene in affairs that are entirely among Arctic countries and within the Arctic region. China will participate in Arctic affairs in accordance with general international law; "be part of it" means that China will play an active and constructive role in cross-regional and global issues in the Arctic.

<sup>16</sup>State Council Information Office: "China's Arctic Policy", People's Publishing House, January 2018.

<sup>17</sup>State Council Information Office: "China's Arctic Policy", People's Publishing House, January 2018.

<sup>18</sup>Olav Schram Stokke, Arctic Change and International Governance, SIIS-FNI workshop on Arctic and global governance, Shanghai, 23 Novmeber, 2012.

<sup>19</sup>The State Council of the People's Republic of China: China's Arctic Policy, 2018-01. [https://english.www.gov.cn/archive/white\\_paper/2018/01/26/content\\_281476026660336.htm](https://english.www.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm).

<sup>20</sup>The National Development and Reform Commission, State Bureau of Oceanic Administration: Vision for Maritime Cooperation under the Belt and Road Initiative, 2017-06-20, [http://www.soa.gov.cn/xw/hyyw\\_90/201706/t20170620\\_56591.html](http://www.soa.gov.cn/xw/hyyw_90/201706/t20170620_56591.html).

<sup>21</sup>The National Development and Reform Commission, State Bureau of Oceanic Administration: Vision for Maritime Cooperation under the Belt and Road Initiative, 2017-06-20, [http://www.soa.gov.cn/xw/hyyw\\_90/201706/t20170620\\_56591.html](http://www.soa.gov.cn/xw/hyyw_90/201706/t20170620_56591.html).

<sup>22</sup>Xinhua: Joint Communiqué of the 20th Regular Meeting between Chinese and Russian Prime Ministers, 2015-12-18, [http://www.xinhuanet.com/politics/2015-12/18/c\\_1117499329.htm](http://www.xinhuanet.com/politics/2015-12/18/c_1117499329.htm).

<sup>23</sup>Xinhua Silk Road: Arctic Undersea Fiber Optic Cables Build Data Silk Road, 2018-02-07, <http://silkroad.news.cn/2018/0207/83602.shtml>; See also: Elizabeth Buchanan, "Sea cables in a thawing Arctic". <https://www.lowyinstitute.org/the-interpreter/sea-cables-thawing-arctic>.

## Chapter 4

### China's Performance after Being Accepted as An Observer in the Arctic Council<sup>1</sup>

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China formally submitted its application for observer status in the Arctic Council in December 2006. Since then, China has been actively participating, as an ad-hoc observer, in almost all senior official meetings of the Council. China was accepted to the Arctic Council at the Kiruna ministerial meeting in 2013, together with other Asian applicants and Italy. Because of the huge size of China's economy and its growing influence in other areas, China's role, responsibility and influence in Arctic affairs have attracted the attention of Arctic countries and some stakeholders. In early 2018, the Chinese Government issued a white paper entitled "China's Arctic Policy", which systematically set out China's principles, positions and main concerns in the Arctic. The Chinese government's white paper was designed to play a role in enhancing international trust and reducing misperceptions, but there are also some different interpretations.

This chapter attempts to investigate and sort out the practice of China's participation in Arctic affairs since 2013 in order to analyze the development track of China's Arctic policy.

## 1. "BE PART OF IT, BUT NEVER OVERSTEP": CHINA'S ARCTIC POLICY

By summing up the white paper on China's Arctic Policy and the statements made by Chinese officials on the Arctic Council, Arctic Frontiers, and the Arctic knowledge Tour, we can find out that China's position mainly focuses on its views on Arctic affairs, its understanding and attitude toward the Arctic Council, and its understanding of the relations between Arctic and non-Arctic countries. To clarify the relevance of China to Arctic affairs and China's contribution to Arctic governance, several points can be summarized as follows:

In the light of the accelerated melting of Arctic ice and snow, the need for governance on climate change, environment protection is becoming more pressing. The possibility of Arctic economic development in the near future makes the Arctic affairs intertwined by two strong forces (protection and exploitation). In order to address the need of Arctic governance, Arctic countries and non-Arctic countries who share the common concern about the future of Arctic need to explore the Arctic/non-Arctic interface with regard to issues affecting the future of the Circumpolar North and to develop an efficient cooperative partnership based on mutual respect, trust, interaction and benefits.

The sovereignty, sovereign rights and jurisdiction of Arctic countries in the Arctic region and their substantial interests in the Arctic should be recognized and respected. At the same time, non-Arctic countries also have rights and interests in navigation and scientific research in the Arctic. The purpose of the cooperation between Arctic and non-Arctic countries should be committed to peace, stability and sustainable development in the Arctic.

The Arctic Council is the most important and principal high-level regional intergovernmental forum on Arctic environment and sustainable development. It plays a key role in coordinating Arctic scientific research, promoting Arctic environmental protection, and promoting cooperation in economic and social development in the Arctic region. China hopes that the Arctic states and Arctic Council adopt an open and inclusive attitude toward the cooperation between

Arctic and non-Arctic States to effectively resolve the relevant issues.

In January 2018, the Chinese government released a White Paper titled China's Arctic Policy (PRC State Council, 2018). At the press conference, the vice minister of MFA of China, Mr Kong Xuan used the phrase "Be part of it but never overstep"(不 缺 位 , 不 越 位 ) to describe china's policy and its relations with Arctic affairs. Never overstep means that the secondary will never supersede the primary and that China will not regard itself as an Arctic country and will not assume the responsibilities, claim the rights and interfere with the affairs that belong to and should be handled by Arctic countries. Be part of it means China can play roles and in accordance with the requirements of the observer states of the Arctic Council, as well as the requirements of norms of the United Nations, in accordance with the rights and obligations granted by relevant international law. China's role in Arctic affairs is to *supplement and to cooperate, not to replace*.

Two phrases in China's white paper have drawn attention. One is Polar Silk Road that was explained in my paper submitted to NPAC 2018.<sup>2</sup> Here I would like to quote one paragraph from this paper: *The Polar Silk Road is not only a part of China's BRI initiatives but also a contribution to the joint efforts by Arctic nations, International organizations and other stakeholders for Arctic governance and the coordination of Arctic policies for developing and protecting the Arctic.*

Another phrase is "near-Arctic state". Mr Pompeo showed his discontent during the Ministerial meeting in 2019 with Beijing's claims to be a "near-Arctic State". He said, "There are only Arctic States and non-Arctic States. No third category exists, and claiming otherwise entitles China to exactly nothing." Both in terms of geo-climate and geo-environment, as well as geo-economy, China is an important stakeholder in Arctic affairs. What's more, teleconnection is a feature of the earth system in the Anthropocene. The statements of the near-Arctic state illustrate that China admits itself as a non-Arctic state and emphasizes the fact that China is an important stakeholder in the Arctic. Among the non-Arctic countries, there must be some countries that are more relevant to Arctic affairs. That is the reason why the Arctic Council set certain criteria for selecting some countries as observers of the Arctic

Council, rather than allowing all countries to be observers.

In addition to China, similar expressions have been used by other non-Arctic countries (such as the United Kingdom). The reasons for these countries statements are similar to those of China. In its document, the UK government says “The UK is the nearest neighbour to the Arctic” and it would like to step up the UK's engagement.<sup>3</sup>

## 2. AN OVERVIEW OF THE PERFORMANCE OF CHINA'S PARTICIPATION IN THE ARCTIC COUNCIL

The Chinese Government attaches importance to the development of interaction and cooperation with the Arctic Council and respects the primary leading role of the Arctic Council and the eight Arctic countries in Arctic affairs.

In its white paper, the Chinese government mentioned that China stands by the commitments it made when applying to become an observer to the Council. It fully supports the work of the Council, and dispatches experts to participate in the work of the Council including its Working Groups and Task Forces. According to the manual of AC observers, China continues to contribute to the work of the Arctic Council as an observer. China has attended all the governmental meetings open to observers under the umbrella of the Arctic Council, such as the Ministerial meetings, Senior Arctic Officials (SAO) meetings, International Meeting of States-Members of the Arctic Council, States-Observers to the Arctic Council and Foreign Scientific Community, Arctic Science Ministerial meetings, etc. China appointed Mr Gao Feng as the first Special Representative for Arctic Affairs of the MFA on 2nd November 2016. Mr Gao also acts as the senior Arctic official of China to the Council to further enhance China's contribution to the Council.

China has attended meetings of the Working Groups, Task Forces and Expert Groups of the Council, including the meetings of PAME working group, CAFF working group, AMAP working group, and the Scientific Cooperation Task Force (SCTF). China has recommended more than 30 experts to relevant programs; 8 of them have been invited to engage in specific programs: 2 experts

for the Global Ocean Acidification Observing Network of PAME, 2 experts for recommendation and reviewing of relevant reports of the Arctic Contaminants Action Program (ACAP), 3 experts for the Arctic Contaminants Action Program (ACAP), 3 experts for the Arctic Migratory Birds Initiative (AMBI) of CAFF, 1 expert for the Adaptation Actions for a Changing Arctic (AACCA) of AMAP. Several concrete suggestions and contributions were made to relevant projects from the Chinese experts. China has established a pool of experts ready to participate in the work and projects of the Council once invited, including 13 experts for PAME, 18 experts for AMAP, 3 experts for CAFF, 5 experts for ACAP, 4 experts for SDWG and 2 experts for EPPR.

Although China is a newcomer as an observer of the Arctic Council, it is accumulating experience and familiarity with the situation. Chinese representatives and experts have maintained good working relations with the Arctic Council in all aspects. China is satisfied with its position in the Arctic Council. The role that China has played is complementary. Participation in the work of the working Groups is gradually integrated. Due to the lack of experience and domestic procedure of overseas travel management in China, many Chinese research institutes can not guarantee that the most suitable experts are able to continuously participate in all the activities of the Working Groups. There is an old saying in China that going far needs slow and steady steps. It is believed that China's participation in activities at the working group level of the Arctic Council will be gradually promoted.

### 3. CHINA'S MULTI-CHANNEL APPROACH TO ENGAGEMENT IN ARCTIC AFFAIRS

The Arctic Council is the principal high-level forum dealing specifically with Arctic matters. But the Arctic Council does not constitute the only channel of engagement regarding Arctic issues of interest to non-Arctic states. In its white paper, the Chinese government mentioned that China plays a constructive role in the work of the International Maritime Organization, and China emphasizes cooperation through platforms such as the International Arctic Science



Committee (IASC). Chinese scientists are encouraged to conduct international academic exchanges and deepen involvement with the University of the Arctic. China supports the participation of all Arctic stakeholders in Arctic governance and international cooperation. China welcomes more inclusive, comprehensive and diversified cooperation with all relevant stakeholders regarding Arctic affairs. China supports platforms such as "The Arctic: Territory of Dialogue", "The Arctic Circle", "Arctic Frontiers", and "The China-Nordic Arctic Research Center", in promoting exchanges and cooperation among stakeholders. All these mean that China has adopted a multi-channel approach to engage in Arctic affairs.

The International Arctic Scientific Committee (IASC) is a non-governmental Arctic scientific coordination organization established by the Arctic Rim countries in 1990. Its purpose is to formulate plans for Arctic scientific research and environmental protection and to coordinate, organize and promote scientific research, environmental protection and academic exchanges and cooperation among Arctic countries. It has become an important platform for carrying out scientific diplomacy, making it an important platform for solving a series of Arctic problems. The International Arctic Scientific Committee currently has 23 members, including 8 Arctic countries and 15 non-Arctic countries' national academies or research councils. Yang Huigen, a Chinese scientist, is a vice chairman of IASC. In March 2019, seven members of the IASC Executive Committee met in Shanghai to discuss the direction and agenda of the future work of the International Arctic Scientific Committee.

The Arctic Circle has, since it was established in 2013, become a leading venue for international talks on the Arctic. The Arctic Circle held a Forum on May 10-11 2019 in Shanghai under the title "China and the Arctic". The Forum was organized by the Polar Research Institute of China (PRIC), the Shanghai Institutes for International Studies (SIIS), and the secretariat of the Arctic Circle. Significant discussion was held on ocean and marine science, transport and infrastructure, renewable energy, geopolitics, and Arctic governance.

China sent a high-level delegation to attend the fourth and the fifth

“The Arctic: Territory of Dialogue” conferences held in Russia. Chinese Vice Premier Wang Yang said in this venue that China adheres to the three major policy concepts of respect, cooperation and sustainability to participate in Arctic affairs. Under the new situation, we should strengthen the protection of the Arctic environment, constantly deepen the scientific exploration of the Arctic, rationally develop and utilize Arctic resources in accordance with the law, and improve the Arctic governance system.

A seminar entitled “Green Solutions for a Sustainable Arctic” was held in Shanghai on 18 October 2018. It was organized by Arctic Frontiers in cooperation with the Royal Norwegian Consulate General in Shanghai, Shanghai Institutes for International Studies, and the Polar Research Institute of China, focusing on questions like how may technology and connectivity enhance resilience in arctic communities and promote a green economy.

To facilitate and provide a platform for academic cooperation on the Arctic, the China-Nordic Arctic Research Centre (CNARC) was established in Shanghai in December 2013 by four Chinese and six Nordic institutions dedicated to Arctic research. The establishment of CNARC, with the purpose of “building the bridge” and “filling in gaps of knowledge” so that the both China and Nordic have an enhanced understanding of each other, helps China to understand major issues with regards to Arctic governance, to figure out main concerns of the Arctic states, to make up for lack in knowledge, and to attempt to construct an innovative cooperative model between Arctic and non-Arctic states.

Enhancing bilateral and multilateral dialogue and cooperation with the Arctic States and non-Arctic States is another approach of China. China has set up an annual dialogue mechanism for bilateral dialogues with Russia and the United States.

Cooperation with Nordic countries is very impressive. At the invitation of Finnish President Sauli Niinistö, President Xi Jinping paid a state visit to Finland from April, 2017. The leaders confirmed the establishment of a future-oriented new-type cooperative partnership between the two countries. The Joint Declaration mentioned that

given the vulnerability of the Arctic environment, the two sides shared the view that economic activities in the Arctic area should take into full consideration the protection and sustainable use of its natural resources. The two countries will intensify economic and technological cooperation in the fields of Arctic marine industry, Arctic geology, marine and polar research (including polar weather and sea ice monitoring and forecasting), environmental protection technology, shipping and maritime safety, including vessel monitoring and reporting, ICT and tourism. During President Niinistö's visit to Beijing in January 2019, the two sides adopted a five-year plan for bilateral cooperation. China's second icebreaker Xuelong 2 (雪龙 2), that was constructed in partnership with the Finnish shipbuilding firm Aker Arctic started her service as an advanced polar research vessel in May 2019.<sup>4</sup>

Chinese President Xi Jinping met with Norwegian Prime Minister Erna Solberg in Beijing on April 10, 2017. Xi expects Norway to play a more positive role in promoting cooperation between China and the Nordic region, saying China will deepen cooperation with Norway in arctic research, resource exploration, and environmental protection. Prime Minister Erna Solberg said the Norwegian side supports the Belt and Road Initiative and is ready to expand cooperation producing mutual benefit in areas including Arctic issues and cementing communication and coordination on global issues.

China also values cooperation with other non-Arctic States. It has conducted bilateral dialogues on the law of the sea and polar issues with the United Kingdom and France. In 2016, China, Japan and the Republic of Korea launched high-level trilateral dialogues on Arctic issues to promote exchanges on policies, practices, and experiences regarding Arctic international cooperation, scientific research, and commercial cooperation.

The Third Trilateral High-Level Dialogue on the Arctic was held on June 8, 2018 in Shanghai. Special Representative for Arctic Affairs of the Ministry of Foreign Affairs of the People's Republic of China Gao Feng, Ambassador for Arctic Affairs of the Ministry of Foreign Affairs of the Republic of Korea (ROK) Kang Jeong-sik, and Ambassador in charge of Arctic Affairs of the Ministry of Foreign Affairs of Japan Eiji Yamamoto

attended the dialogue. The three countries recognized the global challenges and international impacts brought about by the changes in the Arctic and expressed the willingness to continue to contribute to the peaceful, stable and sustainable development of the Arctic. The three countries welcomed the white paper on China's Arctic Policy officially publicized that January by the Chinese government, agreed to make scientific research in the Arctic a priority for cooperation, and expressed that they will continue to support the work of the Arctic Council. The three countries issued a joint statement after the meeting.

#### 4. HOW TO PERCEIVE US SECRETARY OF STATE POMPEO'S SPEECH AGAINST CHINA?

Secretary of State Mike Pompeo criticized China during the Arctic Council's Ministerial meeting in May 2019. He said that China could use its civilian research presence in the Arctic to strengthen its military presence. My personal perspectives on Pompeo's remarks are as follows.

(1) The restrictions imposed by the United States on China in Arctic affairs are not original, but projective. In other words, the United States defines China as a strategic opponent, and the Trump Administration does not welcome China to play a greater role in international affairs. This basic policy is bound to be reflected in Arctic affairs. Therefore, Pompeo's criticism of China on the Arctic issue is only part of the US administration's comprehensive containment policy.

(2) It is illogical for the United States to accuse China of trying to provoke geographical tensions and competition in the Arctic because China cannot benefit from security tensions in the Arctic. China was, is, and will be the beneficiary of peace and stability in the Arctic. Given that China stands to benefit from Arctic shipping, oil and gas, and scientific research, maintaining peace and reducing geopolitical and security disputes in the Arctic is beneficial to China.

(3) It shows that the pivot of the current US administration in Arctic affairs has shifted from an emphasis on the climate issue in the Obama administration to today's geopolitical based Arctic diplomacy, which deserves the attention of China and other countries. The Obama

administration made climate change and environmental governance an important issue, and the Arctic is a key region of climate change. Be honest, the Obama administration succeeded in persuading China to participate in the Paris climate agreement and to take the initiative to assume responsibility.

(4) China is a big economy. Understandably, it will receive more attention than other non-Arctic countries in Arctic affairs. The size of China's economy and its involvement in the Arctic are likely to cause widespread concern. This requires continuous communication and coordination between China and other stakeholders.

## NOTES

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<sup>1</sup>This chapter is originated from a paper prepared for the 2019 North Pacific Arctic Conference.

<sup>2</sup>Yang Jian, Henry Tillman, "Perspective from China's international cooperation in the framework of the Polar Silk Road", *The Arctic in World Affairs: a north pacific dialogue on Arctic 2030 and beyond---pathways to the future*, KMI and East-West Center 2018, pp 275-292.

<sup>3</sup>source: Secretary of State for Foreign and Commonwealth Affairs, "*Government Response to the House of Lords Select Committee Report HL 118 of Session 2014-15: Responding to a changing Arctic*", July 2015.

[http://www.parliament.uk/documents/lords-committees/arctic/50434\\_Cm%209093\\_accessible.pdf](http://www.parliament.uk/documents/lords-committees/arctic/50434_Cm%209093_accessible.pdf)

<sup>4</sup>In 2012, Aker Arctic was contracted by the PRIC to provide the concept and basic design for a polar research vessel. The construction commenced in the Jiangnan Shipyard ( 江南造船公司 ) in Shanghai and completion of the 122m-long Polar Class 3 icebreaker is scheduled for 2019. Aker Arctic advertises the icebreaker it designed as "the world's most advanced polar research vessel".

## Chapter 5

### Reforming China's Polar Science and Technology System<sup>1</sup>

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Along with its modernization process, China has played more and more important roles in the field of polar sciences. We present an in-depth analysis and assessment of the current situation of China's polar research from the following perspectives: mechanism of policy making on polar affairs, science diplomacy and polar governance, management of on-spot research investigation, allocation of scientific funds, organization of polar scientific teams, especially on the management system of Chinese National Arctic and Antarctic Research Expedition (CHINARE). From an integrated perspective of social and natural sciences, we put forward a vision for the future reform and development of polar affairs of China: to establish a macro and long term policy for the international cooperation in polar regions, to promote and establish a government-led and diversified polar science management system, to establish a reasonable and rule based evaluation system, to train, stabilize and strengthen polar scientific research teams, and to attract and encourage talents for polar science communication.

## 1.INTRODUCTION

The State Oceanic Administration (SOA) of China was established in 1964. The National Antarctic Investigation Commission (NAIC), established in 1981 by the State Council, was the first official agency for China's polar affairs. After that, China joined the Antarctic Treaty System (ATS) in 1983, organized and carried out its first Antarctic expedition, and gradually started its polar endeavour. The Polar Research Institute of China (PRIC) was founded in 1989 and is affiliated to SOA, with the main responsibilities of polar scientific research, maintenance of scientific survey vessels and stations, and day-to-day maintenance of domestic bases. In 1994, NAIC was renamed as the Chinese Arctic and Antarctic Administration (CAA) and became a special agency in charge of the coordination and management of polar affairs. In 2011, China established the Coordination Group for Arctic Affairs under the State Council to ensure cross-sectoral collaborations among various ministries and commissions, so as to strengthen the synergy between policy and action. The organizational structure of China's administration for polar affairs is shown in Figure 1.

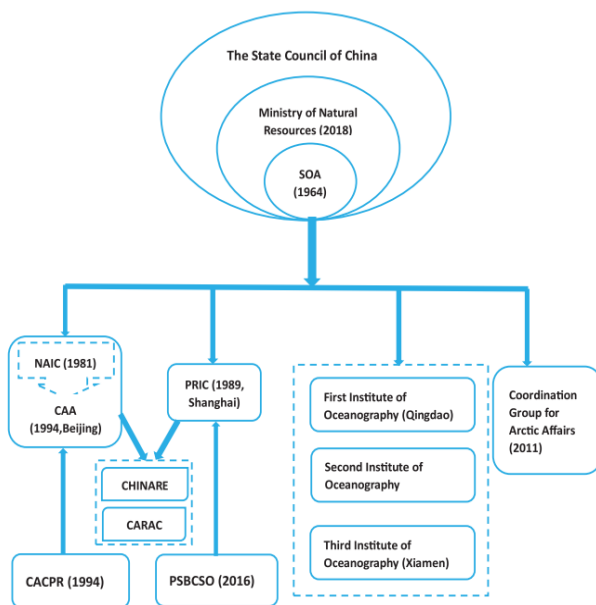


Figure 1

As one of the pioneers in Antarctic research (Sun, Xie, and Zhao 2000; Sun B et al. 2009), China started its Antarctic scientific expedition earlier than that in the Arctic (SOA 2017). Since 1984, China has successfully organized 35 Antarctic expeditions, 8 Arctic expeditions, and 14 annual expeditions of Arctic Yellow River Station with a total of 7,409 person-hours (6,104 in the Antarctic and 1,305 in the Arctic or Yellow River Station by the end of March 2019).

Over the last decade, China has significantly increased its diplomatic presence in the Arctic and Antarctic, and has played growing roles in the governance of the polar regions (Li 2017; Wang 2017a; Yang 2018). In the following parts, we discuss China's polar science and technology (S&T) system from five different aspects of its mechanism.

## 2.POLICY MAKING ON POLAR AFFAIRS

China's recent focus on becoming a major player in the polar regions signals its policy and strategy reorientation: a new way of influencing the world (Xue 2017; Yang 2017). From May 22 to June 1, 2017, the 40th Antarctic Treaty Consultative Meeting (ATCM) and the 20th Committee of Environmental Protection (CEP) meeting were held in Beijing. The main topics of the conference include the operation of the ATS, the Antarctic inspections, the Antarctic Tourism, climate change impacts, and Antarctic special protected areas and management areas (Xue 2017; Yang 2017).

Unlike the countries like the United States and Australia, China has not yet issued any policy document like 'National Antarctic Strategy and long-term Action Plan'(Ding 2014; Yang 2017). We can only get some knowledge of China's polar policy from China's Antarctic Activities – A white paper released by SOA during the 40 ATCM in Beijing (Shen 2017), China's Arctic Policy (PRC 2018), the outline of the 13th Five-Year development plan for national polar expeditions, and the speeches by Chinese leaders and the delegations to the ATCM and Commission for the Conservation of Antarctic Marine Living Resources (Yang 2018; Heininen and Yang 2019).

Former Chinese leader Deng Xiaoping pointed out in 1984 that



China's participation in the Antarctic activities is to make Chinese contribution to the peaceful use of the Antarctic for mankind. On November 18, 2014, Chinese President Xi Jinping met with the Antarctic science researchers from both countries during his visit to Australia (Division 2014). Xi Jinping pointed out that the Antarctic scientific expedition is of great significance and is a noble cause that benefits mankind. China is willing to continue to work with Australia and the international community to better understand, protect and utilize Antarctica. China's Antarctic expeditions have contributed to the peaceful utilization of the Antarctic for human beings (Sun 2017; Yang 2017). On May 23, 2017, China's then-Vice Premier, Zhang Gaoli, remarked that exploration in the Antarctic is related to the future development of mankind. A peaceful, stable and sustainable Antarctica is in the interests of all nations in the world. (Yang 2017; Zhang 2017).

In the polar regions, China focuses on climate change, environment issues, S&T achievements, legal use of the resources, and governance mechanisms. China has no sovereign interests in Antarctica and the Arctic (Yang 2017). According to the international law and mechanisms such as the Antarctic Treaty, the rights that China can enjoy include scientific expedition, engagement in Antarctic governance, inspection, and legal use of resources. China is willing to safeguard the basic principles of peace and demilitarization established by the ATS and supports the basic principles of freezing sovereignty, freedom of scientific investigation and environmental protection (Sun 2017).

China's recent white paper on the Antarctic issues explicated a number of key principles. Antarctica bears significant implications for global climate change and human's future. Antarctica represents a natural laboratory to explore the evolution of the earth, global climate change, and mysteries of the universe. As a new space of global environment and resources, Antarctic governance represents some new ways to think about global governance (Yang 2014). China will persistently support the purposes and gist of the Antarctic Treaty, adhere to the fundamental concepts of peace and scientific research, commit to the stability of the ATS and persevering in peaceful use of Antarctica and protection of the Antarctic environment and ecosystem,

and provide more public goods and services for the international governance of Antarctica (Yang 2017). China's Antarctic policy stresses peaceful, rational and sustainable use of Antarctic resources. China will participate in scientific studies and assessment of krill resources and ecosystem, explore and utilize such resources on a sustainable basis, and support peaceful use of Antarctica as a natural laboratory (Sun 2016).

Mainly reflected through the national five-year plan for polar activities, China's polar policies are designed by high-level policy makers, based upon strategic thinking, and aimed at turning China into a major marine player in the future (SOA 2017). For every five years, the Chinese government formulates National Five-Year Plan for Polar Expedition of Development to further develop its polar affairs. Compared with the 12th Five-Year Plan, which attached importance to the work of polar scientific investigation, the 13th Five-Year Plan for Polar Work expanded the main objectives and tasks to some new fields including the construction of a legal system to regulate polar activities and strengthen the capabilities to participate in the Antarctic governance. These five-years plans do have some limitations: they do not provide a long term vision, but only identify the tasks that can be accomplished, verifiable and quantifiable (basic requirements by National Development and Reform Commission), and they are developed mainly by SOA (or MNR) with limited input from general scientific community.

On March 29, 2017, China's then-Vice Premier, Wang Yang proposed the initiatives regarding China's participation in Arctic affairs and environmental governance to promote environmental cooperation and improve the Arctic governance system and mechanism (Li 2017; Wang 2017a; Xue 2017). In January 2018, the Chinese government published its first white paper on the country's role in the Arctic. The white paper, titled China's Arctic Policy, declared that China's intent to actively participate in Arctic governance and willingness to shoulder responsibility in addressing global challenges (Yang 2018). The release of the white paper can enhance the understanding between China and other stakeholders in the region, raise the awareness of Chinese people the preservation of the earth, and help coordinate various government

departments and organizations in China (Yang 2014, 2015). According to China's Arctic Policy, the country will participate in Arctic affairs in accordance with the basic principles of respect, cooperation, mutually beneficial results and sustainability, advocate the sustainable development of the region based on a stable international environment, and expand cooperation on the basis of mutual trust (Heininen and Yang 2019). China respects the international laws related to this region and its primary mechanism of governance, as well as the sovereign rights of Arctic nations. These countries should also in turn respect the rights of non-Arctic states according to the principles of international law. Through equal and mutually beneficial international cooperation, China is aiming to understand, protect, develop and participate in the governance of the Arctic, so as to safeguard the common interests of all countries.

