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# **GLOBAL DEVELOPMENT IN THE ARCTIC**

**INTERNATIONAL COOPERATION FOR THE FUTURE**

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Book chapter

## International Cooperation in the Arctic 2035 – The Four Scenarios

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# 1 International Cooperation in the Arctic 2035 – The Four Scenarios

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## Introduction to the scenarios

The Arctic has always fascinated people; its history, its present, and its future. The future of the Arctic has increasingly become a subject of academic research and the application of scenario methodology. Scenarios can be defined as prospective storytelling (Schoemaker, 1993), presenting a set of plausible, contrasting images of the future (Schatzmann et al., 2013), and indicating what alternative futures might look like (Amer et al., 2013). Studies offering scenarios of future development of the Arctic include Brigham (2007), Myllylä et al. (2016), Lazariva et al. (2021), Petrov et al. (2021), Haavisto et al. (2016), and Bourmistrov et al. (2015); see also the chapter by Krivorotov in this volume. The farther we look ahead, the more uncertain the future appears. There can never be full consensus on what major trends and driving forces will have the greatest impact on the future. But precisely for this reason, any kind of structured thought experiment, such as scenario development, is valuable and can add new knowledge and shared understanding.

Works dedicated to Arctic scenarios so far have largely focused on resource extraction, climate change, geopolitics, and economic and social development as key factors shaping the Arctic's future. Our chapter adds to this body of knowledge by giving more weight to the dynamics of international politics and cooperation, including the pressures for a green transition. In our analysis, we treat the Arctic as an object of interest to global society and a topic of growing importance in international affairs. Namely, we present four scenarios that describe how the context for international cooperation in the Arctic might change in the years leading to 2035.

The time frame chosen for our scenarios is the 15 years between 2021 and the end of 2035. This is a time horizon that gives us enough space to elaborate on plausible developments and capture the big picture for international cooperation in the Arctic. At the same time, we can be concrete enough as 15 years is a future which is not too far away, at least in our perception. We believe that most of the trends that will shape the Arctic in the coming 15 years are already in place.

We have identified a set of certain, already evolving trends which will significantly influence international cooperation in the Arctic the next 15 years (2035)

and beyond, although many of the implications are difficult to untangle. They appear, indirectly or directly, in the four scenarios we have elaborated. These trends form the backdrop of our analysis and are valid across all scenarios:

- Non-Arctic actors will have a greater say in making rules for the Arctic
- Climate change will be a key driver
- Pressure for a green transition will mount
- Technological development will continue to accelerate
- Arctic demography is a permanent concern
- Russia will remain heavily dependent on fossil fuel resources
- China will strive to increase its global power
- Geopolitical tensions will remain high

Having established the predictable and even predetermined factors and trends, it is important to outline the *key uncertainties*. These uncertainties define the contrasts between the scenarios, and they therefore play out differently in each story. We have identified two major uncertainties:

- ***Fragmented versus coordinated response to climate change***
- ***Arctic lockdown versus Arctic resource extraction***

The first relates to international cooperation to combat climate change. Given the myriad of national, economic, and institutional actors with different interests in the Arctic, the future response to climate change is profoundly uncertain. Will there be a coordinated response and established efficient international institutions to handle climate issues for the best of the planet? Or, in contrast, will we move into a future characterized by fragmented, anarchic responses undertaken by a variety of actors? The second major uncertainty concerns generally accepted public and political attitudes to Arctic resources. Will resources be extracted to meet growing world demands for energy and food? Or will they be subject to a formal or de facto lockdown, implying that they will be highly regulated and/or preserved? There are too many factors which can influence both sides, yet the outcome remains highly uncertain.

When combined, the two key uncertainties outlined above lead to four contrasting outcomes – the scenarios (Figure 1.1).

*Klondike Arctic* – this is a high-powered global race for resources in the Arctic. In 2035, nation-states and global corporations both compete and cooperate as they extract hydrocarbons, biomass, and other resources on a massive scale.

*Tech Arctic* – the Arctic has turned its back on traditional resource exploitation and become a test bed for new green solutions and the scene of new technology-driven rivalry. In 2035, the main actors in the Arctic are tech companies, newly set-up national Arctic ministries, the EU, and indigenous groups.

*Chinese Arctic* – China has become the dominant force in the Arctic, using cooperation with Russia to expand its influence. In 2035, China has wide access

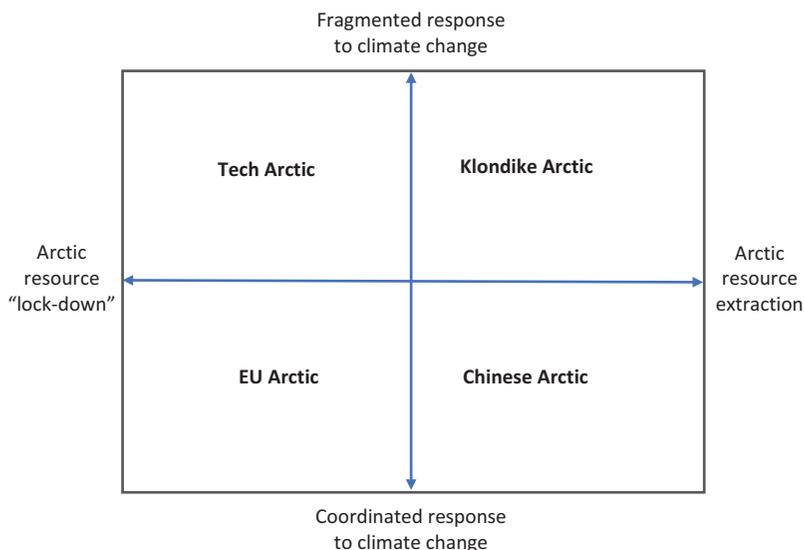


Figure 1.1 The four scenarios for international cooperation in the Arctic in 2035.