In China's Arctic Policy, the government has coordinated the country's national policy with international expectations. Through joint efforts of combating international challenges such as climate change, the Chinese government is showing its readiness to work with the international community to seek a convergence of interests and to build a shared future. In accordance with the principles of peaceful coexistence and a community with a shared future, China will make full use of its economic, technological and market advantages and play a positive role in maintaining security in the Arctic, utilizing the region's resources in a sustainable manner, and balancing the interests of countries in and outside the Arctic (Yang 2015).

The Chinese government aims to gain domestic support for its polar initiatives, educate the public on Arctic and Antarctic affairs, and inspire Chinese young people's aspiration and confidence to make greater contribution to the world. The polar affairs of China are entering an important and strategically new period (Xue 2017; Wang 2017a). The Chinese government is calling on all the scientists and managers in polar fields to carry forward the spirit of 'patriotism, truthfulness, innovation and tenacity', to work with pioneering spirit and courage, to speed up the polar research and exploration, and to make more contribution to realizing China's dream to become a maritime power (SOA 2017; Xue

2017; Yang 2017).

The Chinese government has given great attention and encouragement towards China's polar affairs (SOA 2005-2015), formed various polar research and management organizations, and supported a number of relevant activities (Liu 2017). The annual China Symposium on Polar Science is the largest event of China's polar scientific research, and one main theme of this symposium is polar policy and development strategy. Discussions, comments and suggestions from this theme play an important role in formulating and improving China's polar policy and strategy. In 1994, the Chinese Advisory Committee for Polar Research (CACPR) was founded. The CACPR integrates more than 20 units, including National Development and Reform Commission, Ministry of Education, Ministry of Finance and MNR, and it convenes annual or biennial plenary meeting to make macro decisions on China's polar strategy and policy. This committee's director is the official deputy director of SOA, and its secretariat is located in CAA to take charge of CACPR's daily affairs (Wu 2016). In 2016, the Polar Science Branch of Chinese Society for Oceanography (PSBCSO) was founded, and its secretariat is located in PRIC, which integrates more than 60 polar research institutions. The CACPR manages the coordination and cooperation among various ministries, and the PSBCSO focuses on the coordination among institutions. They play a positive role in making decisions on China's polar policy and polar scientific research plan.

### 3.SCIENCE DIPLOMACY AND POLAR GOVERNANCE

In April 2012, Chinese Premier Wen Jiabao paid an official visit to Iceland, and he was the first Chinese premier to visit Iceland since the establishment of the diplomatic relations. During his visit, China and Iceland signed framework agreements to support enhanced cooperation in geothermal energy, along with marine and polar science (Iceland 2012; Yang 2014). Wen's visit to Iceland was followed by a port visit by China's icebreaker Xuelong in Reykjavik in July 2012 (the Fifth Arctic Scientific Research). In 2013, the two countries signed a free trade agreement, and since then a series of bilateral initiatives have been

launched, including a Joint China-Iceland Aurora Observatory (Hu 2018).

In the white paper of China's Arctic Policy, the Chinese government explains its policy on the relation between science and diplomacy (PRC 2018). The white paper makes it clear that when participating in Arctic affairs, China prioritizes scientific research. The Arctic holds great value for scientific research. China actively promotes scientific expeditions and research in the Arctic. China respects the Arctic States' jurisdiction over research activities within their national jurisdiction, advocates that scientific research in areas within the jurisdiction of Arctic States should be carried out through cooperation in accordance with the law, and stresses that all States have the freedom of scientific research on the high seas of the Arctic Ocean (AO). China will actively participate in monitoring and assessing the regional climatic and environmental changes, and carry out multi-level and multi-domain continuous observation of atmosphere, ocean, sea ice, glaciers, soil, bio-ecological and environmental quality through the establishment of multi-element Arctic observation system; and China will also participate in the construction of cooperative observation stations and development of the Arctic observation network. The white paper actively promotes international cooperation in Arctic research, promotes the establishment of an inclusive international monitoring network of the Arctic environment, supports pragmatic cooperation through platforms such as the International Arctic Science Committee, encourages Chinese scientists to conduct international academic exchanges and cooperation on the Arctic, and encourages Chinese high education and research institutions to join the network of the University of the Arctic (Yang 2018).

The scientific diplomacy of China's participation in Arctic affairs is determined by the characteristics of Arctic affairs. Polar scientific research plays an important and fundamental role. Climate change, environmental change and ecological change have brought many unknown results to the living environment and quality of life. The change of the Arctic environment is a barometer of the climate and ecological change of the Earth. The evidence of data and scientific

laws such as the Arctic climate change, sea ice melting, frozen layer change, ocean acidification, and animal and plant ecological change are the basis of international governance of the Arctic and for dealing with the global climate and ecological environment crisis. Therefore, polar scientific observation and research has become one of the most important research topics in the world (Yang 2014). The development and deepening of polar S&T can help human beings better understand the polar regions. In this regard, polar scientific research plays an indispensable role in the accumulation of knowledge, the upgrading of means, and the improvement of the system of Arctic governance (Cai et al. 2010). Environmental science and the pursuit of peace have become the core elements of Arctic governance, determining the most fundamental significance of scientific and technological activities in Arctic affairs. The exploration of Arctic resources in the future cannot be separated from scientific and technological progress. The adoption of new technology is an effective means to solve the contradiction between resource utilization and environmental protection. Due to the harsh environment, freezing weather and inaccessibility, the available scientific observations and knowledge for the Arctic are still quite limited. That is why the 2012 International Polar Year Conference called for 'from knowledge to action'. As a global power, China's contribution to S&T can promote China's importance in polar affairs (Yang 2017).

Scientists are the first echelon of China's participation in international governance of the Arctic. China is an important member of the International Arctic Scientific Committee and an observer of the Arctic Council (AC). Scientists who are working in the AC's working groups, such as those on Sustainable Development, Monitoring and Assessment plans, Marine Environmental Protection, Animal and Plant Protection, Pollutant Action plans, are direct participants in the development of Arctic governance. With the help of international governance mechanisms such as the AC, polar scientists have played a very active role in coordinating multiple disciplines and fields and promoting the construction of the Arctic governance system, the scientific research cooperation among polar countries, and the polar information communication and exchange. These provide important

guidance for the solution of polar issues. With the growth of China's national strength and the improvement of S&T level, Chinese scientists have played an increasingly important role in these governance organizations, and even held some leadership positions in the relevant scientific committees. In the negotiations of important polar governance agenda, Chinese scientists are important parts of the Chinese government delegation. The long-term existence of the scientific research team, the spatial layout of the scientific research station, and the good operation of the scientific research equipment all help China to exert a greater influence on and make greater contribution to polar governance. In addition, China is a party to the United Nations Convention on the Law of the Sea and a signatory to the Treaty Concerning the Archipelago of Spitsbergen. China's scientific and technological activities also reflect China's rights under the relevant international laws.

On the whole, the favorable factors for Chinese scientists to participate in the activities of international governance are increasing. The first factor is the increase of China's national strength and influence. China's comprehensive influence has entered a new era, and China's capability in addressing global challenges is increasingly enhanced. Many international organizations expect China to send its representatives to participate in international governance activities. The second factor is the development of China's scientific and technological capabilities. The scientific research capability and achievements of Chinese scientists have made them indispensable to the international polar scientific community. (Sun, Xie, and Zhao 2000; Sun B et al. 2009; Cai et al. 2010). The third factor is that the number of Chinese overseas students returning to China to engage in scientific work has increased year by year, and the talent pool for polar research is expanding. Most of them have a broad vision, close international professional contacts and good skills in cross-cultural communication. The efforts should be made to build key research institutions with first-class scientists, keeping close ties with foreign polar institutes. With the expansion of China's influence on polar science, the Chinese government has begun to carry out the transformation and upgrading of domestic bases for polar scientific expeditions by strengthening the functions of

experimental analysis, data processing, multidisciplinary comprehensive research, data sharing and international polar information exchange. Through the above-mentioned plans, China's polar scientific research capacity-building will be further enhanced. China will actively carry out academic exchanges with international scientific organizations, foreign scientific research institutions and scientists' groups, further integrate into the international polar research arena, guide international cooperation in the field of scientific research, and provide more public goods for polar research and exploration.

Any governance of the polar regions should be focused on the balance between the protection of ecological system and sustainable development; however, to do so requires adequate knowledge and advanced technology. In fact, scientific investigations in the polar regions are restricted by technological and natural conditions due to the harsh environment, poor facilities and remoteness. Human knowledge and understanding about the changes of the polar natural systems are insufficient to achieve sustainable governance of the Arctic and Antarctic (Heininen and Yang 2019). China has so far conducted 8 scientific expeditions to the Arctic and carried out various research on ice and snow, hydrology, meteorology, sea ice, biology, ecology, and geophysics related to climate change and environmental protection. Chinese scientists have become a major force in global scientific cooperation and made significant contributions to the accumulation of knowledge and improvement of governance mechanisms (Yang 2018). It is because of such contributions that China was officially approved as a formal observer of the Arctic Council in 2013.

#### 4. CHINARE: ON-SPOT RESEARCH EXPEDITION MANAGEMENT

China has made significant progress in polar research fields such as ecological environment, snow ice and glaciers, marine geology, astrophysics and space, and marine physical chemistry (Sun 2016; Liu 2017; Sun 2017). In addition, it has formed a supporting system of 'One Ship and Five Stations' (Xuelong icebreaker, Yellow River Station in Arctic, Great Wall Station, Zhongshan Station, Kunlun Station and



Taishan Station in Antarctic). However, China's research on polar science is among the third rank worldwide (the United States is in the first, followed by Russia, Britain, Germany, Australia, South Korea and Japan in the second, etc.).

The government-led polar research management system provides financial, diplomatic and technological resources to support polar exploration and scientific researches (Sun 2017). Chinese National Arctic and Antarctic Research Expedition (CHINARE) team is currently managed and organized by CAA and PRIC. CHINARE consults with CACPR for its decision-making and PSBCSO for its academic planning (Wu 2016). Members of CHINARE mainly come from universities and research institutes. This management mechanism helps various government departments to work together to enhance China's level in polar research.

However, excessive centralization also has substantial negative impacts on the long-term development of China's polar affairs. The current management mechanism is inefficient in encouraging creative thinking and promoting international collaboration. Comparing with the achievements of the advanced countries, China lags behind quite significantly in the fields of logistic capability building and scientific research (Hua and Zhang 2012). China needs to further improve the Chinese Polar Environment Comprehensive Investigation and Assessment Program (CPECIAP is a program aiming to serve the country's strategic needs and long-term development) and in particular to pay more attention to the role of soft science in polar strategic policy making and dissemination of polar science (Xue 2017).

A better management system should be government-led, while significantly more diversified. This management system should take the opportunity of the National Five-Year Plan for Polar Expedition of Development and Reform to facilitate further reform in polar administration, and make a long-term plan of polar research development for the coming decades. It should also give more autonomy to research teams in choosing their research directions and implementing their own scientific plans. The Chinese Antarctic and Arctic Bureau may be established in the future, affiliated to SOA or MNR, responsible

for leading and planning China's polar affairs, in particular to perform the function of strategic planning and external communication and exchange (Sun 2017; Zhang and Zang 2017). The CAA and PRIC should pay more attention to polar exploration management and logistic support to improve operational efficiency. The CACPR and PSBCSO may be integrated into a new committee independent of the existing government institutions, named as China Polar Science and Technology Development Steering Committee, and serving as the main think-tank for China's polar strategy and policy research. The polar affairs should be incorporated into the overall national economic and social development plan, with special national funding. Also, the remuneration and social status of polar science researchers should be improved further.

## 5. ALLOCATION OF SCIENTIFIC FUNDS

The budgets for science research and supporting infrastructure come from multiple Chinese ministries and departments, such as SOA, MNR, Ministry of Science and Technology, Ministry of Finance, Ministry of Education, Chinese Academy of Sciences and National Natural Science Foundation of China. It is difficult to find the exact figures of the budget for polar science research and infrastructure; but from the CAA related reports, we could obtain several important statistics (Table1).

**Table 1.** The national annual statistics on China polar programmes during 12<sup>th</sup> Five-Year Plan.

Year	Person-time		Logistic support personnel	Fuel consumption (ton)		Excellent polar research papers	
	Antarctic	Arctic+ Yellow river station	Great wall, Zhongshan and Kunlun stations	Great wall station	Zhongshan station	Natural science (SCI)	Social science (SSCI, CSSCI, CSCD)
2011	226	0+ 83	108	121	185	62	8
2012	220	119+ 42	110	172	202	86	4
2013	239	0+ 47	113	148	192	155	7
2014	257	128+ 52	136	155	195	228	7
2015	281	0+ 53	125	138	185	210	12

Data source: <http://chinare.mnr.gov.cn/caa/>.

Chinese Antarctic research funding increased from the original ¥20 million yuan (US\$10 million) in 1984 to ¥330 million yuan (US \$55 million) in 2013 (CAA 2013). In 2013, the CAA office's special fund

for polar exploration is about ¥60 million yuan (US\$10 million) (Ding 2014). In the period of 1983–2003, China spent ¥900 million yuan (US\$110 million) on Antarctic research. In 2005–2008, China spent ¥500 million to upgrade its existing Antarctic bases (SOA 2017). In 2015, China's overall expenditure on the Antarctic and Arctic activities was more than ¥300 million. This expenditure includes the cost of annual expeditions, refurbishment of two old research bases, building of the icebreaker, the new wharf and storage facilities in Shanghai, a new research base, and the scientific research budget.

Although China's polar research funding has increased more than 15 times during the past three decades, it remains insufficient, compared to the budgets devoted to polar research in advanced polar research countries. China's Antarctic research budget ranks the fifth after the United States, Australia, UK and Russia (Zhang and Zang 2017). The United States has the largest budget around \$500–600 million for the Antarctic programs, supporting its largest Antarctic scientific research projects and maintaining its leadership in Antarctic research (Institute 2013). In the recent years, Australia's overall annual budget for Antarctic program is around \$120 million, and it is more than double that of China. Australia's Antarctic budget for 2013–2014 is \$169 million for polar research. Australia put forward the 20 Year Australian Antarctic Strategic Plan in October 2016. To implement this plan, the Australia government has allocated \$255 million for the next 10 years to improve Australia's Antarctic scientific research and logistic supporting capability in 2016 (AJ Press 2014; PASH 2016). Among the \$255 million, \$55 million will be used in the construction of infrastructure and \$200 million to support Australia's Antarctic scientific research projects (Schwab 2014).

The lack of sufficient funding is worsened by the fact that many of China's polar research projects are repetitive, among different institutes and among different expeditions for the same institute (Liu 2017; Sun 2017). This repetitiveness causes significant waste of limited resources and makes it difficult to expand the research scope and attract young talents. Substantial achievements in China's polar scientific expedition have been made in the past three decades, but it is not commensurate

with China's economic strength and its status in international society. Furthermore, polar research results are not fully utilized for the national economic and social development in China, and the ratio of academic and economic output over the government's input of the resources such as funding, manpower and technological support remains low (Hua and Zhang 2012).

In the National Five-Year Plan for Polar Expedition of Development and Reform, the Chinese government tries to establish a more balanced and reasonable evaluation system for polar S&T and facilitate the timely and effective transformation of polar research results into practical applications (SOA 2017). In CPECIAP, the Chinese government attempts to establish a set of performance evaluation indicators to evaluate polar science projects, to measure whether they meet the long-term goals of the country and the needs of social development, and whether they have far-reaching scientific significance for polar governance, and the peer recognition by international scientists to the research discoveries and whether those research results can be transformed into economic benefits to serve the society.

The Chinese government is considering to increase research and development in polar affairs to ensure further progress in polar exploration and research, and adopt a credit system in polar academic field based upon reasonable rules and output-input ratio, for both individual and research teams. The evaluation system should address the problem of project repetitiveness. The polar research projects need to be evaluated to see whether it is properly executed according to their original plan, assessing not only by a quantitative index such as Science Citation Index (SCI) (Cao et al. 2013), but also by more comprehensive measurements, including tangible social economic benefits and sharing of their experiences and findings with the general public.

## 6.FORMING A POLAR SCIENTIFIC TEAM

At present, institutes affiliated to SOA or MNR, such as PRIC, First Institute of Oceanography (Qingdao), Second Institute of Oceanography (Hangzhou), and Third Institute of Oceanography (Xiamen), etc, mainly

undertake China's polar research projects (Figure 1). These institutions are located all over the country. Each polar research institution undertakes a particular task of CPECIAP, which is determined by the CAA. These polar research institutes provide scientific information for the governing bodies to understand the Antarctic and Arctic research and make policies and strategies.

Due to institutional barriers and the inefficiency of the current management system, the lack of young scientists has become a serious problem. Some Polar research scientists are aging. There is an insufficient number of the qualified scientists who focus on polar frontier research, while many young scientists don't make polar science their long-term career. Due to insufficient funding support, many polar scientists have to get funding from other projects for polar research (Hua and Zhang 2012). In addition, many universities and institutes are involved in polar research projects. Setting a limit on the number of the people to join a specific polar expedition (1-2 people per institute) is counter-productive to carrying out complex scientific work, particularly in the harsh polar environment (Sun 2017).

During the time period of the Polar Five-Year Plan, China should stimulate the enthusiasm of the general public for polar sciences by improving communication between the scientists and the public. Polar experts and scholars should be encouraged to publish their science books (Sun 1999, 2018), popular science articles, and other polar science publications (Sun 2017), and also encourage the production of more movies, TV series, documentary on polar sciences and mysteries of Polar Regions, and build polar science education museums to introduce to the general public.

## 7.CONCLUSIONS

China is not only a large country, but also an important contributor in polar S&T. In this chapter, the functions and capabilities of China's polar S&T system are analysed, and the inadequacy and shortcomings of this system are pointed out. The deficiencies includes the interaction between national policy and scientific progress, the synergy between

China's scientific research projects and international cooperation, the integration of social science and natural science research, and the balance between short-term project implementation and medium-term and long-term planning. To improve its S&T system and establish a long-term strategy for the Polar science, there is still a lot of work to be done.

Turning China into an important player in polar affairs over the next decade, China should explore new frontiers of polar sciences to bridge the academic gaps in polar research between China and the advanced countries. At the same time, China needs to develop innovative and high-tech equipment for polar exploration, such as a polar research vessel, polar robots, unmanned aerial vehicle, polar submersibles and satellites for polar science, with the aim of facilitating major breakthroughs in field-research supports. China has a long way to go in increasing the polar funding, improving quality and quantity of talent training, stimulating the enthusiasm among polar science researchers, and enhancing public interest in for polar regions and polar sciences.

## NOTE

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# **Part III**

## **Polar Silk Road**



## Chapter 6

### China's International Cooperation within the Framework of the Polar Silk Road<sup>1</sup>

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#### 1. BELT AND ROAD INITIATIVE AND THE POLAR SILK ROAD

2013 was a remarkable year for China's participation in Arctic affairs. Beijing's Belt and Road Initiative (BRI) was first proposed by the government that year. Chinese shipping company Cosco's vessel Yongsheng conducted the country's first commercial trial voyage to the Arctic Ocean in the same year. And it was in 2013 that China, along with several other Asian states, was granted formal observer status by the Arctic Council.

It is said that China has taken a decade to transform itself from a non-Arctic state into an important Arctic partner and stakeholder in Arctic affairs. In fact, China has gained great attention in Arctic economic development, Arctic climate and environmental governance because it is the world's second largest economy and one of the largest carbon dioxide emitters in the world. Its participation in the Arctic has also raised concerns about environmental protection and geopolitics.

Overall, China's BRI, including the so-called Polar Silk Road

proposed by Beijing in a white paper in 2018, is a response to the global economic slump triggered by the financial crisis of 2008. After the crisis, Chinese policymakers felt that global economic flows had become stagnant. The US government's response was to pull manufacturing investment back to the US and regain trade advantages through strong bilateral trade negotiations. Based on its own development phase, China found that joining and facilitating regional and world economic flows and consumption was the best way to deal with the economic downturn. Facilitating regional economic flows and consumption can transfer China's excess manufacturing capacity abroad, on the one hand, and prepare new markets for future prosperity, on the other hand.

China's approach to facilitating regional economic flows is inspired by the Asia-Pacific Economic Cooperation (APEC) forum, which was created by the US. Around 1990, when the boom in the ICT industry began to take off, the US facilitated and utilized economic flows around the Pacific Rim by forging APEC to achieve lasting prosperity. The experience of joining APEC's economic flows, especially China's cooperation with Japan, South Korea, the US and ASEAN, convinced the Chinese government that participating in the most intensive economic flows in the world was the best way to maintain China's economic development and to make up for China's relative economic weakness. For China, these economic flows entail goods (port construction, port equipment, shipbuilding and the shipping industry), capital (investment and financial markets), technology (technical standards, intellectual property transactions and data flows) and construction capacity (export of infrastructure equipment and construction workers).

China's BRI is designed to participate in and to facilitate economic flows around and on the Eurasian continent, while maintaining the economic interrelations between China and countries in the Pacific region. Moreover, there are many important "engine countries" that promote regional economic flows around and on the Eurasian continent, including ASEAN, India, Russia, Turkey and Kazakhstan. China hopes to integrate this existing and growing market by providing capital, technology, production capacity and infrastructure construction expertise. The joint efforts to build a blue economic passage linking East

Asia and Europe via the Arctic Ocean is generally in line with the spirit of facilitating global economic flows.

Adaptation to the challenges emerging from the changing Arctic is an important component of future Arctic governance. Evidence of the impacts of climate change abounds in the Arctic – and rebounds around the world. This includes observations about the relationship between ice melting in the Arctic and extreme weather events at lower latitudes, as well as how changes in the duration and extent of Arctic sea ice cover is transforming global trading patterns. Given the global impacts reverberating from climate change, collective actions and a synergy of adaptation strategies are needed. As one of the world's major economies and as an investor in the Arctic infrastructure network, what impact will China's engagement in the Arctic impose on the balance of economic activities and environmental protections in the Arctic, and on efforts to build resilience at both the Arctic regional level as well as at the global level? This question will be important both to Chinese policy makers and to the international community, now and in the years to come.

In January 2018, the Chinese government issued “China's Arctic Policy White Paper” (White Paper) as an attempt to explain China's policies and positions regarding Arctic affairs to the outside world, and to build trust between China and other partners.<sup>2</sup> In particular, the term, “Polar Silk Road” (PSR) used in the White Paper has attracted wide attention.<sup>3</sup> The PSR refers to a series of cooperative international ventures among Russia, the Nordic countries, and certain East Asian countries. There is a synergy between China's Arctic policy and policies from other parties, related to sustainable development in the Arctic region as well as adaptive strategies to climate change in a global context. China hopes to strengthen such cooperation under the Belt and Road Initiative (BRI), following principles of extensive consultations, joint contributions, and shared benefits – while emphasizing policy coordination, infrastructure connectivity, unimpeded trade, financial integration, and closer people-to-people ties.<sup>4</sup>

Now the PSR is ready to launch. Exactly how the concrete projects outlined in the framework of the PSR should be carried out, and what objectives should be realized through these joint efforts, will be

questions that should guide the work of researchers, policy makers and practitioners.

The PSR is not only a part of China's BRI initiatives, but also represents a contribution to joint efforts by Arctic nations, international organizations, and other stakeholders in Arctic governance, as well as in the coordination of Arctic policies for developing and protecting the Arctic. As part of China's Arctic policy, the PSR's launch underscores that China has the willingness to jointly build up the infrastructure in the Russian Arctic region for peaceful utilization of new sea routes that are currently developing – and are likely to expand in the future. Recent investment commitments to Russia have signaled that China will support Russia to jointly enhance the Northern Sea Route (NSR) and other sea routes in the Arctic, based on the concepts of “win-win” and globally accepted sustainability principles. This project also echoes the Arctic Corridor railway project by Finland, Norway, and the European Union (EU), and will encourage contributions from Japan and South Korea to jointly strengthen international utilization of the NSR.

In the White Paper, China expresses its intention to work jointly with all parties concerned to build the PSR by developing Arctic shipping routes. It encourages its enterprises to participate in infrastructure construction for the routes where China COSCO Shipping has conducted commercial trial voyages since 2013, in order to pave the way for these routes' commercial and routine operation. By advancing international cooperation on Arctic affairs, the PSR will focus on three concrete cooperation projects: (1) joint efforts to build a “blue” economic passage linking China and Europe via the Arctic Ocean,<sup>5</sup> (2) enhancing Arctic digital connectivity, (3) building a global infrastructure network in the Arctic region, and (4) enhancing adaptive capability and green technology innovation through international cooperation.

## 2. HOW DOES THE CONCEPT OF A POLAR SILK ROAD FORM THROUGH INTERACTIONS BETWEEN RUSSIA AND CHINA?

At the 2011 conference, *The Arctic: Territory of Dialogue*,<sup>6</sup> Russian President Vladimir Putin said, “We see its [NSR's] future as an

international transport artery capable of competing with traditional sea routes in cost of services, safety and quality.” Although Russia’s Minister of Emergency Management Sergey Shoygu put forward the concept of the PSR (originally introduced as the “Silk Road on Ice”) for the first time during this 2011 conference, the concept was not immediately met with resounding echoes of support from other parties.<sup>7</sup> However, in September 2013, Chinese President Xi Jinping introduced the BRI for the first time during an official visit to Kazakhstan.<sup>8</sup> Earlier that year, China COSCO Shipping undertook its first commercial trial voyage from a Chinese port to Rotterdam via the NSR with the MV Yong Sheng. The commercial ship followed in the steps of China’s icebreaker RV *Xuelong*’s maiden transit through an Arctic sea route of a Chinese-flagged vessel from China to Iceland in 2012.<sup>9</sup> China furthermore was granted formal Observer status to the Arctic Council with other Asian countries in 2013.<sup>10</sup> Since then, there has been incremental growth in Arctic commitments by Chinese stakeholders, with a steep surge since mid-2017 through effective steps to enhance Arctic cooperation between China and its international partners, including in the realms of Arctic policy and economy.

China’s Foreign Minister Wang Yi stated that China would support Russia’s initiative to jointly build a “Silk Road on Ice” during a meeting with his Russian counterpart, Foreign Minister Sergei Lavrov, in May 2017.<sup>11</sup> In June 2017, a policy document was co-released by China’s National Development and Reform Commission (NDRC) and its State Oceanic Administration (SOA), which provided new insights about how international cooperation in the Arctic (as with the proposed blue economic passage linking China and Europe) might be more closely tied to international trade and the BRI.<sup>12</sup> In November 2017, Xi Jinping and Russian Prime Minister Dmitry Medvedev agreed that China and Russia should jointly develop and cooperate on the use of the NSR and building the PSR. In January 2018, the first ever White Paper published on China’s Arctic policy supported the efforts to jointly build the PSR and facilitate connectivity and the sustainable economic and social development of the Arctic. The White Paper says that China hopes to work with all parties to build the PSR by developing Arctic shipping



routes. In effect, China calls for stronger international cooperation on infrastructure construction and operation of these Arctic routes.<sup>13</sup>

China attaches great importance to navigation security in Arctic shipping routes. It has actively conducted studies on these routes and continuously strengthened hydrographic surveys with the aim to improve the navigation, security, and logistical capacities in the Arctic region. China abides by the Polar Code, and supports the IMO in playing an active role in formulating navigational rules for Arctic shipping. China also advocates the protection and rational use of the region, and encourages its enterprises to engage in international cooperation regarding the exploration for and utilization of Arctic resources by making the best use of their advantages in capital, technology, and its large domestic market.<sup>14</sup>

### 3. POLAR SILK ROAD PROJECTS AND POSSIBLE FUTURE PROJECTS

#### 3.1 Energy projects

The most important commercial Arctic project to date is Yamal LNG. The project, which became operational at the end of 2017, is seen as vital in utilizing Russia's Arctic resources and in addressing China's energy needs. Yamal LNG is an integrated project encompassing natural gas production, liquefaction, and shipping. The project consists of the construction of a liquefied natural gas (LNG) plant with an output capacity of around 16.5 million tons per year (by 2019), using the South Tambey Field as a resource base. The field's proven and probable reserves are estimated at 926 billion cubic meters, making it the largest Arctic producer of LNG.<sup>15</sup>

Beijing's winter haze has become an air pollution problem in China over the past decade, and is well known around the world. Air pollutants not only increase the incidence of lung and bronchial diseases among Chinese residents, but also increase the atmospheric particulate matter concentrations around East Asia. The Chinese government has been instituting pollution control measures since 2013, including

shutting down some of the most polluting companies and forcing some winter heating enterprises to use natural gas, a relatively clean energy alternative to coal to provide heat. For this reason, China's demand for natural gas has greatly increased in the winter, and China's natural gas imports from Central Asia, Russia, and the United States have all increased by a large margin. During President Trump's visit to China in 2017, natural gas from Alaska accounted for an important part of the deal signed between China and the United States.

Extensive transportation infrastructure is being built with a similar scope as the Yamal LNG project, including a seaport (began in 2013) and the Sabetta Airport. The \$3.22 billion Belkomur railway project connecting the Sabetta Port to the Eurasian railway network was awarded Russia's infrastructure project of the year 2016. To date, this project has employed as many as 30,000 Russian workers from its central and southern regions. Now that the Yamal project is operational, Russia aims to gain a larger share of the global market in liquefied natural gas. This seems like a highly realistic goal, as the Yamal-Nenets Autonomous Region is the world's largest natural gas producing area, accounting for approximately 80 percent of Russia's natural gas production and approximately 15 percent of the world's gas production.<sup>16</sup> Even under current sea conditions, Yamal is projected to double Russia's share of the growing global LNG market by the time it reaches full capacity in 2020.<sup>17</sup>

In November 2017, Novatek, one of the largest independent natural gas producers in Russia, signed a Strategic Cooperation Agreement with the Chinese National Petroleum Company (CNPC), which already owns 20 percent of Yamal LNG (also known as Arctic LNG-1), a \$27 billion production project. The strategic cooperation agreement confirms the parties' intentions to cooperate in implementing the Arctic LNG-2 project, as well as collaborating in different segments of the LNG and natural gas markets, including LNG trading and gas infrastructure development.<sup>18</sup> Novatek also signed an agreement with China Development Bank for cooperation as part of this project.<sup>19</sup> France's Total oil corporation also has a 20 percent stake in the Yamal LNG project (LNG-1) and would like to participate in the upcoming

Arctic LNG-2 (as would other possible international investors), which has a potential producing capacity of approximately 19.8 million tons per year. The Arctic LNG-2 project could unlock more than seven billion barrels of oil equivalent of hydrocarbon resources in the onshore Utrenneye gas and condensate field. The first of three phases is planned for markets in 2023, partly utilizing the NSR to connect the produced natural resources to global energy trading supply chains.<sup>20</sup>

China's involvement has been vital to this important project, especially in light of the economic sanctions imposed by the United States and other Western countries against Russia. China's Silk Road Fund owns 9.9 percent of the equity in Yamal LNG-1.<sup>21</sup> The Russian natural gas producer Novatek, which holds the remaining 50.1 percent stake, has subsequently concluded an agreement for \$12 billion in loans, payable over 15 years, with the China Development Bank and China Export-Import (EXIM) Bank, dominated in euros and Chinese yuan.<sup>22</sup> Yamal LNG, which ships to East Asian markets (China, Japan and South Korea) in summer, could be piped to Europe in winter. Through Sino-Russian cooperation in LNG projects, Chinese energy and infrastructure construction companies have accumulated extensive experience in the Arctic environment, and Chinese enterprises have both the technological capabilities and financial resources to be at the forefront with regards to future resource development in the Arctic region.

The China-Iceland cooperative relationship is also a successful example of Arctic cooperation. In 2012, China signed framework agreements with Iceland to support greater cooperation on geothermal energy, along with marine and polar science.<sup>23</sup> Developing geothermal energy is part of China's comprehensive energy-transforming strategy. It is also one of the adaptations that China has made to address the challenge of climate change. By April 2018 Sinopec in China and Iceland's Arctic Green Energy Corporation (AGEC) have developed geothermal projects in 40 cities in China.<sup>24</sup> In 2013, the two countries signed a free trade agreement, and have engaged in a series of bilateral initiatives, including the Joint China-Iceland Aurora Observatory.<sup>25</sup> A special session on the BRI was held by the Arctic Circle Assembly in 2017, and the Arctic Circle Assembly will discuss the Polar Silk Road

again in 2018.<sup>26</sup> Geothermal and Arctic cooperation remain among the top priorities for cooperation between China and Iceland, as was evident during the visit of Iceland's Foreign Minister Gudlaugur Thor Thordarson to China in early September 2018.<sup>27</sup> New agreements were signed on geothermal cooperation and trade-related topics such as e-commerce and the import of food products, including mutton meat and seafood products.<sup>28</sup>

### 3.2 Arctic shipping and commercialization of the NSR

In October 2017, the oil and gas shipping unit of China's COSCO Shipping approved a plan to acquire a 50 percent stake in the Mitsui OSK (MOL) subsidiary that owns four conventional LNG carrier newbuildings booked to deliver cargo from Yamal LNG, expanding the two firms' joint fleet to 17 LNG carriers, with a total investment of \$877 million. The deal is the fourth joint LNG project between MOL and China COSCO Shipping. The two firms jointly own four ships delivered in 2015-2016 for charter to ExxonMobil, six vessels due for delivery in 2016-2018 for charter to Sinopec, and three of the 15 icebreaking LNG carriers that will load Yamal LNG cargo at the Port of Sabetta in the Russian Arctic.<sup>29</sup>

China COSCO Shipping has become the most significant large-scale international shipping operator in the Arctic region and the first to include the NSR into its transportation network as a regular route. In 2013, COSCO's *Yongsheng* transited the NSR for the first time, and in 2015 COSCO completed two-way transit shipping. By the end of 2017, China COSCO Shipping had sent a total of 10 vessels on 14 trips through the NSR, successfully carrying cargo that included building materials, machine parts, and other equipment. These achievements mark that regular shipping activities along the NSR carried by Chinese shipping companies have already begun to take shape.<sup>30</sup> In 2018 COSCO had planned for ten NSR voyages, including China's first cargo ship specially designed for sailing in polar waters, the *MV Tian En*.<sup>31</sup> The goods carried through the NSR by China COSCO's specialized carriers include paper pulp from Finland to China and offshore windmills made

in China to Europe.

In September 2017, numerous Chinese companies stated that they are keen to invest in a new project near Arkhangelsk, a historic Russian port city, which would include the Belkomur railway project and the development of a deep-water port in the northern Dvina River. A new port will be built near Mudyug Island in the Dvina River Delta close to the existing port facilities for larger vessels. China EXIM bank has committed to provide loans for the project while COSCO has said it would like to participate, as would Chibusco, a Chinese bunker company, Poly Group, and the China Marine Fuel Service Corporation.<sup>32</sup> The new port is estimated to reach 30 million tons of cargo by 2030 and act as a central Arctic hub for Russian exports and imports in trade with Europe, the Asia-Pacific region and North America.<sup>33</sup>

In an op-ed in the *China Daily*, Iceland's Foreign Minister Thordarson furthermore underscored that his "government follows carefully and with interest the Belt and Road Initiative, including the "Silk Road on Ice," which is focused on opening up new shipping routes through the Arctic."<sup>34</sup> Iceland has the potential to become a shipping hub in the Atlantic Arctic, especially for traffic through the central Arctic shipping route that China has been at the forefront of exploring,<sup>35</sup> and will be further equipped to do so with the launch of its first domestically built icebreaker the *RV Xuelong 2*.<sup>36</sup> There are planned port projects in the northeast of Iceland, at Finna fjordur and Dysnes,<sup>37</sup> which have been linked to potential Chinese investors and users.<sup>38</sup>

### 3.3 The Arctic Corridor Project: possible cooperation under the PSR framework

One of proposed projects in the Nordic Arctic is the "Arctic Corridor,"<sup>39</sup> a railway project that would connect the city of Rovaniemi in northern Finland with the Norwegian port of Kirkenes. Under the plan, ships could dock at Kirkenes, where cargo would be offloaded to the railway and sent southward through rail connections in Scandinavia to Helsinki and on through the proposed Helsinki-Tallinn undersea railway tunnel that would connect to Central Europe. The projects will

include the rebuilding of the Kirkenes deep-water port, railway, and logistic hub in Rovaniemi, an air logistic hub in Helsinki, and linking to the Baltic Tunnel. The Arctic Corridor Project could be well suited for cooperation under the PSR framework, for several reasons. First, the Arctic Corridor and related projects are infrastructure projects with high relevance to the NSR that will facilitate the connectivity of East Asian and Arctic economies to the Baltic region and Central European market in a more comprehensive way than at present. Second, the Arctic Corridor is a huge ensemble of costly projects, and some parties concerned have come to China to discuss the possibility of cooperating with Chinese companies; the project even has a brochure in Chinese.<sup>40</sup> Hence, the project has the potential to make the Eurasian market more integrated and holds additional added value for connectivity between East Asian and EU markets through the NSR.

The Arctic Corridor Project involves two Nordic countries, Norway and Finland, and the EU. The Chinese and Norwegian Governments are seeking to revive stalled free trade negotiations,<sup>41</sup> and Norway's shipping groups are especially interested in greater engagement with China. Norway is actively considering the possibility of greater involvement by Chinese Arctic shipping stakeholders.<sup>42</sup> Kirkenes is the northernmost ice-free port located by the Barents Sea and is the closest Western port to East Asia via the NSR. Under this plan, ships could move goods from China as well as oil and gas from Arctic fields in Russia westward along this northern route to Kirkenes. Cargo would be offloaded to the railway and sent southward through rail connections.

Kirkenes is a free trade, logistics and industrial port in use for supplies and services to the Russian Barents, Pechaora and Kara Seas, Yamal, and other northern Russian onshore and offshore sites.<sup>43</sup> Kirkenes has an ultra-deep, large fjord port that enjoys a dry and calm inland climate and is sheltered from harsh coastal weather. It is open, accessible, and operational for conventional, non ice-class vessels at all times. In addition, Kirkenes has unlimited port and industrial site expansion potential for the Arctic Corridor's future development. The mayor of Sør-Varanger municipality (which includes Kirkenes), Rune Gjertin Rafaelsen, visited Shanghai as a member of a delegation lead

by Norwegian Minister of Research and High Education Iselin Nybø, in April 2018. The mayor said that Kirkenes is well prepared for the Arctic Corridor and the opening of the NSR.<sup>44</sup> The Norwegian National Rail Administration, the Norwegian National Coastal Administration, and the National Road Administration have all made recommendations to the Ministry of Transport and Communication in support of the Arctic Railway. If it could be built, the line would be integral to the flow of freight transport along the NSR, connecting Finland and the Baltic region to Kirkenes, the vast oil and gas production areas, and the western part of NSR. Such a vision has been a long time coming, and in September 2010, the Bulk carrier *MV Nordic Barents* successfully became the first non-Russian flagged commercial vessel to transit the NSR, sailing directly from Kirkenes through the NSR and Bering Strait to Lianyungang in China with a cargo of iron ore.<sup>45</sup>

China and Finland agreed to establish a future-oriented strategic partnership and cooperation in the Arctic, with technology innovation as one of the key components. Helsinki serves as a key air hub in the Nordic region. It serves seven airport destinations in greater China with 38 weekly flights, which is more than to any single European country.<sup>46</sup> Passengers travelling on scheduled flights from Helsinki to the People's Republic of China account for five percent of all international passengers departing Helsinki, with China being the 8<sup>th</sup>-most popular destination country. As the Arctic capital of Finland, Rovaniemi is known globally for issues of Arctic interest. It has a number of areas of planned expansion/shared interest with China, including energy, mining, tourism, ICT, and clean-tech. A maritime cable project linking Europe and Asia via the NSR is planned to pass through Rovaniemi.<sup>47</sup> An increasing number of tourists choose to go to the Finnish Lapland area in the winter.

In February 2018, the *Helsinki-Tallinn Transport Link Feasibility Study – Final report* was released. The Fin-Est study indicated technical details for the proposed \$15-23 billion (€13-20 billion), 103km-long rail tunnel connecting Finland to Estonia under the Gulf of Finland, including two huge artificial islands and a tunnel 250m below the sea's surface.<sup>48</sup> Once constructed, it would be the world's longest undersea tunnel. In

Helsinki, the line would run in parallel with the planned airport rail line providing connections to the rest of Finland, Sweden, and northern Russia. On the Tallinn side, the link would connect directly to the airport, which is already connected to the rest of the rail network and Rail Baltica – the new pan-Baltic rail project due to start construction in 2019. Rail gauges differ between Finland and Estonia, so the line will need to be built to the European, 1435mm standard gauge to allow it to connect directly into Rail Baltica.<sup>49</sup>

### 3.4 Technology cooperation for science, monitoring, and search-and-rescue

Promoting Arctic digital connectivity and jointly building an international infrastructure network are also important indicators for developing the PSR. In addition to international cooperation in digital technology on the ground, China's international cooperation with Arctic nations and other stakeholders on space technology and submarine cable projects are also on the PSR's agenda. The Ministry of Industry and Information Technology of China and China Telecom (one of the biggest telecom operators in China) are cooperating with Finnish counterparts on a planned trans-Arctic submarine cable project, a 10,500-kilometer fiber-optic maritime cable link across the Arctic Circle. The trans-Arctic submarine cable project is a joint one, led by Chinese and Finnish initiators and joined by Russian, Japanese and Norwegian partners.<sup>50</sup> According to the joint communiqué of the 20th regular meeting of the Prime Ministers of China and Russia in 2015, "China and Russia have made it clear that they should further strengthen practical cooperation in satellite navigation between the Russian GLONASS system in China's Beidou system through improving the compatibility and inter-operation, enhancing the system functions, building station network for applications, and exchanging the data of monitoring and evaluation."<sup>51</sup>

The particularity of the environment along the PSR has forced all parties concerned to think about ways to develop a green economy. The development of sustainable energy systems – including wind power,



ocean tidal energy, geothermal energy, and hydropower – is a pivotal path for green development. In addition, ecotourism and low-carbon emission food and aquaculture products are also promising areas. China's White Paper on its Arctic policy specifically mentions clean energy and low-carbon polar tourism. China has pledged to strengthen clean energy cooperation with Arctic countries, exploring the supply and utilization of clean energy and achieving low-carbon development.<sup>52</sup>

#### 4. COOPERATION IN THE ARCTIC WILL ENHANCE THE ADAPTIVE CAPABILITY OF CHINA AND ITS ENTERPRISES

China's contribution to adaptation efforts addressing the changing socio-ecological system on a planetary scale should include: (1) playing an active role in devising and implementing institutional management for collective adaptation, (2) taking effective measures to meet its commitments to the global environmental and climate regimes, (3) building resilience in local Chinese communities, and (4) enhancing its adaptive capability while China and its enterprises join activities in other regions, especially in the Arctic.

##### 4.1 A stricter environmental protection legal system

The Arctic is rich in natural resources, but these abundant resources are stored in an environment with a fragile ecology and harsh production conditions. Therefore, the exploration and exploitation of Arctic natural resources requires sufficient assessments focused on environmental impacts, ecological sensitivity, and production safety. It is necessary for Arctic governance to solve the contradictions between the exploration and exploitation of Arctic natural resources and the protection of this fragile environment, with a more complete understanding of how human activities create barriers for the migration and reproduction of Arctic birds and animals, and how environmental pollution such as oil spills affect fragile ecosystems. Climate change is causing significant impacts and threats to the Arctic ecosystem,

including the disruption of food chains upon which many species in the Arctic depend. Increasing the availability of such knowledge and instituting effective responses are essential for the sustainable utilization of resources in the Arctic region.

While many projects for Arctic development have yet to be built, and while no one can accurately predict the pace of sea ice melting and technological advances, a number of projects are making progress across many of these countries – and real momentum for Arctic partnerships has been developed. Many of the long-held economic goals of many Arctic countries are likely to be realized over the next 20-30 years, and much closer links may be formed among China, Russia, and northern Europe as a result of all of this planning and the combined efforts of the relevant governments, businesses, and other stakeholders.

The Chinese Government has committed to regulate and supervise the activities of Chinese citizens, legal activities, and other organizations in the Arctic in accordance with the emerging legal framework, in order to ensure that their activities accord with international law and respect the relevant national laws on environmental protection, resource conservation and sustainable development. Chinese enterprises need to be mindful of the fact that their partners along the PSR are developed economies, and environment protection is a precondition for economic activities in the Arctic. These elements are both challenges and opportunities for the Chinese government and Chinese companies to gain new experiences. The institutional systems of these countries will impose institutional restrictions on China's activities in these areas. Enterprises participating in the PSR must have high environmental protection capabilities, high legal awareness, and strong responsibilities to the local communities where they are operating.

#### 4.2 A new experience in cooperation with developed economies

In other regions of the Belt and Road cooperation such as Central Asia and Africa, most countries lag behind China in terms of technology, the business environment, education, and labor training, etc. With regard to cooperation along the PSR, the majority of Arctic countries are highly

developed economies. These countries are more developed than China in terms of GDP per capita, their level of productivity, and their degree of affluence. They are also among the leading countries in technological innovation worldwide. In the global innovation index rankings, Arctic countries hold high positions. With the exception of Russia, the 2017 innovation indexes of the Arctic countries were all higher than that of China, while China overtook Iceland, Canada and Norway in the 2018 rankings.<sup>53</sup> Other countries along the Belt and Road, such as countries in Central Asia and North Africa, have a strong sense of urgency for development. They focus on achieving economic growth that coincides with China's high speed of building infrastructure. The social development goals of the more developed Arctic economies are more diversified and comprehensive, including social justice, ecological balance, economic development, inter-generational equity, enterprise ethics, and climate response, among other values. The decision-making procedure for social resource allocation is more complicated in the Arctic countries.

In terms of the institutional environment for business operations, Arctic countries have sound market systems, developed industrial structures, sophisticated economic operation mechanisms, and systematic market legal norms. In addition, these countries have high standards and protection norms for labor rights and environmental protection. The degree of economic correlation of the Arctic countries with the rest of the world shows that these countries have a high degree of economic internationalization, a large contribution of foreign trade to economic development, open financial markets, and a mature development of transnational corporations. Russia's economy is, by comparison, relatively weak, but it is also an economy with comprehensive educational and industrial systems, with a rich history of achievements in heavy industries. Despite the sharp pain of the collapse of the Soviet Union, Russia still has the economic potential for strategic development as a great power.

Compared with cooperation in other regions, the cooperation along the PSR represents a higher level of technology – and the flow of technology, capital, and information runs in both directions. The Arctic

countries have high expectations for China's infrastructure capacity, technology and investment, but they also have rigid criteria for foreign investment. Such high standards will help China's outbound investments become increasingly realized in the future. The development of the PSR can expect to encounter many contradictions and challenges. The ecological and environmental crisis caused by melting ice will trigger even higher environmental standards for economic activities in the Arctic, which will raise the costs of investments. Moreover, commercial benefits will also be affected by the speed of sea ice melting, the improvement of navigation conditions on traditional routes, the status of the world economy, fluctuations of international crude oil prices, and innovations in renewable energy. Therefore, the return of investment along the PSR often needs to be considered within a medium- and long-term perspective. While Chinese stakeholders engage in the ongoing bankable projects in the Arctic, they should take all the above-mentioned factors into account, gain experience, and work with local partners to ensure that the projects (including infrastructure, energy, shipping, etc.) are consistent with this adaptation process.

## NOTES

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<sup>1</sup>This chapter is originated from a joint paper published in *China Quarterly of International Strategic Studies*, co-authored with Henry Tillman (Founder and Chairman of Grisons Peak Services, Ltd. and Founder of China Outbound Investments) and Egill Thor Nielsson (specialist in the Rannís, Iceland).

<sup>2</sup>State Council Information Office of the People's Republic of China, "China's Arctic Policy", January 26, 2018, [http://english.gov.cn/archive/white\\_paper/2018/01/26/content\\_281476026660336.htm](http://english.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm).

<sup>3</sup>See for example Adam Minter, "Don't Fear China's Arctic Takeover," *Bloomberg*, January 30, 2018, <https://www.bloomberg.com/view/articles/2018-01-30/don-t-fear-china-s-arctic-takeover> and Philip Wen, "China unveils plan for 'Polar Silk Road' across the Arctic", *The Independent*, January 26, 2018. <https://www.independent.co.uk/news/world/asia/china-polar-silk-road-arctic-xi-jinping-shipping-global-warming-a8178891.html> and Emily Feng et al., "China reveals Arctic ambitions with plan for 'Polar Silk Road'", January 27, 2018, <https://www.ft.com/content/c7bd5258-0293-11e8-9650-9c0ad2d7c5b5>.

<sup>4</sup>State Council of the People's Republic of China, *Action plan on the Belt and Road Initiative*, March 30, 2015, [http://english.gov.cn/archive/publications/2015/03/30/content\\_281475080249035.htm](http://english.gov.cn/archive/publications/2015/03/30/content_281475080249035.htm).

<sup>5</sup>State Council of the People's Republic of China, "3 sea routes planned for Belt & Road Initiative", June 21, 2017, [http://english.gov.cn/state\\_council/ministries/2017/06/21/content\\_281475692760102.htm](http://english.gov.cn/state_council/ministries/2017/06/21/content_281475692760102.htm).

<sup>6</sup>The Official Site of the Prime Minister of the Russian Federation, "Vladimir Putin's speech at the forum", presented at the second International Arctic Forum "The Arctic – Territory of Dialogue", Arkhangelsk, September 22, 2011, <http://archive.premier.gov.ru/eng/events/news/16536/print/>.

<sup>7</sup>Qian Zongqi, "Russian Arctic Strategy and the Polar Silk Road". (钱宗旗著:《俄罗斯北极战略与冰上丝绸之路》,北京时事出版社,2018年版,第193页)

<sup>8</sup>State Council of the People's Republic of China, "From Initiative to reality: Moments in developing the Belt and Road Initiative", April 23, 2015, [http://english.gov.cn/policies/infographics/2015/04/23/content\\_281475094425039.htm](http://english.gov.cn/policies/infographics/2015/04/23/content_281475094425039.htm).

<sup>9</sup>Gudjonsson and Nielsson, "China Can Play Key Role in Arctic Shipping", *The Maritime Executive*, March 21, 2015, <https://www.maritime-executive.com/features/china-can-play-key-role-in-arctic>.

<sup>10</sup>Richard Milne, "China wins observer status in Arctic Council", *Financial Times*, May 15, 2013, <https://www.ft.com/content/b665723c-bd3e-11e2-890a-00144feab7de>

<sup>11</sup>Ministry of Foreign Affairs of the People's Republic of China. "Wang Yi: Russia is an Important Strategic Partner of the Joint Construction of the "Belt and Road" ", May 26, 2017, [https://www.fmprc.gov.cn/mfa\\_eng/zxxx\\_662805/t1466559.shtml](https://www.fmprc.gov.cn/mfa_eng/zxxx_662805/t1466559.shtml)

<sup>12</sup>State Council of the People's Republic of China, "Vision for Maritime Cooperation under the Belt and Road Initiative", 20 June 2017, [http://english.gov.cn/archive/publications/2017/06/20/content\\_281475691873460.htm](http://english.gov.cn/archive/publications/2017/06/20/content_281475691873460.htm)

<sup>13</sup>State Council Information Office of the People's Republic of China, "China's Arctic Policy", 26 January 2018. [http://english.gov.cn/archive/white\\_paper/2018/01/26/content\\_281476026660336.htm](http://english.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm).

<sup>14</sup>Ibid.

<sup>15</sup>Further information on Yamal LNG is available at its official website, <http://yamallng.ru/en/>

<sup>16</sup>Novatek, "Novatek and The Silk Road Fund Conclude Framework Agreement on Acquisition of Stake in Yamal LNG", September 3, 2015, [http://www.novatek.ru/en/press/releases/index.php?id\\_4=984](http://www.novatek.ru/en/press/releases/index.php?id_4=984).

<sup>17</sup>Oksana Kobzeva and Olesya Astakhova, "Russia to boost presence on global LNG market, helped by lower costs", *Reuters*, June 3, 2018, <https://www.reuters.com/article/us-russia-lng/russia-to-boost-presence-on-global-lng-market-helped-by-lower-costs-idUSKCN1IX4FI>.

<sup>18</sup>Novatek, "NOVATEK signed Strategic Cooperation Agreement with CNPC", November 1, 2018, <http://>

## Chapter 7

### Opportunities and Challenges of Jointly Building of the Polar Silk Road<sup>1</sup>

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Over the past few decades, climate change and globalization have dramatically transformed the Arctic. As a result of global warming, the Arctic sea ice has been melting rapidly, potentially easing access to natural resources and opening up new maritime routes in the region. According to latest research, even if global temperature rises by less than 2 degrees Celsius above pre-industrial levels, the Arctic could see a sea ice-free summer at least once a decade.<sup>2</sup> These changes have increased global attention on potential usage, research, and peace and stability in the region. Among all new commercial opportunities, utilization of the Northeast Passage (NEP) – a maritime route along the Norwegian and Russian Arctic which is 37 percent shorter<sup>3</sup> than traditional routes through the Suez Canal– is one of the most dynamic topics.

China is defining itself as an important stakeholder in Arctic affairs and geographically a "Near-Arctic State", one of the continental States that are closest to the Arctic Circle<sup>4</sup>, which reflects the fact that China has many interlinks with the changing region. For instance,

sitting downstream from the Arctic's climate system, northern China's climate, biological and environmental systems are directly affected by changes in the Arctic, Chinese experts have been active in the research projects of several groups under the Arctic Council, China's funds, markets and proficiency relating to infrastructure construction and resource exploitation are highly valued by some Arctic countries. In particular, Chinese shipping companies are pioneering on pilot voyages via Northern Sea Route –constitutes major part of NEP– to connect two major production and consumer markets of Asia and Europe. With developing practices of cooperation, the significance of the newly proposed idea of the Polar Silk Road (PSR) to the Arctic region in political, economic and social patterns, its priorities and difficulties of cooperation, and responsibilities of governments, enterprises and citizens in construction of the PSR have become emerging topics of international debate and discussion.

## 1.CHINA'S CONCEPTION OF JOINTLY BUILDING THE PSR

The idea of joint establishment of the PSR was first appeared in the Chinese government's document on the international cooperation on the Maritime Silk Road<sup>5</sup>, which gradually developed during the practice of the Belt and Road initiative, and was fully explained in the White Paper on China's Arctic Policy published by Information office of State Department in early 2018. The idea at beginning has been expressed in mixed definition, including the Ice Silk Road<sup>6</sup>, Silk Road on Ice<sup>7</sup> when President Xi Jinping met with Russian leader, and Finland<sup>8</sup>. Based on above mentioned policy and pragmatic practices, China has formulated its own understanding of the PSR.

*First of all, jointly building the PSR is an international initiative which refers to specific region, involving the cooperation in Arctic's major shipping routes and coastal areas.* It focuses on Arctic's geopolitical, economic and social connections to the world by joint efforts by Arctic nations, international organizations and other stakeholders for Arctic governance. According to the conditions for the development and utilization of Arctic shipping routes, the PSR is currently more

concentrated in the development of the NEP, connecting East Asian countries with European partners.

*Secondly, the PSR reflects the common policy orientations of Arctic states and other stakeholders towards to new opportunities of the Arctic, in particular for commercial opportunities of development of the Arctic sea routes, while countering enormous ecological and environment challenges with the increase of human activities. The possibility of commercial use of Arctic shipping routes may significantly shorten the traditional voyage, further enrich the international shipping network, and promote economic and trade relationship of relevant countries and region as whole. The PSR should not be a patented product of a individual country, but a new platform for policy coordination and science, industrial, social collaboration among various countries. China advocates multilateral cooperation to jointly build the PSR and focus on the forward-looking investments, focusing on the infrastructure construction and green development to achieve a balance between development and protection of the Arctic. China's participation to the PSR is also a proactive response to the expectations of some countries, regarding China's relative advantages in capital, technology and talent on the development and utilization of the Arctic.*

*Thirdly, the PSR serves one of the most pragmatic platform of bilateral and multilateral cooperation between Arctic and Non-Arctic states. Although China's perception of changes in the Arctic is direct and rapid, as a non-Arctic coastal state located beyond the Arctic circle, bilateral or multilateral cooperation based on respect of the sovereignty, sovereign rights, and jurisdiction enjoyed by the Arctic States in this region, respect the relevant marine management policies and willingness of Arctic coastal states are important prerequisite for jointly building the PSR. In practice, China attaches great importance to bilateral cooperation with the Arctic countries, conducts bilateral consultations on Arctic affairs with all Arctic countries, and established regular dialogue mechanisms with all Arctic states. In 2012, China and Iceland signed the Framework Agreement on Arctic Cooperation, which was the first inter-governmental agreement on Arctic issues between China and an Arctic State. In addition, China, Japan, South*



Korea and other countries have carried out discussions on Arctic shipping issues, promoting the establishment of equal mutual trust and mutually beneficial cooperation among potential shipping route users and investors, China also supports platforms such as "The Arctic: Territory of Dialogue", "The Arctic Circle", "Arctic Frontiers", "The China-Nordic Arctic Research Center", in promoting exchanges and cooperation among the stakeholders, to explore a new model of Arctic international cooperation involving multi-stakeholders.

*Last but not least, the PSR is an integral part of China's Arctic policy and an extension of the Belt and Road Initiative.* As the major global trade partner and a potential user, cooperation on Arctic shipping routes are undoubtedly becoming one of the policy priorities of China. Starting from 2013, Chinese companies have begun to explore the commercial opportunities associated with Arctic shipping routes. The COSCO shipping continued to carry out frequent navigation via NEP, successfully finishing 10 voyages in 2018 along, and has dispatched 15 ships to complete 22 voyages since 2013.<sup>9</sup> This policy orientation has been demonstrated by the Vision for Maritime Cooperation under the Belt and Road Initiative and the Arctic Policy issued by the China, where clearly proposed the construction of the "blue economic passage is also envisioned leading up to Europe via the Arctic Ocean"<sup>10</sup>. The construction of the blue economic passage and eventually the PSR is not only concentrated on maritime interconnection, but also to promote the free flow of marine knowledge, culture, technology and talents, advocates peaceful, green, innovative and win-win maritime cooperation and deepens global significance and humanitarian care of the BRI.

## 2.CHINA'S POLICY ORIENTATIONS TOWARDS TO THE PSR

In general, China's policy goals on the Arctic 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.<sup>11</sup> Unfortunately, many of China's moves relating to the Arctic have been met with suspicion in light of its population size and its

status as one of the largest consumers of oil and natural gas products. The "China threat" has become a hot topic that is highlighted in the media worldwide, its increased prominence in the region has prompted concerns from Arctic states over its long-term strategic objectives, including possible military deployment.<sup>12</sup> Regarding the PSR itself, it is also discussed in scholarly arguments that Russia's Northern Sea Route has been renamed the Polar Silk Road<sup>13</sup>, which have completely misinterpreted China's policy orientations towards to the PSR.

*Emphases on docking of national interests and strategies of relevant states.* In response to the opportunities and challenges brought about by the Arctic changes, relevant countries have introduced and updated their development strategies, covering various aspects of Arctic shipping. For instance, one of the principle of the Icelandic Arctic Strategy is "make full use of employment opportunities created by changes in the Arctic region"<sup>14</sup>, especially focuses on opening up new Arctic shipping routes which connect the North Atlantic, the Arctic Ocean and the Pacific. Sweden is calling for efficient, multilateral cooperation on the Arctic, "aiming to prevent and limit the negative environmental impact potentially caused by the opening-up of new shipping routes and sea areas in the Arctic" and "contribute to safer and greener shipping"<sup>15</sup>. One of the priorities of the Finland's Arctic strategy is "continue to maintain Finland's position as a leading expert in the Arctic maritime industry and shipping and keep Finnish companies closely involved in development projects in Arctic sea areas"<sup>16</sup>. Coastal states of the Arctic Ocean are more focused on utilization of new shipping route and update of related transport infrastructures, especially when Russia has defined "use of the Northern Sea Route as a national single transport communication of the Russian Federation in the Arctic" as one of its national interests in the Arctic<sup>17</sup>.

In the process of participating in the Arctic affairs, China follows the basic principles of "respect, cooperation, win-win result and sustainability"<sup>18</sup>, which suggests that whether bilateral or multilateral cooperation between China and Arctic countries is included in the framework of the BRI initiative, the Chinese government respects the willingness of Arctic partners, and will rely on the development and

utilization of the Arctic sea route with all interested countries, especially Arctic states.

Hence, many Arctic countries see the PSR also as an opportunity and gave positive responses. Finish President Sauli Niinisto believes that “the Polar Silk Road is not only a plan for more roads, railways and shipping routes, but also a vision for promoting understanding among different peoples”.<sup>19</sup> Iceland's Foreign Minister, Mr. Thordarson underlined that his “government follows carefully and with interest the Belt and Road Initiative, including the "Silk Road on Ice", which is focused on opening up new shipping routes through the Arctic.”<sup>20</sup> Russian President Vladimir Putin has expressed that Russia is consistently upgrading maritime, railway and road infrastructure, investing significant resources into improvements to the NEP in order for it to “become a global competitive transport artery”, and more importantly to calling for “completely reconfigure transportation on the Eurasian continent”, by putting “infrastructure projects within the EAEU and the One Belt, One Road initiative in conjunction with the Northeast Passage”<sup>21</sup>.

*Prioritizes knowledge accumulation and scientific research as the guiding principle for cooperation.* The Arctic is no doubt rich in resources, but is also the region that receives the most direct impact of climate change, climate change is causing major changes in the Arctic, threatening the Arctic ecosystem, including changes in species range, wetland loss, and destruction of the marine food chain, which demands of utilization and development in a sustainable manner are more urgent than other places. Coal, metals, oil and natural gas, fishery resources and other “Arctic golds” are stored in a fragile environment and harsh production conditions. Therefore, in addition to the exploration of Arctic resources and new shipping routes, all human activities regarding resource exploration require environmental risk, production safety risk and ecological sensitivity assessments. In this sense, the PSR should reflect common exploration of humankind for accumulate knowledge, responsible action and joint response to global challenges, to understand how climate change and human activities pose obstacles to the migration and reproduction of Arctic species, and how environmental

pollution such as oil spills can affect fragile marine ecology. The acquisition of knowledge and the response based on scientific researches are necessary for the development the PSR.

Currently, one of the biggest challenges in the year-round operation of Arctic shipping routes is limited monitoring and forecasting knowledge of sea-ice conditions, frequent navigation with limited hydrological data. China is aimed to joint research and data sharing on feasibility and operational safety of the PSR with interested parties. This can occur under various frameworks including the International Arctic Science Committee, Arctic Council working groups, the University of the Arctic, and the Agreement on Enhancing International Arctic Scientific Cooperation, also through bilateral cooperation. Formulating and implementing mandatory environmental standards and technical requirements based on a solid scientific basis is essential to the PSR. Navigation security in the Arctic shipping routes is one of China's priorities of concerns, which has been conducted comprehensive studies and hydrographic surveys with the aim to improving the navigation, security and logistical capacities in the Arctic region. China abides by the Polar Code, and supports the IMO in playing an active role in formulating navigational rules for Arctic shipping.

Besides conducting research on climate change trends and ecological assessments, innovation in both the natural and social sciences can be promoted by strengthening research on Arctic politics, economics, law, society, history, culture, and the management of human activities. In addition, sustainable development in the Arctic will need to balance development and protection at the international level and catalyze bilateral and multilateral cooperation across various sectors—e.g., the economy, environment, health, and infrastructure. To this end, Arctic states, non-Arctic states, and nonstate actors should coordinate their long-term policies on technical standards and investment of the PSR. Plans for cooperation should address the preservation of ecology and biodiversity, prevention of marine pollution in Arctic sea routes, reduction in marine acidification, and promotion of sustainable fisheries.

*Promotes green technology solutions and humanistic concerns.*

Technology serves humanity. The exceptionality of the PSR and Arctic region as whole raising the demand of green economy and green solutions, require both “economic development road map” and the “green technology progress map”. Although the economic benefits driven by the opening up of shipping routes will increase the economic development rate, but extreme weather condition such as low temperatures, magnetic storms will pose a threat to equipment and personnel safety. The core area of Arctic technological innovation need to focus on communications, navigation, infrastructure and logistics, in particular on various scientific monitoring and detection technologies, engineering techniques suitable for Arctic environment, shipbuilding and navigation, resource utilization technologies in permafrost regions and fragile environments.

China attaches importance to both land based and marine based cooperation of the PSR, promotes the interaction between the inland economy and the marine economy through infrastructure connectivity, also encourages the development of technology and equipment that pays attention to environmental protection capabilities and innovative elements in the construction of Arctic infrastructure, focuses on sustainable energy system, including wind power, ocean tidal energy, geothermal energy and hydropower, strengthening clean energy cooperation with Arctic countries, exploring the supply and utilization of geothermal and wind energy, achieving low-carbon development.

Promoting interconnectivity of the Arctic is an important indicator for innovative solutions of the PSR. To achieve a balance between development and protection, China is committed to green solutions of infrastructure construction and digital connection in the region. Norway is actively considering the possibility of greater involvement by Chinese Arctic shipping stakeholders,<sup>22</sup> the Arctic Corridor project -railway project that would connect the city of Rovaniemi in northern Finland with the Norwegian port of Kirkenes- could be well-suited for cooperation under the PSR framework, parties concerned have come to China to discuss the possibility to cooperate with Chinese companies and the project has a brochure in Chinese.<sup>23</sup> In addition, Chinese government and enterprises are involved in Arctic cooperation in

submarine cable construction. The Ministry of Industry and Information Technology of China and China Telecom are working with the Finland on trans-Arctic submarine cable project- a 10,500 kilometer fiber-optic maritime cable link across the Arctic Circle- and will be joined by Russian, Japanese and Norwegian partners.<sup>24</sup>

The Arctic is also home to four million people, including indigenous populations and other residents highly dependent on the Arctic ecosystem. Accelerated ice melting eases access to resources, aiding the economic development of indigenous communities, but increased offshore and onshore commercial activities endanger the traditions and lifestyles of indigenous peoples, who want to preserve the environment and develop it using traditional knowledge. The development of the PSR needs to focus on the UN 2030 Sustainable Development Goals and elimination of digital gaps, by developing effective and convenient transportation and communication system, accelerating infrastructure and digital network construction, promoting people's well-being and economic development, and helping to meet the Arctic local social development education and health, language and cultural needs.

### 3.THE PSR: NEW GROWTH POLE OF CHINA-RUSSIA COOPERATION

At present, Sino-Russian relations are at their best in history. The high-level exchanges between the two countries have formed a common practice of mutual exchanges between the heads of state, and established regular exchange meetings and cooperation mechanisms between the prime minister, the parliamentary cooperation committee, and energy, investment, humanities, economy, trade, local, law enforcement, and strategic security. The Sino-Russian Arctic cooperation in this context also has an important realistic basis.

*Consistency and complementarity of interest demands.* Promoting the comprehensive social and economic development in the Russian Arctic region, promoting the development of science and technology related to the Arctic, building modern information and communication facilities, protecting the ecological security of the Arctic and border security are

main interests of Russia for its international cooperation in the Arctic. These reflect not only the rising value of the Arctic in terms of strategy, economy, scientific research, environmental protection, sea routes and resources in recent years, but also a strategic orientation made by Russia in the context of the globalization and the coexistence among major powers. In China's view, issues such as the climate change, environment, scientific research, utilization of shipping routes, resource exploration and exploitation, security, and global governance in the Arctic are "vital to the existence and development of all countries and humanity, and directly affect the interests of non-Arctic States including China",<sup>25</sup> which forms an unity of acknowledge on the significance, goals and values of Sino-Russian Arctic cooperation.

From Russian point of view, the focus of Sino-Russian Arctic cooperation is an opportunity to solve the bottleneck problem in terms of funds, technologies and resources for Arctic development, sees China as one of the most promising energy market and shipping consumer. As the largest Arctic country in terms of geography and population, Russia is the most important partner for China in the Arctic affairs. Participation in Arctic sea routes, infrastructure investment and energy projects fall within the scope of plans for deepening pragmatic cooperation between China and Russia and the framework of the BRI maritime cooperation, two countries have overlaps and complementary interests for Arctic cooperation.

*Feasibility of achieving all-level cooperation.* At the political level, the two governments and leaders have reached mutual trust in the Arctic cooperation. For instance, authorities of two countries have held the regular dialogue on Arctic affairs since 2013, and incorporated the contents of Arctic sea routes cooperation in the joint statement. In 2015, leaders signed the *Joint Statement of the People's Republic of China and the Russian Federation on the Construction of the Silk Road Economic Belt and the Construction of the Eurasian Economic Union* in Moscow, officially proposing the goal of "docking cooperation", and in the same year in the Joint Communiqué of the 20th Regular Meeting between Head of governments, proposed to strengthen the cooperation in the development and utilization of the Northern Sea Route (NSR) and carry

out research on Arctic shipping.<sup>26</sup> From 2017, President Xi Jinping expressed China's willingness to cooperate with Russia on Arctic sea routes and shipping several times. At present, the transportation departments of China and Russia are negotiating the Memorandum of Understanding on Maritime Cooperation between China and Russia in Polar Waters, constantly improving the policy and legal basis for Arctic cooperation between China and Russia.<sup>27</sup>

At the commercial level, Chinese companies have become the major force in the construction of Russia's Arctic energy and transportation infrastructure projects. The National Export-Import Bank of China and the China Development Bank have provided \$10.7 billion to the Yamal LNG project -one of the largest Arctic energy and infrastructure complex in Russia's Arctic region using the South Tambey Field as a resource base- with an output capacity of around 16.5 million tons per year by 2019, and expected to have a total investment of \$26.9 billion. Silk Road Fund has also provided a \$1.2 billion loan for the project.<sup>28</sup> The field's proven and probable reserves are estimated at 926 billion cubic meters, making it the largest Arctic producer of LNG.<sup>29</sup> Sea ports, Sabetta airport, Belkomur railway project -connecting Sabetta Port to the Eurasian railway network- and other extensive transportation infrastructure within the Yamal LNG project are being followed up simultaneously. According to new strategic cooperation agreement between Novatek and Chinese National Petroleum Company (CNPC), which already owns 20% share of Yamal LNG, parties intended to cooperate in implementing the Arctic LNG-2, as well as LNG trading and gas infrastructure development.<sup>30</sup> Novatek also signed an agreement with China Development Bank for cooperation as part of this project,<sup>31</sup> project which has a potential producing capacity of approximately 19.8 million tons per year and using NSR to connect the produced natural resources to the global supply chains of energy trading.<sup>32</sup> In addition, Poly Group of China and COSCO Shipping are considering to invest \$550 million to participate in the construction of the deep water port of Arkhangelsk.<sup>33</sup>

At the scientific level, China has actively carried out Arctic scientific research cooperation with Russia in the multilateral frameworks such



as the International Arctic Science Council and the Arctic Council in recent years, to strengthen scientific exchanges on the understanding of the Arctic. In order to implement the Sino-Russian agreement on cooperative research in the Arctic Ocean, the two countries launched the first Arctic joint expedition - a joint expedition of scientists on the Chukchi Sea and the Eastern Siberian Sea in the Russian Arctic Ocean exclusive economic zone - in August 2016<sup>34</sup>, conducting a comprehensive survey on the Arctic Ocean has become a historic breakthrough in the cooperation between two countries in the Arctic.

*The necessity of finding new "growth pole" for pragmatic cooperation.* It is worth noting that although China-Russia pragmatic cooperation has made great achievements in recent years, however, equivalent boost of economic and trade partnership has not been fully stimulated by the high level political-security mutual trust and cooperation, bilateral trade consists relatively limited share of total foreign trade of China. With the continuous development of globalization, the world economy and the global trade pattern have undergone significant changes, exploring the new growth pole of Sino-Russian pragmatic cooperation has become an important mission for both sides. From medium and long-term perspective, the demand and pragmatic cooperation between China and Russia are no longer limited to the relationship between energy consumers and producers, the trade structure is no longer confined to traditional manufacturing and energy resources, and the form of trade is not limited to unilateral investments, it requires adaptation to the current global economic situation, and consistency with the regional environment and of domestic agendas of both countries regarding goals, priorities and capabilities.

Promoting Sino-Russian Arctic sustainable development cooperation with the joint effort on transportation infrastructure and energy projects will not only maintain traditional energy cooperation, but through Yamal LNG and other infrastructure projects which practice innovations on investment models, equity structures, profit sharing methods, will formulate common interests from multiple dimensions, develop new model of mutual beneficial cooperation with shared risks, promote "embedded" development model and win-win

results.

#### 4. CHALLENGES REMAIN

Although the top priority of jointly building of the PSR is to promote the protection and utilization of the Arctic, due to its special geographical location and strategic significance, environmental security requirements, vulnerability of natural conditions for operation, unpredictability economic benefits, and the geopolitical cooperation or competition of the Arctic countries and relevant stakeholders are constraining prospects of cooperation.

*The significant interference of global and regional geopolitics.* In 1987, the famous Murmansk Speech made by the Soviet leader Mr. Gorbachev, has proposed that Arctic should transform from the military confrontation into the “Zone of Peace”<sup>35</sup>. But global climate change has catapulted the Arctic into the center of geopolitics, as melting Arctic ice transforms the region from one of primarily scientific interest into a maelstrom of competing commercial, national security and environmental concerns, with profound implications for the international legal and political system,<sup>36</sup> the “Looming Resource War” and “Arctic Gold Rush”<sup>37</sup> are becoming major concerns.

Peace and stability in the Arctic are the basis for the cooperation on the PSR. But geopolitical thinking, especially the Cold War mentality still interferes with and influences economic cooperation and environmental governance in the Arctic. The hidden dangers of new military deployments and the deterioration of the security situation have emerged, which confirmed by increased military investment and construction in Russia, the U.S. and Canada northern borders. Under the influence of the geopolitical game that tends to be normalized between Russia and the United States, and confrontation between Russia and NATO countries in the security field gradually extending to the Arctic region. As one of results of the Ukrainian conflict, the United States and its European allies have launched several rounds of sanctions against Russia, the content has been extended to ban the export of

technology for deep sea and Arctic resources development, as well as sanctions against Russian oil companies and banks, have affected the speed of development of the Russian Arctic development strategy. The friction between Western countries and Russia has caused serious damage to mutual trust between Arctic countries, and at the same time brought more uncertainty to the participation of Arctic countries in Arctic affairs, in particular the prospect of the PSR cooperation.

*The potential challenges of global environmental politics.* Global environmental politics is game of different interest groups and values regarding method of response and resource delivery in countering global challenges such as climate, environment and ecology, which also formed a harsh public opinion environment for the construction of the PSR. On the one hand, Arctic environmental protection mainly focuses on the principle of sustainable development, considering the Arctic is a region where human society survives and develops, the necessary economic development is inevitable, but it is necessary to protect natural resources, preserve the traditional ecology of indigenous people, protect wild animals and plants, and the pollution caused by economic activities in Arctic sea areas cannot exceed the self-purification capacity of the environment. On the other hand, environmental radicalism represented by some NGO's insists the idea of prohibition of development. The Greenpeace has a strong sense of pessimism and crisis towards the future of the Arctic eco-environment, argued that resource development should be stopped in the Arctic, and material and population growth in the region should be stopped.<sup>38</sup> Many companies are under pressure from environmental protection NGO's on their development activities in the Arctic.<sup>39</sup> For example, in 2013, members of Greenpeace took the Arctic Dawning to the Gazprom rig on the Pechora Sea oil field, obstructing exploration activities and clashed with Russian companies and governments.

*Acknowledgement and capacity gaps between participants.* Compared with most of the routes in the BRI, the PSR represents higher level of technology in cooperation, representing a more roundtrip flow of technology, capital and information. Regarding China's participation, Arctic countries have high expectations for China's infrastructure

construction capabilities, technology investment and capital investment, but at the same time follow strict standards of choice. For China, jointly building the PSR would be a new experience in cooperation with developed economies, the social development goals of the developed Arctic economies -social justice, ecological balance, economic development, intergenerational equity, economic ethics, climate response- are more diverse and integrated, the decision-making mechanism of social resource allocation is also complicated, reflects great differences in the pace of procedures and decision-making from China's experiences.

*Economic and technological uncertainties.* The growing demand for transit shipping via the Arctic Ocean is an important driving force for the construction of the PSR. For instance, the NSR has experienced a seasonal ice-free period in recent years under the impact of climate change, and voyages have also increased significantly. Although the cargo volume transported via the NSR in 2016 has exceeded the record of Soviet Union of 6.5 million tons, but transit voyages connecting East Asia and Europe are in fluctuation. From 2011 to 2013, the number of transits via the NSR was 41, 46 and 71 respectively, but it dropped to 22, 18 and 19 from 2014 to 2016.<sup>40</sup> In the short term, the NSR can play the role of domestic and cross-border transport corridor, its international transport vitality is based on Russia's own international trade demand, its needs of industrial production and local residents' living, and most importantly, the international attraction, stable transit demand and year-round operation possibility of the NSR are still depend on more advanced navigation, monitoring, marine search and rescue technologies and practices.

The commercial benefits of the PSR are based on the ice melting trend of the Arctic Ocean, and automatically triggers higher environmental standards in combating of ecological crisis caused by it, thereby increasing costs of development. In addition, commercial benefits of the PSR will be affected by the improvement of navigation conditions on traditional routes, the world economic recovery, the fluctuation of international oil prices, and the replacement speed of renewable energy sources. Therefore, require more in-depth scientific

research and comprehensive discussion on the pace of construction and effectiveness of the PSR.

## 5.CONCLUSION

Generally speaking, relevant countries have reached a consensus on the necessity and possibility of jointly building the PSR and Arctic development cooperation at the macro level. However, the related political, economic, social, technical risks impose more coordination in the development focus, cooperation methods and technical standards. China's focus will be tied up to the principle of sustainability, accelerating mutual consultation between leaders and authorities of Russia, Finland and other countries, in accordance with the multi-actors, multi-dimensional participation model and long-term projects. China will promote coordination and dialogue at Arctic Council, Arctic Economic Council, Arctic Science Ministerial and other multilateral platforms, advance bilateral dialogues on the PSR with Arctic states and between high-level trilateral dialogues on Arctic issues China, Japan and the Republic of Korea, and actively support platforms such as "The Arctic: Territory of Dialogue", "The Arctic Circle", "Arctic Frontiers", "The China-Nordic Arctic Research Center", in promoting exchanges and cooperation among the stakeholders, including NGO's, comprehensively assess the geopolitical, economic and security impacts of related construction, and maintain peace, stability and sustainability in the Arctic.

## NOTES

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## Chapter 8

### The Role of Arctic Gas in Sino-Russian Political and Economic Relations<sup>1</sup>

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Sino-Russian cooperation in the field of Arctic energy had caused widespread concern, largely due to two factors: Firstly, because of the Crimea issue and the Ukraine crisis, Western countries imposed a series of severe economic sanctions on Russia that began in 2014. As a consequence, Russia does not have access to technology, markets and capital it needs from the United States and other Western countries to support its Arctic energy development plans. Will China, which is not a party to the sanctions but remains one of the most important world economies with both available capital and a large potential market, use this opportunity to participate in Russian Arctic development projects without international competition? Would China's choice to partner with Russia cripple the effect of the sanctions against Russia? Additionally, would China's cooperation in the Arctic be seen as a sign that the Sino-Russian strategic coordination partnership is strengthening? Would these new Sino-Russian relations lead to a new alliance bloc?

## 1. THE DEVELOPMENT OF SINO-RUSSIAN POLITICAL AND ECONOMIC RELATIONS: BACKGROUND AND MOTIVATION

In 2016 we witnessed the further improvement of Sino-Russian relations. The increasing mutual trust between the top leaders of China and Russia provides political support for more bilateral economic cooperation and policy coordination in the international arena. The two economies are complementary in many ways, and combined with this accumulated foundation of political good will, are both driving forces that promote greater economic cooperation. Ultimately, Western countries' sanctions and containment policy are providing an external force to promote a closer strategic partnership between China and Russia.

Russian President Vladimir Putin paid a state visit to China on June 25, 2016. Chinese President Xi Jinping and his Russian counterpart agreed to beef up mutual support and enhance political and strategic mutual trust. They vowed to steadfastly deepen their comprehensive strategic partnership and coordination, and to provide more mutual political support.

Even though the two countries have not formed a formal alliance, the two leaders agreed that the two countries should more closely coordinate on major international and regional issues, in order to jointly safeguard the security of the region. The two countries are ready to extend mutual support and understanding on issues concerning each other's core interests and major concerns. China and Russia's leaders have vowed to resolutely safeguard the purposes and principles of the UN Charter, basic norms of the international relations, global strategic balance and stability, as well as international justice.

Putin called for more cooperation in trade, energy, high technology and people-to-people exchanges, as well as supporting the construction of the Eurasian Economic Union (EEU) and the Belt and Road Initiative. Xi Jinping said the two countries should deepen pragmatic cooperation and alignment of interests, and assist each other in dovetailing the Belt and Road Initiative and Eurasian Economic Union to promote broader regional economic cooperation, noting that both nations are both major

world economies and emerging markets. Xi and Putin also witnessed the signing of more than 30 cooperation deals, covering sectors such as economy and trade, foreign affairs, infrastructure, technology and innovation, agriculture, finance, energy, media, Internet and sports.

When Chinese Premier Li Keqiang met with Putin, Li said that China was ready to align with Russia's EEU strategy and reach institutional arrangements on trade and investment on an early date. He also vowed to expand the scope of energy cooperation in areas such as oil and gas, nuclear energy, coal and electricity. He also spoke about promoting mutual investment and cooperation on large projects, as well as establishing more financial cooperation in currency swaps, payment systems, and within multilateral frameworks.

On December 2015, after the meeting between Chinese Premier Li Keqiang and Russian Prime Minister Vladimir Medvedev, the two countries issued a joint statement to illustrate their support of a comprehensive strategic coordination partnership between the two countries. The statement read, "The two sides stressed that no matter how the international and regional situations change, the two sides will continue to regard strengthening mutual relations as their diplomatic priority; firmly support each other's efforts to safeguarding their respective core interests with respect to national sovereignty, security and development interests, will promote the understanding and friendship between the two peoples, and strengthen coordination in international and regional affairs; Translate the advantages of good high level political ties into tangible results in practical cooperation and cultural and people -to-people cooperation; and make concerted efforts to address external risks and challenges to national rejuvenation, so as to jointly promote world peace, development and prosperity." In the joint statement, the two prime ministers showed their willingness for the first time to cooperate in developing the Northern Sea Route (NSR) into a competitive commercial sea route in the future, which indicates that the Sino-Russian cooperation in the Arctic might be undergoing an upgrade to a more operational phase.

Currently, however, China and Russia are not willing to elevate the relations between the two countries to the alliance level when it comes

to security and military issues. As early as 1982, China formulated a policy of not making or joining any alliance with any nation, which it has maintained during its period of rapid development over the last three decades. Maintaining good political and economic relations with the United States, Japan, Europe, Russia, and other countries at the same time is also in line with China's security interests and development interests. That is why China insists that developing a strategic partnership between China and any other country should not be seen as a threat to any third party. China believes that setting and joining any alliance will hamper China's ability to develop and maintain good relations with the rest of the world. China does not expect any conflict between the big powers or the blocks of powers that could create an embarrassing situation where China was forced to choose sides. The last thing China wants is for the world to begin a new Cold War.

Both Chinese and Russian scholars believe that forming a military alliance will lead to new risks instead of increased security. Such an alliance would restrict the members from diplomatic independence and freedom. In 2010, Sino-Russian relations were defined as a comprehensive coordination and strategic partnership. This concept absorbs the experiences and lessons of the historical interaction between China and Soviet Union and conforms to the characteristics of each country's social development, as well as various international realities. This strategic relationship has a functional flexibility and a wide range of opportunities for developing concrete policies in the future. If China and Russia face a common external challenge in the international arena, then this relationship can become closer, while there are no long-term binding mutual obligations. There is no need to form a military alliance between China and Russia. The present relationship is sufficient to help China and Russia meet both external challenges and the needs of strategic coordination.

Since 2014, Western countries have imposed economic sanctions against Russia because of the Ukraine issue. The U.S. has additionally taken a containment policy with regard to China because of the South China Sea issue. These simultaneous actions created the external force that drove China and Russia to establish a closer strategic relationship.

But China's strategic research community clearly knows that the strategic alliance between China and Russia does not serve the interests of the United States, nor does it serve the interests of Europe. The United States will eventually react to this development in as-yet uncertain ways.

China will not object to Russia's military deployment in its sovereign Arctic territory. We believe that Russia's military deployment in the Arctic is an expression of Russia's legitimate rights to protect its national interests. From the perspective of Arctic governance, Russian military deployment provides enhanced Arctic governance ability, especially by enhancing the Russian Arctic search-and-rescue capabilities that help to offset the shortcomings of infrastructure and shortages of labor in that region.

## 2. FACTS ABOUT SINO-RUSSIAN ENERGY COOPERATION

Energy cooperation in the Arctic region between China and Russia is indeed happening. This cooperation is not specifically part of the framework of China's Arctic policy, but instead fits into the framework of China's multi-channel energy imports. Because Russia designates its Arctic region as its most important energy development base for the future, then it stands to reason that Sino-Russian energy cooperation obviously extends to the Russian Arctic region. The most important decisions related to energy cooperation in the Arctic were made at the bilateral level. With the support from both governments, specific oil companies from both sides negotiated agreements in accordance with each country's respective interests. The important Arctic policy makers, including the relevant agencies affiliated with the Ministry of Foreign Affairs and the State Oceanic Administration, were not involved in the negotiations.

In May 2015, leaders of the two countries signed a landmark Sino-Russian joint statement, which read in part: "The two sides will continue to find common ground for promoting regional economic integration within their respective economic initiatives, the Silk Road Economic Belt Construction and the Eurasian Economic Union, to ensure a sustainable growth in the Eurasian region while strengthening

mutual trust and cooperation on the basis of equality.” The statement also “committed to opening up a common economic space”.<sup>2</sup>

In the long term, Sino-Russian cooperation in the Arctic aligns with the interests of China’s development. Firstly, Sino-Russian cooperation in the Arctic is complementary to both countries’ economies. Russia’s Arctic energy and NSR development are activities with global significance that can drive the social and economic development in the region and also be conducive to promote world trade. Such development projects need capital and technology investment, and Chinese capital is currently evaluating suitable projects all over the world. The cooperation incorporates commitments from each side to realize common development. Secondly, China’s aspiration for sustainable development and environmental ecological security leads to higher demand for oil and natural gas imports from Russia. Establishing a long-term stable arrangement for oil and gas supply is in line with China’s national interests. Thirdly, the exploitation of oil and gas resources in the Arctic Ocean is accompanied by the construction of the NSR. For China, the value of this Arctic sea route will continue to increase with the further exploitation of Arctic oil and gas resources as well as normal business shipping in the NSR.

China’s Arctic energy cooperation with Russia also presents some difficulties: first, because of the fragile ecosystem and harsh climate conditions, the standards in labor safety, human health and environmental protection for economic activities in the Arctic region are very high and strict. China’s related enterprises lack experience in exploiting oil and gas in the Arctic region. In addition, the Russian Arctic region lacks sound infrastructure to carry out Arctic economic development. In 1990s, due to the collapse of the Soviet Union and a lack of sufficient financial support, the main infrastructure, especially transportation, industrial and energy infrastructure, were almost paralyzed and became inoperable in some instances. The Arctic shipping system built by the Soviet Union was destroyed, and reconstruction work is arduous. Furthermore, Russia’s poor economic performance, combined with the global oil price collapse and Western economic sanctions, make it more difficult to calculate the investment returns

from Russian oil and gas projects.

The Sino-Russian energy cooperation committee established in 2008 is responsible for the negotiations and dialogue in the field of energy cooperation. By the end of February 2016, the Committee had held 12 meetings of the representatives led by the deputy prime ministers of both parties.

Sino-Russian energy cooperation has achieved many positive results. In November 2010, a Sino-Russian crude oil pipeline started its trial operation. After 15 years of negotiations, the Sino-Russian oil pipeline supply agreement on the East Siberia-Pacific China branch oil pipeline was finally signed in September 2012. According to the agreement, Russia will export of 1500 tons of crude oil annually through the pipeline to China in the coming 20 years. On March 22, 2013, President Xi and President Putin signed a joint statement in Moscow, hailing this mutually beneficial cooperation. The two sides reached a series of consensus agreements to increase crude oil supply to China, including the construction of a natural gas pipeline, an agreement for China to import LNG from Russia, and a construction joint venture to build refineries, factories, and other projects. In the same year, PetroChina joined the largest natural resources project in the Russian Arctic region, the Yamal liquefied natural gas project, by purchasing shares of it, which became the prelude of the North Sino-Russia energy cooperation in the Arctic region. On May 21, 2014, Chinese and Russian governments signed a memorandum on a Sino-Russian joint project for gas supplies to China's eastern region. China National Petroleum Corporation and Gazprom also signed a related contract. According to the memorandum and the provisions of the related contract, Russia will provide 38 billion cubic meters of natural gas per year to China through gas pipelines, beginning in 2018. The contract will last for 30 years and the annual highest projected supply will reach 60 billion cubic meters.

According to Russia's 2030 energy strategy, by 2030 Russia's oil output will reach 535 million barrels, of which 330 million barrels will be for export. Natural gas annual production capacity will reach 940 billion cubic meters, with 368 billion cubic meters of natural gas for export. At that point, Russia will increase its exports of oil and gas to

East Asian countries, including China, Japan, South Korea and other Asia-Pacific countries. Exports of oil and petroleum products to East Asia will increase from 6 percent to 22-25 percent; the export share of natural gas will increase from 0 percent to 19-20 percent.<sup>3</sup>

The Yamal LNG project is one of the world's largest natural gas exploration and development projects. This project, which Putin has emphasized, is Russia's key project for its Arctic development strategy. In general, the Russian federal government provides financial support to major energy resource projects. The Sabetta airport, which services gas fields in Russia's far north, is built by means of public-private partnership led by the government. The Yamal LNG project includes a set of other projects, including gas field development and liquefied natural gas production, transportation, trade, financing, and upstream and downstream integration. The most important one is the construction of a large liquefied gas factory and the port of Sabetta. According to the plans, the project will include construction of a liquefied natural gas plant with three production lines and annual output of 27 billion cubic meters. LNG plant construction will be completed and put into production in 2017. The LNG products will be exported to the Asian and European markets via the NSR.

The Yamal LNG project will run for at least 35 years. According to the contract, 27 percent of the Yamal liquefied gas will be exported to China, 36 percent exported to other Asia-Pacific countries, and about three million tons of product will sold to the Indian market. In order to guarantee LNG transportation to the Asian market, Nova Tektronix Inc. will be equipped with two nuclear-powered escort icebreakers.

In January 2014, the China National Petroleum Corporation (CNPC) acquired a 20 percent stake in the project. After the completion of the transaction, the Russian company Novatek holds 60 percent of the shares in the Yamal LNG project, and Total holds a 20 percent stake, while CNPC holds 20 percent of the shares. In December 2015, China Silk Road Fund and Nova Tektronix Inc. signed an equity transfer agreement of the Yamal project of 9.99 percent of the shares. Silk Road Fund became the fourth equity holder after Novatek (50.1 percent stake), France's Total (20 percent stake) and CNPC (20 percent



stake). Within the framework of this transaction, Novatek will also receive loans from Silk Road Fund for a period of 15 years for project financing. In 2016, Yamal LNG project received €0.78 billion from two Chinese banks, China EximBank and China Development Bank. Over the next 15 years these two Chinese banks will provide the Yamal project loans with a credit line of €93 billion and 98 billion Chinese yuan. The loan contract signed with the Chinese banks guarantees the source of external funding necessary for the project, and enables the project to be implemented in accordance with the approved agenda. The agreement with the Chinese banks makes it possible to carry out the project without attracting additional funds from shareholders.

### 3. FACTORS AFFECTING SINO-RUSSIAN ARCTIC ENERGY COOPERATION

The first factor that affects Sino-Russian Arctic energy cooperation is the fact that each country has different views on market price principles. In March 2008, during the first meeting between China and Russia energy negotiators, the Chinese side proposed that Sino-Russian energy cooperation should adhere to three principles: the principle of comprehensive and long-term cooperation; market price principles; and mutual benefit (a “win-win” principle). The most important one is the market price principle, as price is always the core issue of project negotiations. The two sides have different understandings and judgments on how to define “market price principle.” A lot of cooperative projects between China and Russia in the field of energy have been postponed or abandoned because of failure to reach agreements on prices.

The second factor is the lack of mutual understanding and policy communication between the two sides. In establishing energy cooperation, the two sides should strive to understand each other's energy development planning, policies, laws and regulations, taxation, market status, and trends. Taking each other's interest into consideration will contribute to successful cooperation. At present, the understanding of the two energy administration authorities of each other's energy development planning and industrial policy is not sufficient. As for

business leaders, their understanding about each other's social and economic development, investment environment, and market research is also insufficient. This lack of shared understanding will create negative impacts on decision making and the timing of cooperation.

The third factor is that Western countries' sanctions also have a negative impact on China's investment and project cooperation with Russia. The current unstable political and economic situation has made the Russian market less appealing to some Chinese companies. The ruble's decline against main world currencies, the plunge in the world oil prices, and the economic sanctions imposed by Western countries collectively contribute to a decline in the Chinese private sector's willingness to invest in Russia.

China's economy is experiencing its most important structural adjustment since the reforms and opening-up policies that started more than thirty years ago. The Chinese government began to emphasize a new model of development and concepts, including innovation, attention to environmental issues, coordination, openness and sharing. On the one hand, China will maintain its huge demand for raw materials and energy. In recent years, China's dependence on crude oil from foreign countries increased annually. In 2015, China became the world's largest oil importing country, depending on 60 percent of its demand from foreign sources. In the field of energy resources, there is a great advantage of recognizing complementary goals between China and Russia, and there remains great potential for further cooperation. On the other hand, China's new round of development places a higher strategic priority on a more diversified and specific demand from overseas energy markets. These factors will greatly affect the trend of cooperation between China and Russia in the Arctic energy sector.

Maintaining the secure supply of natural gas will be the most important part of China's energy security. Russian oil and gas resources have become an important consideration in the diversification strategy of China's energy imports. Strengthening energy cooperation between China and Russia in the field of oil and natural gas is one of the important components of the development of a comprehensive strategic coordination partnership between China and Russia. The steady supply

of Russia's natural gas in the future will meet the needs of China's economic development and environmental protection, whenever the global economy moves towards prosperity again. At present, the low level of oil prices is good news for China. The adjustment of China's economic structure itself contributes to the decline of oil prices. China's access to energy sources from the global market is now more diversified.

There is a huge demand in Russia for sophisticated, multi-functional and digitalized equipment that can improve productivity. Russian manufacturers are unable to produce these by themselves due to the lack of related know-how and technologies. Russia also clearly understands that no matter what happens in the development of Arctic energy or the large-scale commercial use of the northern sea route, it will benefit from global economic prosperity and major Western economies in terms of technology, market and financial support. They are more convinced that Western companies possess better technology than Chinese companies. Russia's expectations for China, then, are temporary. "It is likely that, as the world energy markets and international political situation continues to evolve, this nascent Sino-Russian cooperation will be subject to dynamic revision in the coming years and decades.

After participating the Arctic energy project, China will evaluate its experience and wait for new input instead of being immediately eager to expand. China understands from its own historical process of opening its markets to attract foreign investment that the further opening of the Russian market is an inevitable trend. In the process, two economic systems and two sets of technical standards will gradually be resolved. The gap in technical level between Russia and the developed economies of the world will be narrowed. In the short run, as global oil prices declined, economic interaction between Western countries and Russia was reduced as a result of economic sanctions. Investment in the Russian Arctic region is not likely to deliver profits in the short term. For China, more opportunities in Russian Arctic energy projects will emerge only when more enterprises, especially Western companies, return to the Russian Arctic. Only then will China's current investment strategy reveal its long-term significance.

The strategic partnership between Russia and China provides a

good foundation for the present and future cooperation in the Arctic region of Russia. Russia has been worried about China's involvement in the Arctic, and new global realities have forced the Russian government to re-evaluate. The initiative to cooperate with China in the field of Arctic resources and infrastructure is an opportunity for China. China should fully understand the difficulty, challenging requirements, and strategic significance of Sino-Russian Arctic cooperation. We should identify and carry out cooperation in the field of Arctic resources, NSR and scientific investigation at the national level, to avoid the chaos of the border trade in the early 1990s.

In considering Sino-Russian cooperation in the Arctic, we should abide by the following principles: First, invest according to our capabilities. The investment in the early stage of Russian Arctic development should focus on the overall plan, and be implemented in stages; second, it is important to understand and grasp the policy changes and development trends in the Arctic region in a timely manner, to avoid any losses caused by blind investment and any potential crisis of confidence or trust.

Bilateral cooperation leads to multilateral cooperation. While China and Russia strengthen their Arctic bilateral cooperation, we should actively explore opportunities for cooperation with the United States, Canada, Norway and other members of the Arctic Council, and communicate with other Asia Pacific countries such as Japan, South Korea, and India. The significant progress in the Sino-Russian bilateral cooperation in the Arctic will promote the Arctic's peaceful development and international cooperation. Good multilateral cooperation will be conducive not only to deepening the Sino-Russian bilateral cooperation, but also to the healthy development of the governance of the entire Arctic.

## NOTES

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<sup>1</sup>This chapter is originated from a paper prepared for the 2016 North Pacific Arctic Conference.

<sup>2</sup>Joint declaration of People's Republic of China and Russian Federation on the construction of the Silk Road Economic Zone and the construction of the Eurasian Economic Union., People daily, May 9, 2015.

<sup>3</sup>Энергетическая стратегия России на период до 2030 года <http://www.minenergo.gov.ru/activity/energostrategy/>

# **Part IV**

## **International Cooperations and Innovations**



## Chapter 9

### Four Impacts from the China-Nordic Arctic Research Center<sup>1</sup>

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In December 2013, after China was granted observer status in the Arctic Council together with five other countries, the China-Nordic Arctic Research Center (CNARC) was established with joint efforts by Nordic and Chinese research institutes. Since then, CNARC has evolved from a nascent and immature conception to a real and functioning entity that will eventually develop into a full-fledged platform for academic exchanges between China and Nordic countries. The development and potential of CNARC has attracted attention from other Arctic and non-Arctic countries, marking a highlight of international cooperation on Arctic issues since 2013.

CNARC currently has 14 member institutes: University of Lapland (Finland); Fridtjof Nansen Institute (Norway); Icelandic Center for Research (Iceland); Nordic Institute of Asian Studies (Denmark); Norwegian Polar Institute (Norway); Swedish Polar Research Secretariat (Sweden); The Arctic University of Norway – UiT (Norway); The University of Akureyri (Iceland); Ocean University of China; Polar Research Institute of China; Shanghai Institutes for International Studies



(China); Shanghai Jiao Tong University (China); Tongji University (China); and Dalian Maritime University (China). Moreover, a growing number of representatives from non-CNARC members, including scholars from Canada, Russia, South Korea and other countries, also attended CNARC's annual academic symposium.

After five years of development, CNARC has produced four clear results. First, knowledge about governance structures has expanded from Arctic countries to non-Arctic countries. Second, the Chinese government has adopted the concept of "governance" to apply to its Arctic cooperation. Third, Chinese media and businesses have begun taking concrete actions to practice the concept of governance. Fourth, China's positive role in Arctic governance is gradually being acknowledged.

## 1. BUILDING EPISTEMIC COMMUNITIES: EXTENDING KNOWLEDGE FROM NORDIC COUNTRIES TO CHINA

China is a non-Arctic country. However, it is closely related to the Arctic region in terms of environment, climate change, economic development, resource utilization, scientific research and more. International cooperation in Arctic research is an important way for China to understand the dynamic Arctic situation.

The Nordic region includes five independent countries: Denmark, Finland, Norway, Iceland, and Sweden. It is a community characterized by "unity with diversities and diversities with unity." The five countries share interests in Arctic security, economic development, environmental protection, and other issues like the rights of Indigenous Peoples. For China, the Nordic region plays a role as a center of Arctic knowledge and experience. Therefore, China has far-reaching prospects for cooperation with the Nordic countries in Arctic scientific research and sustainable development.

"Epistemic community" includes knowledge authorities and expert members from different disciplines and different academic backgrounds. Its members share a set of common beliefs, ideology, values, norms and principles. Based on scientific evidence and practice, this epistemic

community establishes a set of consensus agreements regarding the knowledge base describing the causal relationship of core issues affecting the region. This consensus can help establish a link between governance policies and expected governance outcomes.<sup>2</sup> To realize the goals of governance and promote the welfare of humanity, the epistemic community champions best practices by working to influence society and policymakers.

Arctic countries, especially the Nordic countries, have vast experience in the region and have developed an accumulated body of knowledge about climate change, dynamic ice conditions, and the internal connection of Earth's systems. Chinese environmental scientists have joined global projects on the Arctic and contributed in some fields. However, in seeking ways to utilize scientific evidence to support policy decisions, there seemed to be a lack of a bridge between Chinese environmental scientists and Chinese policy makers. Chinese environmental scientists felt that government departments in China lacked clarity about how to support Arctic projects. The government thought that some scientists had offered fragmented portrayals regarding the Arctic's importance.

Under such circumstances, the Polar Research Institute of China (PRIC), led by Dr. Yang Huigen, established a department for strategic studies inside PRIC. This department plays an important role as a node in a social science network that attracts many social scientists (including international law, international relations, environment politics, global governance, maritime economy, and Indigenous People's studies) into studies on the Arctic and Antarctica.

CNARC facilitates China-Nordic cooperation in the following ways: 1) carrying out joint research projects in accordance with research themes with respect to Arctic climate change, Arctic resources, shipping and economy, as well as Arctic policy-making and legislation; 2) developing Arctic research networks and frontiers by providing opportunities for Chinese and Nordic scholars to conduct Arctic research through fellowship programs; 3) convening regularly with the China-Nordic Arctic Cooperation Symposium and at other workshops; and 4) facilitating information sharing and cultural exchanges between

China and Nordic countries in an Arctic context.<sup>3</sup>

In five years of operation, CNARC is developing a long-term mechanism for Arctic governance. It focuses on building a diversified, efficient, and open Arctic academic exchange network by means of academic conferences, economic roundtables, visiting scholars and academic exchange. CNARC connects the two academic networks from the Nordic countries and China, allowing the epistemic community on Arctic governance to rapidly spread from Nordic academia to academia in China. The platform also connects to government agencies through conferences and research reports. In addition, it further connects the media, the shipping industry and the tourism industry through the extension of the CNARC platform, "Economic roundtable."

## 2. THE CHINESE GOVERNMENT ADOPTED THE CONCEPT OF "GOVERNANCE" IN ARCTIC COOPERATION.

Although some Chinese scholars have discussed the issues for many years, the concepts of "Arctic governance" and "global governance" were not adopted in official Chinese government documents. China's official documents and speeches by Chinese leaders mentioned little about global governance and Arctic governance. With regard to Arctic issues, Chinese government policy for many years has been to place more emphasis on bilateral cooperation rather than multilateral alliances, and more attention was paid to intergovernmental mechanisms rather than multi-stakeholder approaches.

There is a growing awareness that Arctic governance is inextricably linked to global climate change trends. As such, the Chinese government began to embrace the concept of climate global governance several years ago. At the annual academic symposium at CNARC, scholars from China and Nordic countries discussed many issues of Arctic governance, as well as the path and role of China's participation in Arctic governance. Some scholars also published books and articles on Arctic governance, which contributed to linking the Arctic with climate change, as well as linking Arctic development with Arctic governance.<sup>4</sup>

In recent years, in some speeches by representatives of the Chinese

government, positive attitudes towards global governance and Arctic governance have systematically emerged. In January 2017, President Xi Jinping pointed out in his speech at United Nations Headquarters in Geneva that all nations in the world should actively strengthen global governance. In order to make polar regions and other new spaces a place for cooperation between the parties rather than competing arenas, he suggested following the principles of sovereignty, peace, benefit-to-all and joint governance.<sup>5</sup>

At the third *Arctic Circle* forum in 2015, Chinese Vice Foreign Minister Zhang Ming mentioned in particular the need to maintain an Arctic governance system based on existing international law. China supports the promotion of Arctic governance within the framework of existing international law, supports the Arctic Council as an important mechanism in Arctic governance, and supports international maritime organizations and other international platforms to play an active role in Arctic governance.<sup>6</sup> Mr. Wang Yang, Chinese deputy prime minister, said at the Russian International Arctic forum *Arctic - Territory of Dialogue* that the Chinese government is ready to promote and improve the multilateral governance of the Arctic, and actively carry on international cooperation at multiple levels and within a wide range of issues to achieve mutual benefit and win-win results.<sup>7</sup>

Mr. Xu Hong, director of the Department of Treaty and Law of the Ministry of Foreign Affairs, published an article in 2017 entitled, *Arctic governance and Chinese Participation*.<sup>8</sup> In his article, he confirmed that Arctic governance has formed a "*global-regional-national*" three-level pattern with multi-stakeholder participation. According to his view, the main contribution of China's participation in Arctic governance should include: (1) playing a positive role in Arctic governance through constructive participation in global governance; (2) actively contributing to the governance of the Arctic region; (3) steadily deepening bilateral cooperation with Arctic countries; (4) attaching importance to the positive interaction among the Arctic Council, observer countries and stakeholders; and (5) continuously working with other stakeholders to contribute Arctic governance.

It is inseparable from the ongoing communication efforts of

CNARC that the Chinese government understands and supports Arctic governance, particularly its commitment to climate change and environmental issues, and its recognition of the important role of multiple stakeholders. Director Xu Hong praised the special contribution of CNARC, saying that CNARC is moving towards to "a long-term mechanism." The Chinese government supports academic exchanges with think tanks from Arctic countries. On May 25, 2017, Vice Foreign Minister Wang Chao met with Mr. Dagfinn Høybråten, Secretary General of the Nordic Council of Ministers. Mr. Wang and Mr. Høybråten clearly put forward five platforms for strengthening bilateral cooperation, one of which is to carry out the Arctic governance based on the CNARC platform.<sup>9</sup>

### 3. CNARC ROUNDTABLE: GOVERNANCE RESPONSIBILITY EXPANDING FROM THE ACADEMIC COMMUNITY AND GOVERNMENT TO THE BROADER SOCIETY

The China-Nordic Arctic Research Center (CNARC) Roundtable is a series of meetings for invited scholars, scientists, business leaders and policymakers to focus on an Arctic topic of economic and/or cultural significance. The aim of the CNARC Roundtable is to promote Chinese-Nordic social, economic and cultural Arctic cooperation. It has been hosted on five previous occasions in conjunction with the China-Nordic Arctic Cooperation Symposium: in June 2013 in Shanghai at the establishment of CNARC; in June 2014 in Reykjavik, Iceland, regarding China-Iceland Arctic economic cooperation; in May 2015, on Arctic Shipping in Shanghai; in May 2016, on Arctic Sustainable Tourism in Rovaniemi, Finland; and in May 2017, on Arctic Shipping and Port Cities in Dalian. After five years' practice, the CNARC Roundtable mechanism is maturing. High-level influencers on Arctic affairs have attended all Roundtable events, including those from industry, media, government and academia – from the Nordic countries, China, Russia, Korea, and other stakeholders.

These kinds of exchanges help participants to understand Chinese and Nordic countries' Arctic policy to promote sustainable social,

economic, and cultural activities, but also ensures successful cooperation. Fruitful outcomes have been accomplished, such as in the summer of 2016, when the CNARC Roundtable was held in Rovaniemi, Finland with a theme of “Arctic Sustainable Tourism.” Since the Roundtable, there has been frequent and substantial tourism cooperation between Chinese and Finnish tourism companies, who were also participants in the roundtable.<sup>10</sup> In November the same year, “Baidu.com, Inc” announced the establishment of a strategic partnership with tourism bureaus from four Nordic countries. Through the sharing of resources to carry out operational activities to promote joint data exchange, Baidu Maps have also greatly enhanced Chinese tourists’ travel experience in Nordic countries. This also promotes the sustainable development of the local tourism industry in Nordic countries.

On the occasion of the 40th Antarctic Treaty Consultative Meeting held in Beijing, echoing China’s endeavor in sustainability, China’s industry leaders in polar tourism launched the *Initiative for Responsible Travel in the Polar Regions*, which unites various relevant players to promote sustainable development in China’s tourism industry and sustainable consumption among Chinese citizens.<sup>11</sup> The core initiator, Mr. Gao Jie from Shanghai China Travel International Co., Ltd has contributed to CNARC roundtables three times and bears substantial credit for ensuring and instilling a sense of environmental protection in the discussions. Mr. Gao hopes to improve Chinese travelers’ understanding of global climate change, increase environmental awareness, change consumer habits, and promote sustainable development.

#### 4. BUILDING UP CHINA'S POSITIVE IMAGE IN ARCTIC AFFAIRS

One of the aims of CNARC is to build a pluralistic, multilateral, pragmatic and open platform for cooperation in the field of Arctic social science research, as well as a network of scholars to promote awareness, understanding and knowledge of the Arctic and its global impact. CNARC was built to explore the frontiers of Arctic research, to carry out joint research on major international Arctic issues, to promote

sustainable Arctic development in the global sense, as well as enhancing cooperation between China and the Nordic countries.

Before a CNARC cooperation mechanism was formed, some Arctic scholars, including Nordic scholars and local public opinion, expressed great concern about China's participation in Arctic affairs. Some studies tended to take China's rise as evidence that China was not content with the status quo and described China as a force trying to change the existing Arctic system.

Some studies suggested that cooperation between China and Arctic countries is only a cover for China's geopolitical purposes and for acquiring energy resources. Some media also published articles saying that China's investment in Greenland and other places was an attempt to control Greenland's rare earth resources. Some articles stated that China's investment in the Arctic economic activities would inevitably bring about negative impacts, such as environmental degradation and an influx of foreign labor. This kind of negative public opinion is not conducive to China's participation in Arctic cooperation.

CNARC, based on the linkage between Chinese and Nordic think tanks, tries to make the two sides aware of the great potential of China-Nordic cooperation through symposia, academic visits and dialogue. From the point of view of Chinese scholars, we hope that the Nordic institutions and their researchers can understand more about China's positive role in Arctic affairs, as well as the opportunities accessible to all sides for thoughtful Arctic development.

Of course, these Arctic countries' concerns cannot be completely eliminated in the short term. Therefore, it is crucial to continue the ongoing exchange in the process of growing trust and cooperation. Indeed, in the last two years, governments and scholars from the Nordic countries have viewed China more objectively and gently. The importance attached to China's participation in the Arctic Circle in Iceland, the Arctic frontier in Norway, and Arctic-Territory of dialogue in Russia can be demonstrated. In addition, Chinese President Xi Jinping held talks with the leaders of Denmark, Norway, and Finland in 2017, and the leaders of all sides spoke very positively about bilateral cooperation in Arctic governance.

Besides China and the Nordic countries, the CNARC symposia have also drawn wide attention from other Arctic countries and countries outside the arctic. CNARC has attracted scholars and diplomats from Russia, Canada, the United States, Singapore, and South Korea, to name a few. The operation of CNARC has encouraged other Arctic countries to seek contacts with China with regard to Arctic affairs, and has facilitated policy coordination with Japan, South Korea and other Asia and Pacific countries on Arctic affairs.

The China-Nordic Arctic Cooperation Symposia			
1	June 4-7, 2013	Shanghai, China	Chinese-Nordic Cooperation for Sustainable Development in the Arctic: Human Activity and Environmental Change
Sessions		<ol style="list-style-type: none"> <li>1. Arctic Shipping and Resource Exploration</li> <li>2. Arctic Policies and Governance</li> <li>3. Climate Change and the Arctic in the Anthropocene</li> </ol>	
2	June 2-5, 2014	Akureyri, Iceland	North meets East
sessions		<ol style="list-style-type: none"> <li>1. Arctic Policies and Governance</li> <li>2. Arctic Policies and Economy</li> <li>3. Arctic Policies and Maritime Cooperation</li> </ol>	
3	May26-28, 2015	Shanghai, China	Arctic Synergies: Policies and Best Practices
sessions		<ol style="list-style-type: none"> <li>1. Impact of Scientific Developments on Arctic Strategies</li> <li>2. The Framing and Implementation of Arctic Policies</li> <li>3. Legal Aspects in the Arctic Governance</li> <li>4. Arctic Geopolitics and Security</li> <li>5. Trans-Arctic Synergies in Economic Development</li> </ol>	
4	June 6-9, 2016	Rovaniemi, Finlan	The Sustainable Arctic - Opportunities and Challenges of Globalization
Sessions		<ol style="list-style-type: none"> <li>1. Arctic sustainability</li> <li>2. The Global Arctic: Globalization and the Arctic</li> <li>3. China, Nordic countries and the Arctic</li> <li>4. Arctic tourism</li> </ol>	



5	May 24-26, 2017	Dalian, China	Towards the Future: Trans-regional Cooperation in the Arctic: Development and Protection
Sessions		<ol style="list-style-type: none"> <li>1. Europe-Asia Connectivity: Promoting the Potential Utilization of Arctic Sea Route</li> <li>2. Arctic Shipping: Safety and Synergy</li> <li>3. Trans-Arctic Interactions and Compatibility of Arctic Strategies and Policies</li> <li>4. Geopolitical Development of the Arctic in the Changing World</li> <li>5. Arctic Sustainability: Climate Change, Indigenous Communities and Eco-tourism</li> <li>6. Exploring the Way forward in Arctic Ocean: Scientific Cooperation and Fishery Governance</li> </ol>	
6	May23-25, 2018	Tromsø, Norway	Integrated Ocean Management in the Arctic
Sessions		<ol style="list-style-type: none"> <li>1.International Fisheries Management</li> <li>2.Marine Pollution</li> <li>3.Climate change, maritime governance and sustainability in the Arctic</li> </ol>	
7	May 8-9, 2019	Shanghai, China	Arctic Fisheries, Polar Silk Road, and Sustainable Development Practices
Sessions		<ol style="list-style-type: none"> <li>1.Polar Silk Road: Vision, Progress and Outlook</li> <li>2.Arctic Fisheries</li> <li>3.China-Nordic Policy Synergies on Arctic Sustainable Development</li> </ol>	

Source: the website of the CNARC.<https://www.cnarc.info/>

## NOTES

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<sup>1</sup>This chapter is originated from a joint paper prepared for the 2017 North Pacific Arctic Conference, co-authored with Deng Beixi(PRIC) and Zhang Pei(SIIS).

<sup>2</sup>Ernst B. Haas, *When Knowledge is Power : Three Models of Change in International Organizations*, Berkeley :University of California Press, 1990; Peter M. Haas & Ernst B. Haas, *Learning to Learn : Improving International Governance , in Global Governance*, Vol . 1, Issue 3,Autumn 1995, 2552285.

<sup>3</sup><https://www.cnarc.info/index.php/organization>.

<sup>4</sup>Yang Jian. *New Perspectives on the Arctic Governance*, Beijing: Current Affairs Press, 2014. And Zhao Long. *On the Norms of Arctic Governance*. Beijing: Current Affairs Press, 2015.

<sup>5</sup>Xi Jinping. *Working Together to Build a Community of Shared Future for Mankind* Speech delivered at the United Nations Office at Geneva, Geneva, 18 January 2017.[http://www.china.org.cn/chinese/2017-01/25/content\\_40175608.htm](http://www.china.org.cn/chinese/2017-01/25/content_40175608.htm).

<sup>6</sup>Zhang Ming. ,Keynote Speech by Vice Foreign Minister Zhang Ming at the China Country Session of the Third Arctic Circle Assembly.[http://www.fmprc.gov.cn/mfa\\_eng/wjbxw/t1306858.shtml](http://www.fmprc.gov.cn/mfa_eng/wjbxw/t1306858.shtml).

<sup>7</sup>Xinhua News agency. "China ready to enhance Arctic environmental cooperation." Mar 30,2017 7:26 AM. [http://english.gov.cn/state\\_council/vice\\_premiers/2017/03/30/content\\_281475611650212.htm](http://english.gov.cn/state_council/vice_premiers/2017/03/30/content_281475611650212.htm)

<sup>8</sup>Xu Hong. "The Arctic governance and Chinese participation". *Journal of Boundary and Ocean Studies*.Vol.2, 2017.

<sup>9</sup>[http://www.fmprc.gov.cn/web/wjbxw\\_673019/t1465214.shtml](http://www.fmprc.gov.cn/web/wjbxw_673019/t1465214.shtml)

<sup>10</sup>[http://news.xinhuanet.com/2016-06/11/c\\_1119021423.htm](http://news.xinhuanet.com/2016-06/11/c_1119021423.htm)

<sup>11</sup>*The Chinese Initiative of Responsible Travel in the Polar Regions* <http://www.polaroceanportal.com/article/1525>

## Chapter 10

### The International Cooperation and Geopolitics around Beringia<sup>1</sup>

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The Bering Strait is an important narrow passage connecting the North Pacific and Arctic waters, flanked by the two largest and most influential countries in the Arctic—Russia and the United States. Peace and stability, rules and governance in the Bering Strait are particularly significant for the future development of the Arctic. East Asian countries, including China, Japan and South Korea, rely heavily on overseas trade and energy, are concerned about Arctic shipping governance. And the line of Bering Sea—Bering Strait—Chukchi Sea is the gateway for East Asian countries to enter the Arctic Ocean to participate in Arctic activities. Asian countries have expectations for the peaceful use of the Bering Strait and the Arctic, but as non-Arctic states they cannot replace the role of United States and Russia in the governance and use of the Bering Strait.

The fate of Bering Strait has been largely determined by the views and decisions of the United States and Russia on the Arctic order and Arctic international cooperation. During the Cold War when the United States and the Soviet Union launched an arms race, the entire Arctic,

including the Bering Strait, became the forefront of confrontation and the arena of great power military competition. Since Gorbachev's Murmansk speech in 1987, the Arctic has ushered in an era of international cooperation devoted to environmental protection and scientific exploration. Norwegian former foreign Minister Jonas Gahr Støre summarized such a period of international relations in the Arctic as "High North, Low Tension".

This *Low Tension* international environment has played an active role in Arctic governance in addressing global climate change, environmental protection and other important issues. In 1990, the United States and the Soviet Union concluded Maritime Boundary Agreement along the Bering Strait (known as the Shevardnadze-Baker Line). The agreement defines the parameters where the states exercise territorial sea jurisdiction or exclusive economic zone jurisdiction. The agreement also sets clear boundaries as to where each state has the right to manage fisheries and energy exploitation and development, as well as exercise jurisdiction in these maritime areas. It was designed with the intention of increasing effective regulation of marine activities and mitigating potential disputes between both states. The agreement was ratified by the U.S. Congress, but was not ratified by the Soviet Union and Russia after the collapse of the Soviet Union.

Despite the ratification has been suspended, international cooperation in the North Pacific Arctic has been fruitful in scientific observation, shipping and fishery governance over the past three decades. East Asian countries, especially Japan, South Korea and China, can participate in Arctic affairs with Russia, the United States, Canada and other Arctic countries through international cooperation, related to the Bering Strait or Beringia.

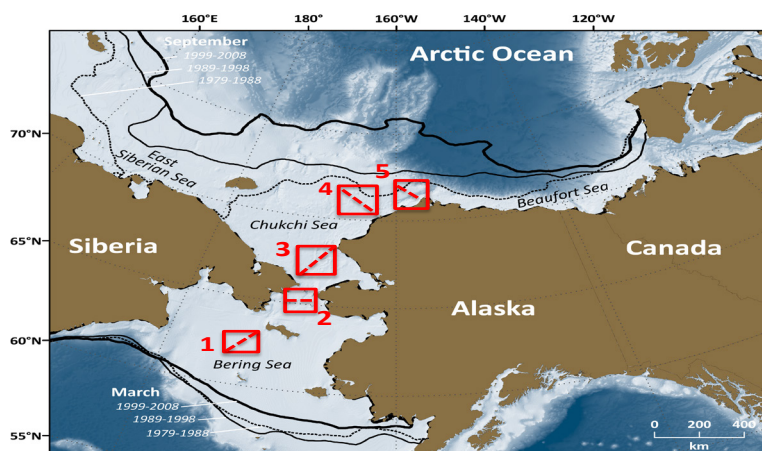
## 1. INTERNATIONAL SCIENTIFIC COOPERATION IN PACIFIC ARCTIC REGION

Pacific Arctic Group (PAG) is a noteworthy example of scientific cooperation.<sup>2</sup> PAG is a group of institutes and individuals having a Pacific perspective on Arctic science, with members from six North

Pacific countries: Canada, China, Japan, South Korea, Russia and the United States. At the Arctic Science Summit Week (ASSW) held in Kiruna, Sweden in 2003, the above-mentioned six North Pacific countries reached a consensus to establish the PAG under the organization of the International Arctic Science Committee (IASC). In the autumn of 2007, the working group was finally established with a mission to serve as a Pacific Arctic regional partnership to plan, coordinate and collaborate on science activities of mutual interest.

The PAG focuses on cooperation in the Arctic Pacific region.<sup>3</sup> Its main cooperative research and investigations include seasonal and interannual ocean observations, oceanic and atmospheric processes, seafloor mapping of ice-covered areas, ecosystem and biological indicators of climate change, sea ice thermodynamics, heat flux throughout Arctic and associated biodiversity. It also includes the effects of Pacific water inflow into the Bering Strait on sea ice cover, halocline formation and carbon cycle.<sup>4</sup>

PAG is a very effective cooperation platform for non-Arctic states to participate in Arctic affairs. Based on the information sharing of research vessels of the United States, Russia, Canada, China, South Korea and Japan, PAG formally proposed the Distributed Biological Observation (DBO) plan of this area in the working meeting held in Beijing in autumn 2010.<sup>5</sup> The DBO plan focuses on the Bering Sea and Chukchi Sea, which all research vessels of member states need to pass through before going to the Arctic, and focuses on a limited number of five sections (as shown in the figure). Each member state may undertake one or more sections according to its own investigation tasks. The PAG provides a unified criteria of the physical, chemical, and biological parameters to facilitate the member states' willingness to undertake DBO cross-sectional surveys without spending too much time and research resources on the premise of implementing their own inspection projects and contents.



China's Arctic research expeditions are multidisciplinary and comprehensive, mainly in the Bering Sea, Chukchi Sea and the Canadian basin. Each voyage usually undertakes 1 to 2 DBO monitoring sections. South Korea's annual arctic expedition focuses on the ecological environment, mainly in the Bering Sea, Chukchi Sea and the edge of the Chukchi Sea, undertakes the DBO monitoring section inspection. Japan's annual Arctic expedition focuses on physical oceanography, which is mainly concentrated on the edge of the Chukchi Sea.

In the spring of 2014, PAG Working group published the joint observation and research results, "The Pacific Arctic Region: An Introduction".<sup>6</sup> As a product of activities from the 2007-2008 International Polar Year, this volume consists of 12 chapters that were coordinated within the PAG, including meteorological status and future changes, long-term and interannual changes of sea ice, physical ocean and shelf-sea basin interaction, Arctic climate and ice-sea processes, biogeochemistry, biodiversity and biogeography of the carbon cycle in the Western Arctic Ocean, etc. This paper collection makes a systematic summary of the previous research in the Arctic Ocean region. The topics range from atmospheric and physical sciences to chemical processing and biological response to changing environmental conditions. Physical and biogeochemical modeling results highlight the need for continued data collection together with interdisciplinary modeling activities to track and forecast the changing ecosystem of the Pacific Arctic in

response to climate change. It plays an important guiding role in the follow-up project design and scientific research.

## 2. THE COOPERATION OF ARCTIC SHIPPING GOVERNANCE IN THE BERING STRAIT

The Bering Strait is a route beneficial to international sea transport, and should be “*used for International Navigation*” in terms of geography.

From the perspective of the United Nations Convention on the Law of the Sea, the Bering Strait connects the high seas or exclusive economic zone of two oceans, and there is no other route of similar convenience with respect to navigation and hydrographical characteristics between two oceans, as there is no high seas or exclusive economic zones at the narrowest point of the Strait providing full freedom of navigation for potential passers. This characteristic meets the convention's geographical criteria for “*straits used for international navigation.*”

The Bering Strait is the shortest route between the North Pacific coast and the Arctic Ocean coast and playing an important role in the use of the Arctic shipping route. The articles on icebound Areas of UNCLOS 234 give coastal states the right to adopt and enforce unilateral non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in the ice-covered areas, which is the legal basis for coastal states to manage the Arctic sea areas and the Arctic shipping routes. It must be made clear whether the governance of the Bering Strait area applies to the articles on the ice-covered area, directly affects how the coastal states of the US and Russia exercise their jurisdiction in this area.

As an Asian country, we hope that these issues will be clarified under the Arctic governance mechanism and with the efforts of relevant Arctic states. We believe that the United States and Russia have the opportunity and basis to reach a consensus on the Bering Strait passage rules. China respects the sovereignty of the US and Russia in the relevant area of the Bering Strait and their jurisdiction in accordance with relevant international law. In future international cooperation, China will also respect the leading role of the United States and Russia, understand and

support the legitimate decisions of other coastal states.

Another shipping cooperation issue is cooperation on the platform of the International Maritime Organization (IMO). Representatives of East Asian maritime countries, Arctic countries and other important shipping countries cooperate together to promote the adoption and implementation of polar code. China, Japan, Republic of Korea, together with Greece, Italy, Norway, Panama, Russian Federation, United Kingdom, United States belong to the Category (A) Council members. The 10 countries with the largest interest in providing international shipping services support polar code with the concept of Goal-based governance led by IMO Secretary-General Mr. Koji Sekimizu (Japan) and Mr. Kitack Lim (Korea)

Asian countries are pleased that Russia and the United States are cooperating on the IMO platform. On May 21, 2018, the IMO Maritime Safety Committee approved the Bering Strait shipping plan proposed by the US and Russia, which was implemented from December 1, 2018. The document became the first internationally recognized transport plan approved by the International Maritime Organization in polar waters. The system envisages six two-way routes in the Bering Strait with a width of four nautical miles and approaches to it from the US and Russian sides as well as six precautionary areas.<sup>7</sup> As informed, the routes are positioned parallel to each other across the US and Russian parts of the Strait. This allows vessels to choose the most convenient way of their passage through the Strait, taking into account weather and ice condition as well as the ship's destination. In addition, the joint US-Russian proposal facilitates safer and greener shipping in the Bering Strait. There was a steady increase in Arctic shipping activities over the last decade, and these routing measures were jointly developed in response to the increased activities. These routing measures will be helpful to keep the large vessels from navigating too close to ecologically sensitive underwater habitat.

As far as I know, the Chinese scholars and officials from the Ministry of Transport and the Ministry of Foreign Affairs have expressed their appreciation for the joint US-Russian proposal. What they appreciate is not only the content itself, but also the way that Russia and the United States jointly consult and jointly propose. This approach shows the spirit



of promoting peace and cooperation.

### 3. THE COOPERATION OF FISHERY GOVERNANCE IN PACIFIC ARCTIC REGION

China, as one of six parties (China, Japan, Poland, Russia, South Korea and the United States) signed the “Convention on the Conservation and Management of Pollock Resources in the Central Bering” in 1994 and had it ratified in 1995. The 1980s and early 1990s witnessed the depletion of pollock resources from overfishing in the Central Bering Sea, a high seas area of the sub-Arctic. With joint efforts from coastal states and distant-water fishing states, the establishment of a governance rules and the implementation of management measures of the convention has offered better protection to the pollock resources in the Bering Sea. The establishment of an international mechanism has made contributions to promoting the conservation and storage management of fishery resources, and other living marine resources in the Bering Sea.

20 years later, around 2016, a group of relevant Arctic countries started negotiations and consultations on the governance of high-seas fisheries in the Arctic Ocean, and promoted the adoption of “*preventive measures*” to manage high-seas fisheries. Preventive measures mean that commercial fishing on the high seas of the Arctic Ocean should be prohibited until adequate scientific information is available and fisheries management regime is in place. Although there is no commercial fishing activity on the high seas of the Arctic Ocean. trend analysis points out that the sea temperature in the Arctic Ocean is increasing year by year as a result of climate change, and the fish in the waters near the Arctic Ocean migrate northward into the Arctic Ocean (for example, the North Pacific fish may enter the Chukchi Sea through the Bering Strait), even migrate to the waters beyond the national jurisdiction of the central Arctic Ocean (CAO). If the melting rate of sea ice continues to accelerate, the natural barriers to commercial fishing on the high seas of the Arctic Ocean will disappear. Although there is no scientific research to prove the catastrophic impact of commercial fishing on the fragile Arctic ecology, proactive fishery governance around the central Arctic Ocean in the

future makes a lot of sense.

The climate change has important impact on the marine ecological environment. The Arctic ecosystem is extremely fragile and requires the attention and action of all stakeholders. China, the ROK and Japan actively supported the negotiations on the adoption of preventive measures in a responsible manner. The Third Trilateral High-Level Dialogue on the Arctic was held on June 8, 2018 in Shanghai, China. Mr. Gao Feng, Special Representative for Arctic Affairs of the Ministry of Foreign Affairs of the People's Republic of China, Mr. Kang Jeong-sik, Ambassador for Arctic Affairs of the Ministry of Foreign Affairs of the Republic of Korea, and Mr. Eiji Yamamoto, Ambassador in charge of Arctic Affairs of the Ministry of Foreign Affairs of Japan attended this Dialogue as the Heads of Delegations. In the joint statement “The Third Trilateral High-Level Dialogue on the Arctic”, the three Delegations welcomed the conclusion of negotiations on the draft Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean, and expressed their willingness to make efforts in the follow-ups of the Agreement.<sup>8</sup>

In October 2018, the five Arctic littoral countries as well as five non-littoral countries (Iceland, China, Japan, South Korea and the European Union) signed the “*Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean*” which initially established the order and model of fisheries governance on the high seas of the Arctic Ocean.

Deng Ying, Representative of the Chinese Government and Chinese Ambassador to Denmark attended the signing ceremony of the Agreement in Danish dominion of Iruissat, Greenland. At the signing ceremony, China congratulates the signing of the agreement and appreciates the solidarity and cooperation shown by the 10 parties involved in the negotiations in resolving the issue of high seas fisheries governance in the Arctic Ocean. Ambassador Deng said that the conclusion of this historic agreement is of far-reaching significance to the governance of high seas fisheries in the Arctic Ocean and even the governance of the Arctic.<sup>9</sup> She stressed that the agreement fills the gap in Arctic fishery governance. China is willing to work with all parties to ensure the final realization of the objectives of the agreement, and to work together for protecting

the fragile marine ecological environment of the Arctic Ocean, and sustainable development in the Arctic.

To sum up, the Agreement on the Prevention of Non-regulated High Seas Fisheries in the Central Arctic Ocean is a successful attempt of international governance to reach a preventive international agreement on what may happen in the future, which will help to protect the vulnerable marine ecosystem of the Arctic Ocean. China, Japan and South Korea on the Pacific side, Iceland and the European Union on the Atlantic side participated actively and effectively in the consultations based on the principles of responsible and preventive measures. The "A5+5" agreement model was formed between the Arctic littoral countries and other important stakeholders, discussed the goal-based governance plan, and reached the compromise of interests. On the issue of Arctic fishery governance, it embodies the governance concept of "*A shared future for mankind*" and "*coexistence of human and nature*".

#### 4. THE CONCERNS ABOUT THE IMPACT OF NEW ARCTIC COLD WAR ON THE INTERNATIONAL COOPERATION AROUND THE BERING STRAIT

Before tension arises as the result of the Crimea crisis, US-Russian relations had shown signs of improving during the Obama administration.<sup>10</sup> Under the Obama administration, the United States and Russia promoted and expanded cooperation in the Arctic, including enhanced dialogue, environmental protection, indigenous cooperation, maritime search-and-rescue exercises, intelligence-sharing mechanisms, and other efforts in the North Pacific maritime cooperation, but all were put on hold because of the Crimea crisis.

In recent years, there have been signs of "*cold war*" in the Arctic. While Russian-US relations hasn't made any improvement, and the strategic confrontation between China and the United States has emerged, the United States even projects its global strategic confrontation with China into the Arctic region. Arctic governance and international cooperation are being tested facing the geopolitical tension. In the first half of 2019, the US Secretary of State made critical remarks against

China's and Russia's arctic policies, while the US Coast Guard released the Arctic Strategic Outlook and the US Department of Defense released the Arctic Strategic Report. Both the documents show the implications of US's emphasis on geopolitical confrontation. The documents define China and Russia as the challenging roles to undermine international rules and norms, arguing that China is seeking to expand its presence and linking its economic activities in the Arctic to "*its broader strategic objectives*". The Coast Guard report emphasizes enhancing capability to operate effectively in a dynamic Arctic, strengthening the rules-based order and innovation and adaptation to promote resilience and prosperity. The Coast Guard report combines environmental, economic and security factors, taking the regional cooperation, environmental governance and geo-security into account. The Department of Defense, on the contrary, emphasizes global strategic significance and pays attention to strategic security. The DOD report calls for the establishment of early warning and awareness mechanisms, the strengthening of military operational capabilities, and the maintenance of rules-based order in the Arctic. As one of the most influential countries in the Arctic, the U.S. Department of Defense's Arctic strategy is to maintain flexibility for global power projection, including ensuring freedom of navigation and overflight. The DOD takes the Arctic as a potential corridor for strategic competition and requires all kinds of information about arctic activities, including atmospheric environment and ice observations data, marine resource environmental assessments, vessel traffic and traceability, the growth of human activities, economic infrastructure, and passing ships.

The detente between the US-Russia relations directly affects China's participation in economic and governance activities in the Arctic, and is an important foundation for China's participation in Arctic cooperation and governance in the arctic. In 2013, China became an observer state of the Arctic Council, which was closely related to the fact that the US government treated the Arctic affairs in the framework of addressing global climate change. At that time, the United States and northern European countries hoped to persuade the Chinese government to participate in the global regime to address climate change and to take greater responsibility for reducing greenhouse gas emissions and

environment protection. Once that geopolitics prevail in the Arctic again, China will face new challenges in its involvement.

To deal with the accusation against China's Arctic policy is not a hard job for China. China can fully demonstrate through its actions and attitude that its arctic policy is peaceful and constructive. China would support Arctic countries and relevant non-Arctic countries in establishing mechanisms to jointly enhance the transparency of Arctic activities including Arctic shipping and other economic activities, which is in line with China's Arctic policy. We Chinese scholars worry that once the Arctic order deviates from the main line of science, environment and climate change since 1988, it will return to the cold war state of confrontation and military deterrence between two camps. The achievement of the Arctic Council as the main platform dealing with the climate change and sustainable development could be destroyed. As an important exit/entrance to the Arctic shipping route, the Bering Strait is likely to change its function from a channel for commercial shipping route to a passage for global military conflicts.

## 5. EXPECTATIONS FOR INTERNATIONAL COOPERATION AROUND THE BERING STRAIT

Supporting the governance of the Arctic Ocean based on the United Nations Convention on the Law of the Sea and other international laws, China looks forward to international peaceful cooperation in the low-political field in the Arctic. China will continue to attach great importance to cooperation with Arctic countries and Asian countries such as Japan and the ROK in addressing climate change, scientific monitoring, fishery governance, shipping and sustainable development of the Arctic.

China insists on considering the Arctic issue in the context of the common governance goal of tackling climate change, so as to reduce geopolitical interference. Major powers should restrain their words and deeds and reduce geopolitical pressure on this region. The situation in the Bering Strait is an indicator of direction whether the Arctic is heading for "peaceful cooperation" or "cold War confrontation". International cooperation in the Arctic has been undermined by Washington's move

to shift the focus of the contradictions, and list Russia and China as adversaries of the United States and its allies. Some Arctic countries and Japan and South Korea are under pressure from the United States in cooperation with China and Russia. Some Arctic forums with the theme of environmental protection and climate change have also begun to discuss geopolitical interference.

China's Arctic policy is peaceful, environmentally friendly and sustainable. China can take more actions to prove it. In the face of the world's concerns of a new cold war in the Arctic, China may cool down its arctic activities, including its participation in climate governance, scientific research and economic activities in the Arctic, if China's concession can give the United States time to assess that the core value of its Arctic policy, whether it is dealing with climate change or geopolitical competition.

As coastal countries, the stance of United States and Russia on control or cooperation around the Bering Strait will directly affect the future of the Arctic. US-Russia relations have the characteristics of competition in high politics and cooperation in low politics in the Bering Strait area. The international community should encourage the normalization of relations especially cooperation in Arctic between Russia and the US. It is important to consolidate US-Russian cooperation at the local level and in the low political field. Although relations between Russia and the US have not yet been normalized, the two countries have cooperated in biological resources, environmental protection, visa convenience for tourism and maritime transportation in the region.<sup>11</sup> Relevant countries attach great importance to cooperation in scientific research, search and rescue, vessel supervision in Bering Straits. The legal status of the Bering Strait as a "strait for international navigation" and its transit passage mechanism have yet been implemented through international consultations.

All Parties should be wary of the challenges posed by a "*new Arctic cold war*", but should not be dragged into a paradox of self-fulfilling prophecy. Climate change remains as the world's greatest governance need. We should not deviate from the direction in climate change and other need of governance over the past two decades. We support goal-

based governance and encourage tentative exploration, and continue to follow the path of Arctic fisheries governance, Arctic shipping governance, and North Pacific cooperation. These work and efforts should not be interrupted.

Chinese shipping experts are relatively optimistic about the future of Arctic shipping. They hope to build regular Arctic trade routes, especially new container transit hubs on the Pacific side through international cooperation with countries in the North Pacific with the joint efforts by China, Japan, South Korea, Russia, the United States and Canada. For example, to realize this vision requires international cooperation between Shanghai Yangshan Port in China, Kwangyang Port and Busan Port in South Korea, and Hokkaido Tomokomai Port in Japan. There is an expectation that the United States or Russia can be integrated in the network of the North Pacific ports and play the role as the hub port by rebuilding and expansion (such as Petro Pavlovsk in Russia and Unalaska in the United States around the Bering sea). The capacity of China, Japan and South Korea in smart port equipment may contribute to the main lines and branch lines in the North Pacific shipping system. Promoting the construction of the deep-water ports in the Far East will help to further facilitate the regional development and to prepare for the shipping prosperity brought by the next industrial revolution.

## NOTES

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<sup>1</sup>This chapter is originated from a paper prepared for the 2020 North Pacific Arctic Conference.

<sup>2</sup>For PAG's Mission, Vision and Activities, please refer to its website [pag.arcticportal.org](http://pag.arcticportal.org)

<sup>3</sup>The Pacific Arctic Region is loosely defined by PAG as the area lying between Russia and Alaska (Bering Strait) and extends northward including the Beaufort Gyre and Arctic Ocean and south including the Bering Sea. The area also includes seasonally ice-covered seas. PAG activities may extend beyond these boundaries based on project objectives.

<sup>4</sup>For PAG 10 principle science themes, please refer to <https://pag.arcticportal.org/component/content/section/9?layout=blog>

<sup>5</sup>He Jianfeng, "In-depth Scientific Research in the Arctic through Regional Cooperation--

Taking PAG as an Example,” in Yang Jian ed., *Asian Countries and the Arctic Future*, Beijing: Current Affairs Press, 2015, p. 263.

<sup>6</sup>Grebmeier J.M., Maslowski W. (2014) The Pacific Arctic Region: An Introduction. In: Grebmeier J., Maslowski W. (eds) *The Pacific Arctic Region*. Springer, Dordrecht. [https://doi.org/10.1007/978-94-017-8863-2\\_1](https://doi.org/10.1007/978-94-017-8863-2_1)

<sup>7</sup><https://www.highnorthnews.com/en/imo-approves-new-shipping-corridors-bering-sea-improve-safety>

<sup>8</sup>[https://www.fmprc.gov.cn/mfa\\_eng/wjbxw/t1567103.shtml?from=singlemessage](https://www.fmprc.gov.cn/mfa_eng/wjbxw/t1567103.shtml?from=singlemessage)

<sup>9</sup><https://www.fmprc.gov.cn/ce/cedk/chn/zdjl/t1602194.htm>

<sup>10</sup>Recognizing the unique Arctic ecosystem of Beringia, a sensitive area located along the Bering Strait, President Obama and President Medvedev agreed to enhance cooperation in the field of environmental protection and the study of climate change in 2012.

<sup>11</sup>Walter A. Berbrick, *Strengthening US Arctic Policy through US-Russia Maritime Cooperation*, Geir Honneland, Leif Christian Jensen (Ed), *Handbook of the Politics of the Arctic*



# Chapter 11

## Innovations in Marine Technology and the Needs of Arctic Governance<sup>1</sup>

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### INTRODUCTION

Human activities in the most populated parts of our planet have environmental, societal, and economic impacts that extend to its less populated regions. Human-induced planetary warming is leading to climate changes occurring faster in the Arctic than anywhere else on our planet. In turn, due to the Arctic's outsized role in the earth's climate system, the growth of human activities in the Arctic also have impacts that extend across the planet.

A recent increase in human activities across the Arctic has been made possible by advances in marine technology (with shipbuilding as the core). Innovations in marine technology can and do also play an important role as tools in the governance of the Arctic. Based on the Polar Code, ISO 19906 (an International Standard for Arctic Offshore Structures)<sup>2</sup> and other governance mechanisms for the Arctic, this chapter explores the main innovations in marine technology and equipment in the context of a growing need for more robust Arctic governance, and explores ways to

enhance international cooperation in the development of Arctic marine technology and equipment innovation.

By linking the development of ocean technology with the needs of Arctic economic development and Arctic governance, we can see that Arctic ocean technology and equipment innovation has four categories: innovations driven by traditional thinkings; innovations for environmental protection; innovations for practical application; and innovations for observing information systems.

## 1. INNOVATIONS DRIVEN BY TRADITIONAL THINKINGS

In this category of innovation, the equipment and materials are generally new but the ideas and purposes of the innovation still remain traditional ones. In traditional thinking about innovations in marine technology and equipment, people have sought, for example, new types of steel to increase the strength of the hull, new technology to improve icebreaking ability, new engines to improve the ship's sailing ability, and new energy supplies to increase ships' range, among other improvements in vessel design and operation.

This concept of innovation driven by traditional thinkings seems to be a contradiction in terms, since change by its nature does not easily mix with tradition. However, change can also be incremental and build on existing designs without completely abandoning traditional approaches. At present, many of the innovative resources used for marine equipment in the Arctic Ocean are still concentrated in this area of incremental advances. These innovations can increase the reliability of equipment and the safety of personnel. They are called traditional innovations because the purposes and the driving forces of these innovations or improvements are almost identical to those of people who built marine equipment 200 years ago: 1) to upgrade the capability of human to go further, be stronger, be more powerful and to work more in harsh, cold, conditions; 2) to liberate humans from the hardships of manual work; 3) to upgrade safety of the marine equipment; and 4) to find natural resources and to utilize them for human benefit.

We can still see in the Polar Code and ISO 19906 and other

regulations for offshore oil and gas drilling platforms that many design changes are focused on improving the level of reliability with respect to personal safety. These are traditional innovations, and these innovations are welcomed by ship owners and crews. In the context of this traditional model, any damage or deterioration to the environment by the equipment and machines is likely to be negligible or treated as a secondary consideration.

## 2. INNOVATIONS FOR ENVIRONMENTAL PROTECTION

The second group of innovations are innovations for the purpose of environmental protection. In the two documents Polar Code and ISO 19906 an International Standard for Arctic Offshore Structures, rulemakers put forward more stringent requirements for environmental protection and ecological protection in response to the fragility of the Arctic biological system and the difficulty of cleanup operations should any spill or pollution discharge occur. At the same time, in response to the global trend to accelerate emission reductions, more stringent requirements for designing and manufacturing marine equipment have been put forward to decrease exhaust and carbon emissions of Polar ships and other offshore engineering equipment. This type of innovation aimed primarily at environmental protection looks to reduce and limit negative externalities. These innovations seek alternative materials and ways to adopt new technologies to reduce dumping and emissions. For example, the use of heavy oil is being phased out in favor of less polluting fuels, and no toxic or harmful liquid substances are allowed by law to leak into the Arctic Ocean and frozen soil. On the one hand, this type of innovation must meet the requirements of Arctic governance, especially environmental protection, and on the other hand it strives to reduce costs so that purchasers and users of this new equipment are also commercially profitable.

Polar waters are highly sensitive to environmental contaminants and the effects of warming on sea ice cover duration and extent. Global efforts to reduce emissions and slow the rate of warming are important to prevent the accelerated melting of ice, but so are efforts to reduce impacts

on marine life in polar waters, which exist in an intricate web connecting invertebrates to mammals. Therefore, pollution prevention requirements for ships, in addition to meeting the existing MARPOL requirements, must consider carbon emissions and gray water emissions, and even a proposed ban on the use of heavy oil, as well as the ability to recover pollutants, and institute underwater noise controls. These goals pose a challenge to ship design. Meeting the requirements of pollution prevention will increase costs, which in turn will affect the shipping economy and the willingness of shipowners to operate in the Arctic. The focus of innovation is to discover new materials and technologies to meet the requirements of the Polar Code without greatly increasing shipbuilding costs and affecting the original capabilities and functions of the ship. The Polar Code already prohibits any discharge of oil or oily mixtures, noxious liquid substances, or mixtures containing such substances from any ship into Arctic waters, and the shipping has slowly been responding to these requirements.

At the 60th meeting of the Marine Environmental Protection Committee (MEPC), significant progress was made in creating technical measures to reduce exhaust emissions and air pollution. These include developing relevant mandatory texts for the Energy Efficiency Design Index (EEDI) of new ships using MARPOL Annex VI as the legal framework. From the perspective of environmental protection, this is a very big improvement. However, compared to improvements aimed at upgrading the safety of people and ships navigating in ice regions, the problem of reducing exhaust emissions and air pollution is a more difficult task. Ships built in accordance with the Energy Efficiency Design Index (EEDI) can lack sufficient power to operate in the special navigation environment of the Arctic. In some cases, ships are not able to maintain normal speeds or move forward in turbulent winds and waves. If a ship in the ice zone does not have sufficient power, it is likely to become stuck. Therefore, any innovations in ship design must strike a balance between power and efficiency in order to meet the requirements of EEDI and properly function in cold Arctic regions.

The Arctic environment can be more sensitive and vulnerable to pollution than more temperate regions. Structures intended for such environments should be designed to minimize the potential for polluting

the environment as far as is reasonably practicable. For example, scientists have developed bacteria-resistant paints that could help prevent biofilms from forming on ship hulls, helping to reduce the introduction of invasive species in Arctic waters.

According to ISO 19906, some structures should be designed to contain spills that can result in the case of any inadvertent release of contaminants into the environment. Structural systems requiring active operations to avoid pollution should be kept to a minimum. Harmful environmental impacts should also be minimized in the construction, transportation, installation, and decommissioning phases. Special attention should be given to containing fluids and materials used for commissioning in order to avoid potential harmful releases to the environment. Fluids and materials that, if released, can pollute the environment should be contained in tanks having double barriers. Structures should be designed to facilitate environmental monitoring, which is addressed in ISO 35103. A protocol should be established for the inspection, maintenance, and repair of any tanks containing fluids or materials that can possibly pollute. Higher dissolved oxygen content can be encountered in cold water regions. Since higher oxygen levels can enhance corrosion, local data should be collected to assess this hazard, when relevant, for choosing structural materials.

### 3. INNOVATIONS FOR PRACTICAL APPLICATIONS

The third category is application innovation. Application innovation refers to newly developed marine equipment technology in other parts of the world that need targeted design modifications to meet the needs of the extreme conditions of the Arctic and unique application needs. With the development of technology, the discovery of Arctic resources, and changes in Arctic natural conditions, the types of human activities in the Arctic have begun to increase. Some activities carried out in low-latitude oceans have also begun to appear in the Arctic. Therefore, people hope to design new tools to develop new production and social activities in the Arctic Ocean. This provides an opportunity for marine engineers to create new or adapted technology for the need of Arctic marine activities.

For example, in open water in low-latitude regions, offshore oil and gas extraction activities are commonplace, wind power generation devices are regularly installed offshore, submarine cables are laid, and aquaculture cages are installed in the ocean. But in order for these activities to take place in polar waters, technological innovations for application must adapt these technologies to the Arctic.

American ExxonMobil and Norwegian Kvaerner have submitted patent applications for ice-resistant drilling rigs that can be left in place over the winter season. Some robotic IT equipment, such as nimble robotic hands, immersive vision systems, and humanoid walking robots, are also reducing the need for people to be on site at all times. Several subsea cables are under development to bring high-speed communications to remote Arctic locations. The Arctic Fibre and Arctic Link broadband projects will span more than 15,000 km from Japan to Europe, running through the Northwest Passage.

The “innovations for practical application” focusses on taking into consideration and adapting to conditions in polar waters (such as low temperatures, high latitudes, dark polar nights, and remoteness) that may affect hull structure, stability characteristics, machinery systems, communication systems, navigation, equipment functionality and efficiency, maintenance and emergency preparedness tasks, and performance of safety equipment and systems. “Winterization” is one main approach to realize these innovations for application. This involves the process of ensuring that a structure is suitably prepared for and capable of operation in the extreme winter conditions in polar waters. The objective is to design operations with appropriate materials that will perform in extreme conditions and create reliable functionality of systems and equipment, as well as a safe working environment for personnel.

These innovations for practical application in Arctic Ocean focus on the following four areas: transport and communication equipment, resource development equipment, equipment for scientific research and monitoring, and rescue equipment.

Polar transport equipment includes multi-purpose ships, semi-submersible ships, oil tankers, LNG ships, container ships, bulk carriers, ore carriers, cruise ships, and other vessels. Polar resource development

equipment includes seismic ships, drilling ship/platforms, fixed production platforms, floating production ships, subsea production systems, offshore support ships, and other related infrastructure. Polar rescue equipment includes icebreakers and lifeboats. Polar equipment for scientific research and monitoring will be discussed in the next section.

#### 4. INNOVATIONS FOR OBSERVING INFORMATION SYSTEMS

The fourth category is innovation aimed at data integration of observation systems. This innovation category involves new missions and activities of mankind in the Arctic to strengthen the understanding of changing ecological conditions of both the Arctic system and the Earth system. In order to understand the dynamic changes taking place in the Arctic system, comprehensive scientific observation data is needed. Today, most Arctic data are handled in a fragmented manner. Humans began studying the Arctic to help with weather forecasts, and later carried out surveys that included measuring ocean currents, seabed locations, ice conditions, and biodiversity. Early data about the Arctic Ocean, weather, and ice conditions are mostly scattered around a variety of shore-based and ship-based measurements. This has led to data that is spatially and temporally fragmented due to regionally different approaches, measurement standards, and different sources of data from different periods in time.

Data collection is now multi-dimensional. In addition to increasing the amount of shore-based and ship-based data, today's observational platforms include space-based, outer-space-based, ice-based, and underwater measurements that also obtain data. With the increase of different kinds of measuring devices, including aircraft-borne equipment, the number and kind of sensors used to obtain data is rapidly growing.

Another important effort underway is assimilating and integrating data of different scales, sources, and time periods with the help of information technology. These efforts aim to improve data assimilation and improve the accuracy and completeness of assessing trends of change in the earth system, ocean system, and polar system. This data integration helps in making more comprehensive analyses of these complex systems,

and therefore, it is of special significance. Regarding technological innovation in this area, we can get inspiration from the field of data assimilation.

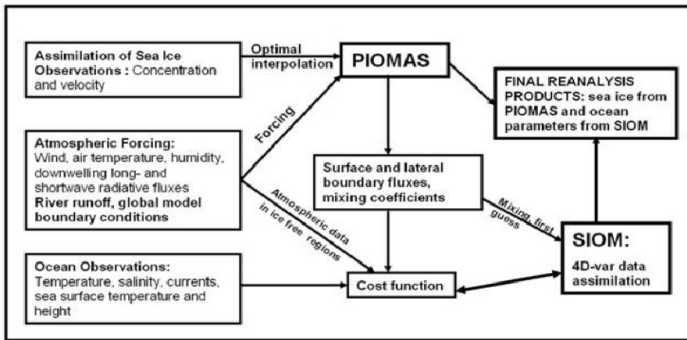
Data assimilation is an approach to combining dynamic models and observations to obtain an estimate of the true state of a system and model parameters (Wikle and Berliner, 2007). Data assimilation is a powerful technique which has been widely applied in investigations of the atmosphere, ocean, and land surface. It combines observational data and the underlying dynamical principles governing a system to provide an estimate of the state of the system that is better than could be obtained using just the data or the model alone. Much of the Arctic Ocean is covered by year-round sea ice. Ideally, any data assimilation procedure should take into account dynamic ice-ocean interactions and data assimilation algorithms should be designed for a sea-ice–ocean coupled model system.

Observations from the International Arctic Buoy Programme (IABP) were designed to monitor Arctic and global climate change and aid in forecasting weather and sea ice conditions while assimilating and validating global weather and climate models and validating satellite data.

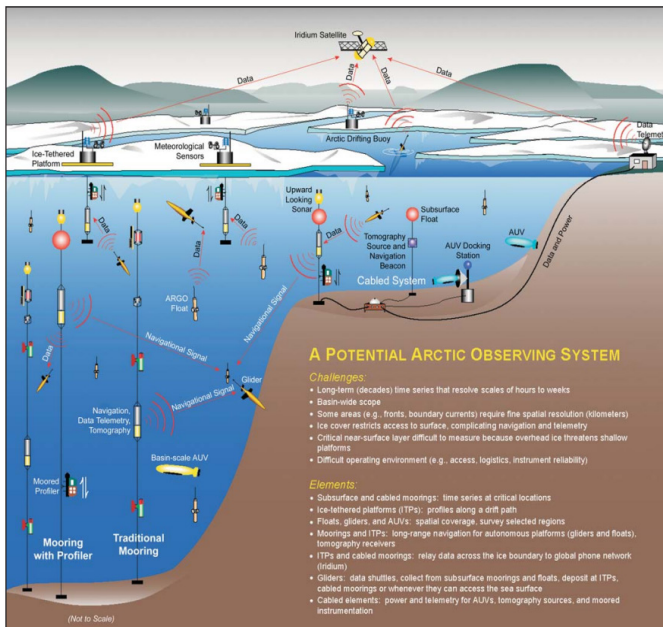
The Integrative Data Assimilation for the Arctic System (IDAAS) has been recommended for development by a special interagency research program, “A Study of Environmental Arctic Change.” IDAAS activity would include non-atmospheric components: oceanic, terrestrial geophysical and biogeochemical parameters, sea ice measurements, and human dimensions data.

The Pan-Arctic Ice Ocean Modeling and Assimilation System (PIOMAS) is one model to understand data assimilation and information integration. The original version of SIOM (Semi-Implicit Ocean Model) does not model sea ice, but now it is able to assimilate the momentum, heat, and salt fluxes between ice and ocean. It includes a coupled ice–ocean model. Arctic Climate System Reanalysis uses modern four-dimensional variational (4D-Var, adjoint) data assimilation methods to integrate the coupled information.

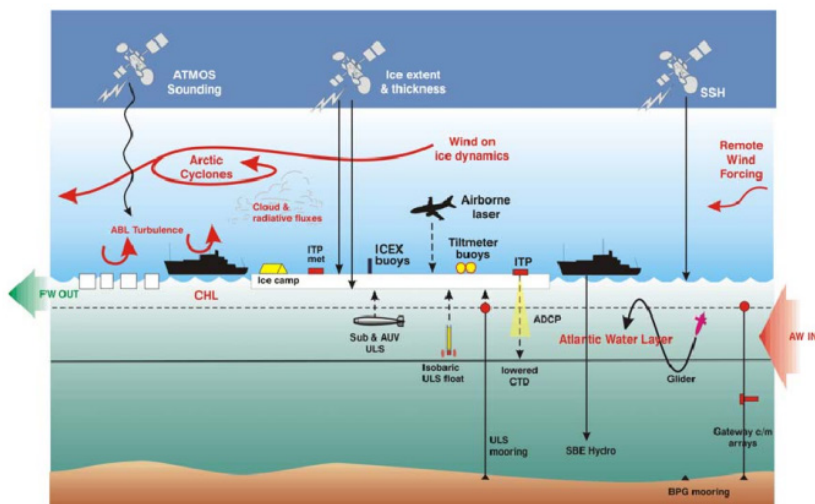




Source: Andrey Proshutinsky, Dmitri Nechaev, Jinlun Zhang and Ron Lindsay, *Toward reanalysis of the Arctic Climate System—sea ice and ocean reconstruction with data assimilation*. [https://www.whoi.edu/science/PO/arcticgroup/projects/andrey\\_project2/indexAP.html](https://www.whoi.edu/science/PO/arcticgroup/projects/andrey_project2/indexAP.html).



Source: “Arctic Sea Ice and Ocean Observations” G. Rigor, of the Applied Physics Laboratory (APL), University of Washington, Seattle; [https://www.nsf.gov/pubs/2005/nsf0539/nsf0539\\_4.pdf](https://www.nsf.gov/pubs/2005/nsf0539/nsf0539_4.pdf)



*Schematic of the vertical stack of observations from satellites to seabed in the integrated Arctic Ocean Observing System (iAOOS)*

Source: <http://www.iopan.gda.pl/oceanologia/481dicks.pdf>

In order to record and describe the changes that are taking place in the Arctic more clearly and accurately and to predict the trends of future changes, technology needs to solve two major problems: One is to increase the number of monitoring devices as well as the spatial reach and measurement capabilities of various measuring equipment. It is important to maximize access to various data that are useful for governance decisions from different parts of the Arctic system. Another problem to be solved is the isolation of ocean technology (the relatively isolated location of different ships) and the fragmentation of data (including spatial and temporal data fragmentation), which are the main reasons for the low degree of information integration in the Arctic Observation System.

Out of this need for data assimilation and information integration, marine equipment innovations must incorporate designs that include navigation equipment that can accurately chart sea surface area, the seabed, as well as a certain subsurface areas at specific depths required for key scientific observations. These must be coupled with cruising and data

collection methods that are optimized to obtain data and information. At the same time, it is necessary to design ways for this special navigation equipment to transmit information and data in a timely, safe, and reliable manner.

Marine equipment innovations in this category include: directly designing small equipments that can operate in seabed, underwater, on sea surface, and on ice and can ensure information transmission and networking, instead of simply allowing monitoring equipment to be carried on ships. There is a need to place monitoring and observation devices on submarines, such as specially designed underwater and surface unmanned and remote-control devices. In the realm of data collection, compatible data standards must be established for the next step of information processing (data assimilation, integration, simulation, calculation, and modeling).

These marine equipment innovations must be systemic, compatible, and connected with shore-based equipment, aircraft onboard equipment, and existing space-based equipment. Marine equipment acts as a hub and platform for equipment release, machine installation, data collection, and safety assurance. These hubs can be connected to the connection, installation, and data transmission of various space-based, aircraft, surface, underwater, seabed, and ice equipment. For example, marine equipment can become a receiving station for GPS satellites and other satellites on the sea and ice. Innovations in marine equipment must also consider ways to function as connecting hubs in multi-dimensional observations of the Arctic, and must take into account the technical requirements of various data collection and processing centers that receive information from shore-based, airborne, and satellite observations.

From this perspective, marine equipment used for measurement and observation is also based on Arctic governance requirements. From the design or modification of related marine equipment, it is necessary to consider the need for data assimilation and data integration into the system of systems.

From the above picture we can see a range of marine equipment that is needed for Arctic observing system. This includes Basin-scale AUV<sup>3</sup>, ROV<sup>4</sup>, CTD<sup>5</sup>, Mooring with profiler, gliders with water lasers, ARGO

float, cabled seabed systems, AUV docking station, subsurface float, upward looking sonar, drifting buoy, Ice-Tethered Platform (IPTs), cabled mooring, data shuttles, tomography receivers under the water, and others.

## 5. INTERNATIONAL COOPERATION FOR ARCTIC MARINE INNOVATION

Marine technological innovation in the Arctic requires new knowledge, new technologies, and extensive international cooperation. The international cooperation process for the development of the Polar Code is one of the most successful efforts to date regarding Arctic governance.

Under the guidance of the concept of goal-based governance led by IMO Secretary-General Koji Sekimizu (Japan) and Kitack Lim (Korea), representatives from East Asian maritime countries cooperate with their counterparts from Arctic countries and other important shipping countries using the platform of the International Maritime Organization (IMO) to promote the adoption and implementation of the Polar Code.

This chapter introduces ISO 19906 as an International Standard for Arctic Offshore Structures. The following table provides a list of countries represented in WG8 during work activities, as well as the main representatives and their affiliations. This illustrates that the Standard has combined the knowledge and experience of both Arctic and non-Arctic countries. As can be noted, the Arctic countries (Canada, Denmark/Greenland, Finland, Norway, Russia, United States) and non-Arctic countries (China, France, Germany, Italy, Japan, Kazakhstan, Netherlands, and the United Kingdom) were represented. Significant experience had been gained with measuring ice loading from offshore exploration structures deployed in the Beaufort Sea during the 1980s. Newer research projects, such as the European Lolief and Strice projects and measurement of ice loads in Bohai Sea in China and on the Confederation Bridge in Canada and in Japan (JOIA), provided new insights into ice loads and ice behavior, which have been incorporated into the new standard. The Polar Code and ISO 19906 documents partially meet the needs of Arctic governance and play an important role in regulating marine and non-ship

engineering and technology projects. These two documents also point to a direction for future marine technological innovation. The final formation of these documents is a good example of international cooperation. It also shows that the experience, knowledge, and technology of countries outside the Arctic can be well applied to Arctic governance.

Country	Representatives	Affiliation
Canada	Blanchet / Croasdale	BP / K.R. Croasdale and Associates
China	W. Dong / X Yang	Chinese National Offshore Oil Company
Denmark/Greenland	O. Pedersen	Department of Petroleum Bureau of Mines and Energy
Finland	M. Mänttinen	Helsinki Univ. of Technology
France	M. Vaché	Doris Engineering
Germany	J. Schwarz / J. Berger	Consultant / Impac Engineering
Italy	A. Baryshnikov	AgipKCO
Japan	K. Izumiyama / N. Nakazawa	NMRI / SEA System Engineering
Kazakhstan	K. Kaipiyev / T. Svetlana / Y. Smagulov	JSC Board of Oil and Gas Industry / AgipKCO
Norway	O. Gudmestad / M. Morland	Statoil / Norsk Hydro
Russia	D. Mirzoev / M. Mansurov	VNIIGAZ
The Netherlands	F. Sliggers /	Shell
United Kingdom	G. Thomas / D. Clare	BP / Arup
United States	W. Spring / D. Hinnah / J. Hamilton	Bear Ice Technology / MMS/ExxonMobil

**List of WG8 Country members and their representatives during the development of ISO 19906.**

*Source: Blanchet, D., Spring, W., McKenna, R.F., and G.A.N. Thomas. "ISO 19906: An International Standard for Arctic Offshore Structures." Paper presented at the OTC Arctic Technology Conference, Houston, Texas, USA, February 2011. doi: <https://doi.org/10.4043/22068-MS>*

China, South Korea, and Japan are all advanced countries in technological innovation and can cooperate with Arctic countries on Arctic marine equipment based on governance goals. China, South Korea, and Japan's advantages in information technology (Internet of Things), shipbuilding technology, port construction in cold regions, and smart port construction can contribute to improve governance in the Arctic. According to a KMI survey lead by Jong Deog Kim on technological innovations for a sustainable Arctic, the priority areas for the application of these technologies to Arctic include: ocean energy development and utilization; predicting and managing ocean environmental change and mitigating marine pollution; fundamental marine bioengineering; oceanographic observation and monitoring systems; ocean equipment and exploration; port operation information systems; advanced automated

maritime traffic and safety; fishery resources surveys, and aquaculture production management. Most of the listed priority areas are related to marine technology, where East Asian countries can continue to make more contributions into the future.

## NOTES

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<sup>1</sup>This chapter is originated from a joint paper prepared for the 2021 North Pacific Arctic Conference, co-authored with Shi Guijie(Shanghai Jiao Tong University).

<sup>2</sup>The objective of ISO 19906 an International Standard for Arctic Offshore Structures is to ensure that complete structures, including substructures, topsides structures, floating production vessel hulls, foundations and mooring systems, in Arctic and cold regions provide an appropriate level of reliability with respect to personnel safety, environmental protection and asset value.

<sup>3</sup>AUV stands for autonomous underwater vehicle and is commonly known as an uncrewed underwater vehicle. AUVs can be used for underwater survey missions such as detecting and mapping submerged wrecks, rocks, and obstructions. An AUV conducts its survey mission without operator intervention. When a mission is complete, the AUV will return to a pre-programmed location where the data can be downloaded and processed.

<sup>4</sup>ROV refers to remotely operated underwater vehicle. It is an underwater vehicle that is unmanned and usually tethered to the operator. The unmanned vehicle is similar to a robot, which is fitted out with sensors and sampling tools to collect various types of data. A network of cables is utilized to establish a connection between the operator and the remotely operated vehicle, which would enable the proper movement of the ROV.

<sup>5</sup>CTD stands for an acronym for Conductivity, Temperature, and Depth —is the primary tool for determining essential physical properties of sea water. It gives scientists a precise and comprehensive charting of the distribution and variation of water temperature, salinity, and density that helps to understand how the oceans affect life. It has the advantages like remote sensing, is very accurate, light weight and can be used at depths up to several thousand meters. Its disadvantages are, The small, low-powered CTD sensors that are used on autonomous instruments are more complex to operate, the chief limitation is the need to calibrate the individual sensors.

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## Appendix

# China's Arctic Policy

( January 2018 )

The State Council Information Office  
of the People's Republic of China

### FOREWORD

Global warming in recent years has accelerated the melting of ice and snow in the Arctic region. As economic globalization and regional integration further develops and deepens, the Arctic is gaining global significance for its rising strategic, economic values and those relating to scientific research, environmental protection, sea passages, and natural resources. The Arctic situation now goes beyond its original inter-Arctic States or regional nature, having a vital bearing on the interests of States outside the region and the interests of the international community as a whole, as well as on the survival, the development, and the shared future for mankind. It is an issue with global implications and international impacts.

A champion for the development of a community with a shared future for mankind, China is an active participant, builder and contributor in Arctic affairs who has spared no efforts to contribute its wisdom to the development of the Arctic region. The Chinese government



hereby issues this white paper, to expound its basic positions on Arctic affairs, to elaborate on its policy goals, basic principles and major policies and positions regarding its engagement in Arctic affairs, to guide relevant Chinese government departments and institutions in Arctic-related activities and cooperation, to encourage relevant parties to get better involved in Arctic governance, and to work with the international community to safeguard and promote peace and stability in, and the sustainable development of, the Arctic.

## I. THE ARCTIC SITUATION AND RECENT CHANGES

The Arctic is situated at a special geographical location. It commonly refers to the area of land and sea north of the Arctic Circle (approximately 66 degrees 34 minutes N), totaling about 21 million square kilometers. In the context of international law, the Arctic includes the northernmost landmasses of Europe, Asia and North America adjacent to the Arctic Ocean and the relevant islands, and a combination of sea areas within national jurisdiction, high seas, and the Area in the Arctic Ocean. There is no single comprehensive treaty for all Arctic affairs. The Charter of the United Nations, the United Nations Convention on the Law of the Sea (UNCLOS), the Spitsbergen Treaty and other treaties and general international law govern Arctic affairs at present.

The continental and insular land territories in the Arctic cover an area of about 8 million square kilometers, with sovereignty over them belonging to Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States, respectively. The Arctic Ocean covers an area of more than 12 million square kilometers, in which coastal States and other States share maritime rights and interests in accordance with international law. These coastal States have within their jurisdiction internal waters, territorial seas, contiguous zones, exclusive economic zones, and continental shelves in the Arctic Ocean. Certain areas of the Arctic Ocean form part of the high seas and the Area.

States from outside the Arctic region do not have territorial sovereignty in the Arctic, but they do have rights in respect of scientific research, navigation, overflight, fishing, laying of submarine cables and

pipelines in the high seas and other relevant sea areas in the Arctic Ocean, and rights to resource exploration and exploitation in the Area, pursuant to treaties such as UNCLOS and general international law. In addition, Contracting Parties to the Spitsbergen Treaty enjoy the liberty of access and entry to certain areas of the Arctic, the right under conditions of equality and, in accordance with law, to the exercise and practice of scientific research, production and commercial activities such as hunting, fishing, and mining in these areas.

The Arctic boasts a unique natural environment and rich resources, with most of its sea area covered under thick ice for most of the year. The Arctic natural environment is now undergoing rapid changes. Over the past three decades, temperature has been rising continuously in the Arctic, resulting in diminishing sea ice in summer. Scientists predict that by the middle of this century or even earlier, there may be no ice in the Arctic Ocean for part of the year. On the one hand, melting ice in the Arctic has led to changes in the natural environment, or possibly can result in accelerated global warming, rising sea levels, increased extreme weather events, damaged biodiversity, and other global problems. On the other, with the ice melted, conditions for the development of the Arctic may be gradually changed, offering opportunities for the commercial use of sea routes and development of resources in the region. Commercial activities in the region will have considerable impact on global shipping, international trade and energy supply, bring about major social and economic changes, and exert important influence on the way of work and life of Arctic residents including the indigenous peoples. They may also pose a potential threat to the ecological environment of the Arctic. The international community faces the same threat and shares the same future in addressing global issues concerning the Arctic.

## II. CHINA AND THE ARCTIC

China is an important stakeholder in Arctic affairs. Geographically, China is a “Near-Arctic State”, one of the continental States that are closest to the Arctic Circle. The natural conditions of the Arctic and their changes have a direct impact on China’s climate system and ecological

environment, and, in turn, on its economic interests in agriculture, forestry, fishery, marine industry and other sectors.

China is also closely involved in the trans-regional and global issues in the Arctic, especially in such areas as climate change, environment, scientific research, utilization of shipping routes, resource exploration and exploitation, security, and global governance. These issues are vital to the existence and development of all countries and humanity, and directly affect the interests of non-Arctic States including China. China enjoys the freedom or rights of scientific research, navigation, overflight, fishing, laying of submarine cables and pipelines, and resource exploration and exploitation in the high seas, the Area and other relevant sea areas, and certain special areas in the Arctic Ocean, as stipulated in treaties such as the UNCLOS and the Spitsbergen Treaty, and general international law. As a permanent member of the UN Security Council, China shoulders the important mission of jointly promoting peace and security in the Arctic. The utilization of sea routes and exploration and development of the resources in the Arctic may have a huge impact on the energy strategy and economic development of China, which is a major trading nation and energy consumer in the world. China's capital, technology, market, knowledge and experience is expected to play a major role in expanding the network of shipping routes in the Arctic and facilitating the economic and social progress of the coastal States along the routes. China has shared interests with Arctic States and a shared future with the rest of the world in the Arctic.

China has long been involved in Arctic affairs. In 1925, China joined the Spitsbergen Treaty and started to participate in addressing the Arctic affairs. Since then, China has exerted more efforts in the exploration of the Arctic, expanding the scope of activities, gaining more experience and deepening cooperation with other participants. China's membership in the International Arctic Science Committee in 1996 marked its more active participation in scientific research in the Arctic. Since 1999, China has organized a number of scientific expeditions in the Arctic, with its research vessel Xue Long (Snow Dragon) as the platform. In 2004, China built the Arctic Yellow River Station in Ny Alesund in the Spitsbergen Archipelago. By the end of 2017, China has carried out eight scientific

expeditions in the Arctic Ocean, and conducted research for 14 years with the Yellow River Station as the base. Using its research vessel and stations as platforms, China has gradually established a multi-discipline observation system covering the sea, ice and snow, atmosphere, biological, and geological system of the Arctic. The year 2005 saw China as the first Asian country to host the Arctic Science Summit Week, a high-level conference on Arctic affairs. In 2013, China became an accredited observer to the Arctic Council. In recent years, Chinese companies have begun to explore the commercial opportunities associated with Arctic shipping routes. China's activities in the Arctic have gone beyond mere scientific research, and expanded into diverse areas of Arctic affairs including the platforms of global governance, regional cooperation, and bilateral and multilateral affairs, and such disciplines as scientific research, ecological environment, climate change, economic development, and cultural exchanges. As an important member of the international community, China has played a constructive role in the formulation of Arctic-related international rules and the development of its governance system. The Silk Road Economic Belt and the 21st-century Maritime Silk Road (Belt and Road Initiative), an important cooperation initiative of China, will bring opportunities for parties concerned to jointly build a "Polar Silk Road", and facilitate connectivity and sustainable economic and social development of the Arctic.

### III. CHINA'S POLICY GOALS AND BASIC PRINCIPLES ON THE ARCTIC

China's policy goals on the Arctic 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.

To understand the Arctic, China will improve the capacity and capability in scientific research on the Arctic, pursue a deeper understanding and knowledge of the Arctic science, and explore the natural laws behind its changes and development, so as to create favorable conditions for mankind to better protect, develop, and govern

the Arctic.

To protect the Arctic, China will actively respond to climate change in the Arctic, protect its unique natural environment and ecological system, promote its own climatic, environmental and ecological resilience, and respect its diverse social culture and the historical traditions of the indigenous peoples.

To develop the Arctic, China will improve the capacity and capability in using applied Arctic technology, strengthen technological innovation, environmental protection, resource utilization, and development of shipping routes in the Arctic, and contribute to the economic and social development of the Arctic, improve the living conditions of the local people and strive for common development.

To participate in the governance of the Arctic, China will participate in regulating and managing the affairs and activities relating to the Arctic on the basis of rules and mechanisms. Internationally, China is committed to the existing framework of international law including the UN Charter, UNCLOS, treaties on climate change and the environment, and relevant rules of the International Maritime Organization, and to addressing various traditional and non-traditional security threats through global, regional, multilateral and bilateral mechanisms, and to building and maintaining a just, reasonable and well-organized Arctic governance system. Domestically, China will regulate and manage Arctic-related affairs and activities within its jurisdiction in accordance with the law, steadily enhance its ability to understand, protect and develop the Arctic, and actively participate in international cooperation in Arctic affairs.

Through all the above efforts to understand, protect, develop and participate in the governance of the Arctic, China will work with all other countries to build a community with a shared future for mankind in the Arctic region. While pursuing its own interests, China will pay due regard to the interests of other countries and the broader international community, bear in mind the importance of the protection and development of the Arctic, and of keeping in proper balance its current and long-term interests, so as to promote the sustainable development of the Arctic.

In order to realize the above-mentioned policy goals, China will

participate in Arctic affairs in accordance with the basic principles of “respect, cooperation, win-win result and sustainability”.

“Respect” is the key basis for China’s participation in Arctic affairs. Respect should be reciprocal. It means all States should abide by international treaties such as the UN Charter and the UNCLOS, as well as general international law. They should respect the sovereignty, sovereign rights, and jurisdiction enjoyed by the Arctic States in this region, respect the tradition and culture of the indigenous peoples, as well as respect the rights and freedom of non-Arctic States to carry out activities in this region in accordance with the law, and respect the overall interests of the international community in the Arctic.

“Cooperation” is an effective means for China’s participation in Arctic affairs. It means establishing a relationship of multi-level, omnidimensional and wide-ranging cooperation in this area. Through global, regional, multilateral and bilateral channels, all stakeholders — including States from both inside and outside the Arctic, intergovernmental organizations, and nonstate entities — are encouraged to take part in cooperation on climate change, scientific research, environmental protection, shipping route development, resource utilization and cultural activities.

“Win-win result” is the value pursuit of China’s participation in Arctic affairs. It means all stakeholders in this area should pursue mutual benefit and common progress in all fields of activities. Such cooperation should ensure that the benefits are shared by both Arctic and non-Arctic States as well as by nonstate entities, and should accommodate the interests of local residents including the indigenous peoples. It should also help to promote coordinated development of activities in all fields to ensure the harmony between natural conservation and social development.

“Sustainability” is the fundamental goal of China’s participation in Arctic affairs. This means promoting the sustainable development of the Arctic by ensuring the sustainability of environmental protection, resource utilization and human activities in the area. It means realizing harmonious coexistence between man and nature, better coordination between ecological protection, economic growth and social progress, better balance between utilization, management and protection, and

intergenerational equity.

#### IV. CHINA'S POLICIES AND POSITIONS ON PARTICIPATING IN ARCTIC AFFAIRS

When participating in Arctic affairs, China prioritizes scientific research, underscores the importance of environmental protection, rational utilization, law-based governance and international cooperation, and commits itself to maintaining a peaceful, secure and stable Arctic order.

##### 1. Deepening the exploration and understanding of the Arctic

The Arctic holds great value for scientific research. To explore and understand the Arctic serves as the priority and focus for China in its Arctic activities.

China actively promotes scientific expedition and research in the Arctic. China respects the Arctic States' exclusive jurisdiction over research activities under their national jurisdiction, maintains that scientific research in areas under the jurisdiction of Arctic States should be carried out through cooperation in accordance with the law, and stresses that all States have the freedom of scientific research on the high seas of the Arctic Ocean. China is actively involved in multi-disciplinary research including Arctic geology, geography, ice and snow, hydrology, meteorology, sea ice, biology, ecology, geophysics and marine chemistry. It actively participates in monitoring and assessing local climatic and environmental changes, and carries out multi-level and multi-domain continuous observation of atmosphere, sea, sea ice, glaciers, soil, bio-ecological character and environmental quality through the establishment of multi-element Arctic observation system, construction of cooperative research (observation) stations, and development of and participation in the Arctic observation network. China is committed to improving its capacity in Arctic expedition and research, strengthening the construction, maintenance and functions of research stations, vessels and other supporting platforms in the Arctic, and promoting the building of

icebreakers for scientific purposes.

China supports and encourages research activities in the Arctic by constantly increasing investment in scientific research, building modernized research platforms, and improving the capacity in, and level of, research on the Arctic. It is making a greater effort to advance research in the fields of natural science, climate change and ecological environment, accelerate the development of basic subjects such as physics, chemistry, life science and earth science, strengthen social science research including Arctic politics, economy, law, society, history, culture and management of Arctic activities, and promote innovation in both natural and social sciences. It is also working to strengthen personnel training and public awareness of the Arctic, support higher learning and research institutions to train professionals specialized in natural and social sciences on the Arctic, build science popularization and education centers, and publish cultural products on the Arctic to improve public knowledge. It actively promotes international cooperation on Arctic research, pushes for an open and inclusive international monitoring network of the Arctic environment, supports pragmatic cooperation through platforms such as the International Arctic Science Committee, encourages Chinese scientists to carry out international academic exchanges and cooperation on the Arctic, and encourages Chinese higher learning and research institutions to join the network of the University of the Arctic.

The availability of technical equipment is essential to understanding, utilizing and protecting the Arctic. China encourages the development of environment-friendly polar technical equipment, actively participates in the building of infrastructure for Arctic development, pushes for the upgrade of equipment in the fields of deep sea exploration, ice zone prospecting, and atmosphere and biology observation, and promotes technology innovation in Arctic oil and gas drilling and exploitation, renewable energy development, navigation and monitoring in ice zones, and construction of new-type icebreakers.



## 2. Protecting the eco-environment of the Arctic and addressing climate change

China follows international law in the protection of the natural environment and ecosystem of the Arctic and conservation of its biological resources, and takes an active part in addressing the challenges of environmental and climate change in the Arctic.

### (1) Protecting the Environment

China always gives top priority to resolving global environmental issues, earnestly fulfills its obligations under relevant treaties, and discharges its responsibility of environmental protection. China is actively engaged in improving the Arctic environment by enhancing the environmental background investigation of Arctic activities and the assessment of their environmental impact. It respects the environmental protection laws and regulations of the Arctic States and calls for stronger environmental management and cooperation.

The marine environment is a key area for Arctic environmental protection. China supports the Arctic coastal States in their efforts to reduce pollutants in the Arctic waters from land-based sources, in accordance with the relevant treaties, and commits itself to raising the environmental responsibility awareness of its citizens and enterprises. In order to effectively protect the marine environment of the Arctic, China works with other States to enhance control of the sources of marine pollution such as ship discharge, offshore dumping, and air pollution.

### (2) Protecting the Ecosystem

The Arctic is home to several endangered species of wild fauna and flora from around the globe. China attaches importance to the sustainable development and biodiversity protection of the Arctic. It conducts scientific evaluation of the impact on the Arctic ecological system caused by global climate change and human activities, strengthens protection of migratory birds and their habitats, organizes research on the migration patterns of Arctic migratory birds, improves the adaptability and resilience of the Arctic ecological system, and advances international cooperation in the protection of Arctic species of fauna and flora.

### (3) Addressing climate change

Addressing climate change in the Arctic is an important part of global climate governance. China consistently takes the issue of climate change seriously. It has included measures to deal with climate change such as Nationally Determined Contributions in its overall national development agenda and planning, and has made significant contributions to the conclusion of the Paris Agreement. China's emission reduction measures have a positive impact on the climatic and ecological environment of the Arctic. China is committed to studying the substance and energy exchange process and mechanisms of the Arctic, evaluating the interaction between the Arctic and global climate change, predicting potential risks posed by future climate change to the Arctic's natural resources and ecological environment, and advancing Arctic cryospheric sciences. It strengthens publicity and education on addressing climate change to raise the public's awareness of the issue, and promotes international cooperation in addressing climate change in the Arctic.

### 3. Utilizing Arctic Resources in a Lawful and Rational Manner

The Arctic has abundant resources, but a fragile ecosystem. China advocates protection and rational use of the region and encourages its enterprises to engage in international cooperation on the exploration for and utilization of Arctic resources by making the best use of their advantages in capital, technology and domestic market. China maintains that all activities to explore and utilize the Arctic should abide by treaties such as the UNCLOS and the Spitsbergen Treaty as well as general international law, respect the laws of the Arctic States, and proceed in a sustainable way on the condition of properly protecting the eco-environment of the Arctic and respecting the interests and concerns of the indigenous peoples in the region.

#### (1) China's participation in the development of Arctic shipping routes

The Arctic shipping routes comprise the Northeast Passage, Northwest Passage, and the Central Passage. As a result of global warming, the Arctic shipping routes are likely to become important transport routes for international trade. China respects the legislative, enforcement and adjudicatory powers of the Arctic States in the waters

subject to their jurisdiction. China maintains that the management of the Arctic shipping routes should be conducted in accordance with treaties including the UNCLOS and general international law and that the freedom of navigation enjoyed by all countries in accordance with the law and their rights to use the Arctic shipping routes should be ensured. China maintains that disputes over the Arctic shipping routes should be properly settled in accordance with international law.

China hopes to work with all parties to build a “Polar Silk Road” through developing the Arctic shipping routes. It encourages its enterprises to participate in the infrastructure construction for these routes and conduct commercial trial voyages in accordance with the law to pave the way for their commercial and regularized operation. China attaches great importance to navigation security in the Arctic shipping routes. It has actively conducted studies on these routes and continuously strengthened hydrographic surveys with the aim to improving the navigation, security and logistical capacities in the Arctic. China abides by the International Code for Ships Operating in Polar Waters (Polar Code), and supports the International Maritime Organization in playing an active role in formulating navigational rules for the Arctic. China calls for stronger international cooperation on infrastructure construction and operation of the Arctic routes.

#### (2) Participating in the exploration for and exploitation of oil, gas, mineral and other non-living resources

China respects the sovereign rights of Arctic States over oil, gas and mineral resources in the areas subject to their jurisdiction in accordance with international law, and respects the interests and concerns of residents in the region. It requires its enterprises to observe the laws of the relevant States and conduct risk assessments for resource exploration, and encourages them to participate in the exploitation of oil, gas and mineral resources in the Arctic, through cooperation in various forms and on the condition of properly protecting the eco-environment of the Arctic.

The Arctic region boasts an abundance of geothermal, wind, and other clean energy resources. China will work with the Arctic States to strengthen clean energy cooperation, increase exchanges in respect of technology, personnel and experience in this field, explore the

supply of clean energy and energy substitution, and pursue low-carbon development.

### (3) Participating in conservation and utilization of fisheries and other living resources

As fish stocks have shown a tendency to move northwards due to climate change and other factors, the Arctic has the potential to become a new fishing ground in the future. As regards fishing in the high seas in the Arctic Ocean, China has consistently held a firm stance in favor of conservation in a scientific manner and of rational use, and maintains that, while enjoying their lawful right to conduct fisheries research and development in the high seas in the Arctic Ocean, all States should fulfill their obligations to conserve the fishery resources and the ecosystem in the region.

China supports efforts to formulate a legally binding international agreement on the management of fisheries in the high seas portion of the Arctic Ocean. China also supports the establishment of an Arctic fisheries management organization or making other institutional arrangements based on the UNCLOS. China will strengthen survey on and research into the fishery resources in the high seas in the Arctic, carry out appropriate exploratory fishing, and play a constructive part in the management of fisheries in the high seas in the Arctic Ocean. China hopes to strengthen cooperation with the Arctic coastal States on the research, conservation, and utilization of fishery resources. China is committed to properly protecting Arctic biodiversity and advocates transparent and reasonable exploration and utilization of Arctic genetic resources, and fair and equitable sharing and use of the benefits generated by the exploitation of such resources.

### (4) Participating in developing tourism resources

Arctic tourism is an emerging industry, and China is a source of tourists to the Arctic. China supports and encourages its enterprises to cooperate with Arctic States in developing tourism in the region, and calls for continuous efforts to enhance security, insurance, and rescue systems to ensure the safety of tourists in the Arctic. China conducts training for and regulates Chinese tourism agencies and professionals involved in Arctic tourism, and endeavors to raise the environmental awareness

of Chinese tourists. China advocates low-carbon tourism, ecotourism, and responsible tourism, and hopes to contribute to the sustainable development of Arctic tourism.

China takes part in the development and utilization of Arctic resources on the condition of respecting the traditions and cultures of the Arctic residents including the indigenous peoples, preserving their unique lifestyles and values, and respecting the efforts made by the Arctic States to empower the local citizens, foster their social and economic progress, and improve education and medical services, so that the Arctic residents, including the indigenous peoples, will truly benefit from the development of Arctic resources.

#### 4. Participating Actively in Arctic governance and international cooperation

China is committed to improving and complementing the Arctic governance regime. China has worked to regulate and supervise the activities of Chinese citizens, legal persons or other organizations in the Arctic in accordance with the law to ensure that their activities accord with international law and respect the relevant national laws on environmental protection, resource conservation, and sustainable development. And it has endeavored to strengthen overall coordination of its Arctic policy and related affairs. Furthermore, China takes an active part in the international governance of the Arctic. China upholds the current Arctic governance system with the UN Charter and the UNCLOS as its core, plays a constructive part in the making, interpretation, application and development of international rules regarding the Arctic, and safeguards the common interests of all nations and the international community.

China stands for steadily advancing international cooperation on the Arctic. It has worked to strengthen such cooperation under the Belt and Road Initiative according to the principle of extensive consultation, joint contribution and shared benefits and emphasized policy coordination, infrastructure connectivity, unimpeded trade, financial integration, and closer people-to-people ties. Concrete cooperation steps include

coordinating development strategies with the Arctic States, encouraging joint efforts to build a blue economic passage linking China and Europe via the Arctic Ocean, enhancing Arctic digital connectivity, and building a global infrastructure network. China hopes to work for the common good of all parties and further common interests through the Arctic.

At the global level, China actively participates in the formulation of rules concerning the global environment, climate change, international maritime issues, and high seas fisheries management, and fulfills all its international obligations in accordance with the law. China expands cooperation with various States and international organizations in environmental protection, and promotes energy conservation, emissions reduction, and low-carbon development. China also promotes global cooperation in tackling climate change, and upholds the principles of equity, common but differentiated responsibilities, and respective capabilities. It urges developed countries to fulfill their commitments under the UN Framework Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement, and provides support to fellow developing countries in addressing climate change. China plays a constructive role in the work of the International Maritime Organization, and makes solid efforts to fulfill its international responsibilities for ensuring maritime navigational security and preventing its ships from polluting the maritime environment. China advocates stronger international cooperation in maritime technology and a globally coordinated solution to reducing greenhouse gas emissions from maritime transport under the International Maritime Organization framework. China takes an active part in negotiations over high seas fisheries regulation in the Arctic, and calls for a legally binding international agreement for managing fishery resources in the high seas portion of the Arctic. The agreement should allow scientific research and exploratory fishing activities in the high seas portion of the Arctic, and protect the freedom of all States on the high seas in accordance with international law.

At the regional level, China takes an active part in Arctic intergovernmental mechanisms. China, as an accredited observer to the Arctic Council, highly values the Council's positive role in Arctic affairs,

and recognizes it as the main intergovernmental forum on issues regarding the environment and sustainable development of the Arctic. China stands by the commitments it made when applying to become an observer to the Council. It fully supports the work of the Council, and dispatches experts to participate in the work of the Council including its Working Groups and Task Forces. China respects the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic, and the Agreement on Enhancing International Arctic Scientific Cooperation, all adopted by the Arctic Council. China also supports international cooperation through such platforms as the Arctic Science Ministerial Meeting.

At the bilateral and multilateral levels, China promotes practical cooperation in all fields, especially regarding climate change, scientific expeditions, environmental protection, ecosystems, shipping routes, resource development, submarine fiber-optic cables, cultural exchanges, and capacity building. China proposes to form cooperative partnerships between Arctic and non-Arctic States, and has carried out bilateral consultations on Arctic affairs with all Arctic States. In 2010, China and the United States set up an annual dialogue mechanism for bilateral dialogues on the law of the sea and polar issues. Since 2013, China and Russia have been conducting dialogues on Arctic issues. In 2012, China and Iceland signed the Framework Agreement on Arctic Cooperation, which was the first intergovernmental agreement on Arctic issues between China and an Arctic State. China also values cooperation with other non-Arctic States. It has conducted bilateral dialogues on the law of the sea and polar issues with the United Kingdom and France. In 2016, China, Japan and the Republic of Korea launched high-level trilateral dialogues on Arctic issues to promote exchanges on policies, practices, and experience regarding Arctic international cooperation, scientific research, and commercial cooperation.

China supports the participation of all Arctic stakeholders in Arctic governance and international cooperation. China supports platforms such as “The Arctic: Territory of Dialogue”, “The Arctic Circle”, “Arctic Frontiers”, “The China-Nordic Arctic Research Center”, in

promoting exchanges and cooperation among the stakeholders. China also supports the participation of research institutions and enterprises in Arctic governance with their own expertise put to good use. China encourages research institutions to communicate with foreign think tanks and academic institutions, and supports enterprises to participate in the commercial development and utilization of the Arctic in a lawful and orderly manner.

### 5. Promoting peace and stability in the Arctic

Peace and stability in the Arctic provides a significant guarantee for all activities in the region, and serves the fundamental interest of all countries including China. China calls for the peaceful utilization of the Arctic and commits itself to maintaining peace and stability, protecting lives and property, and ensuring the security of maritime trade, operations and transport in the region. China supports the peaceful settlement of disputes over territory and maritime rights and interests by all parties concerned in accordance with such treaties as the UN Charter and the UNCLOS and general international law, and supports efforts to safeguard security and stability in the region. China strives to reinforce cooperation with the Arctic States in maritime and air search and rescue, maritime early warning, emergency response, and information sharing in order to properly handle security challenges such as maritime accidents, environmental pollution, and maritime crimes.

## CONCLUSION

The future of the Arctic concerns the interests of the Arctic States, the wellbeing of non-Arctic States and that of the humanity as a whole. The governance of the Arctic requires the participation and contribution of all stakeholders. On the basis of the principles of “respect, cooperation, win-win result and sustainability”, China, as a responsible major country, is ready to cooperate with all relevant parties to seize the historic opportunity in the development of the Arctic, to address the challenges brought by the changes in the region, jointly understand, protect, develop



and participate in the governance of the Arctic, and advance Arctic-related cooperation under the Belt and Road Initiative, so as to build a community with a shared future for mankind and contribute to peace, stability and sustainable development in the Arctic.



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