Source: Authors.

to Arctic infrastructure and resources, and is also eager to project itself as the chief global architect of “Net Zero”.

*EU Arctic* – the EU has taken the lead in turning the Arctic into a “Northern Sanctuary” where the extraction of oil, gas, minerals, and other important resources is expressly forbidden. In 2035, the Arctic has become a global beacon of hope and at the same time a source of great frustration for many of the actors located there.

## Approach

Scenarios are not attempts at forecasting or simple projections; rather, the purpose is to identify alternative possible pathways in acknowledgment of the fact that the future interaction between multiple factors is impossible to extrapolate. The interaction can and must be *imagined* by constructing coherent stories, that is, scenarios. Their true value lies in that they enable the reader to grasp how and why the world might change beyond recognition. Thus, the reader can learn more about how the present can evolve into radically different futures and better understand the possible threats and opportunities we are going to face. The aim, of course, is to challenge prevailing mindsets of the present and to become better prepared for the future.

There is a bewildering number of approaches, methods, and techniques that can be used to construct scenarios, for example, intuitive logics methodology,

the French school (“La prospective”), real options, integrated risk management, probabilistic trends methodology, and prospective methodology (Bradfield et al., 2005; Burger-Helmchen, 2008; Miller and Waller, 2003). We have been inspired by the intuitive logics school of thought pioneered by Royal Dutch Shell (Schoemaker, 1993, 1995) and have sought to construct scenarios based on causal analytical reasoning and the determination of plausible cause-and-effect relationships between hypothetical events and possible future outcomes. Specifically, we have used the classical  $2 \times 2$  matrix technique.

Following this methodology, opinions about the future must be grounded in basic assumptions about the world. Some trends and events form our assumptions because we think that they are significantly more probable than many other developments or even predetermined. Further, we were especially conscious of key uncertainties, that is, driving forces that are both unpredictable and decisive for future outcomes. Key uncertainties are factors, trends, or driving forces that could easily tip developments one way or the other. Building on this analysis, we have pieced together four scenarios based on thought experiments where we have set up different, contrasting combinations of these assumptions and uncertainties.

Before creating the scenarios and writing the storylines, we conducted quite extensive preparatory work. First, all the authors of the thematic chapters in this book were asked to provide specific inputs for the scenarios in terms of specifying assumptions, uncertainties, and wild cards. The factors were sorted and analyzed by the authors of this chapter, who made a comprehensive list summing up insights. Second, we organized a two-day workshop where authors of the thematic chapters as well as representatives of different stakeholders not involved in the book project were invited to pool ideas with us. The discussions on assumptions and uncertainties were organized into several groups moderated by the coauthors of the chapter. Each group produced and presented a set of scenarios. Third, those different sets of scenarios were further discussed among the authors of this chapter in a series of intensive internal scenario-building meetings in which the scenarios were refined. Finally, also drawing on inputs from authors of the thematic chapters, wild cards were discussed and presented. Wild cards are low-probability events which may have a very high impact and may dramatically change the course of events and even invalidate all scenarios.

## **Eight basic assumptions**

### ***Non-Arctic actors will have a greater say in making rules for the Arctic***

The world is increasingly becoming a “global village”, to borrow Marshall McLuhan’s famous phrase (McLuhan, 1962), meaning that there is a growing interdependence between the world’s economies, cultures, and populations. The globalization of the Arctic can be seen as an example of the interconnectedness that is emblematic of our era. International institutions like the UN and

the EU and even some non-Arctic states (e.g., Asian countries) are becoming involved in making the rules for the Arctic. Arctic-related issues (e.g., climate) and opportunities (e.g., resources) are gradually recognized as having a global nature (Heininen and Finger, 2018; Kristoffersen and Langfelle, 2017). A growing number of actors express an interest in the Arctic<sup>1</sup>. We assume therefore that the Arctic increasingly will be seen as a global concern in the future, implying a greater involvement of non-Arctic actors in Arctic affairs and perhaps new constraints on the sovereignty of the Arctic nations, including militarization and security concerns (see, e.g., chapter by Østhagen in this volume). The interplay of Arctic and non-Arctic actors is discussed by Kirchner and Koivurova, also in this volume.

### ***Climate change will be a key driver***

Discernible changes in the climate in the Arctic are already underway and will most likely become more severe. Changes in the patterns of the weather are accelerating, affecting the oceans, land surfaces, glaciers, and ice sheets in the Arctic, often in an irreversible manner. Everywhere in the Arctic, ice is melting, and one important consequence is that shipping activity in the Arctic will increase. Even though we may expect more liquefied natural gas (LNG) transport, the Northern Sea Route (NSR) will not be a key transport route between Europe and Asia as early as 2035 (for more details about shipping in the Arctic, please refer to chapters of Gunnarsson and Moe, and Gudmestad in this volume). Environment and energy issues, which are directly affected by climate change, will become ever more important to both national and international policymakers (please see Bambulyak et al. in this volume). Energy scarcity is bound to become a major worry in many parts of the world. It is safe to assume that climate change in the Arctic will be high on the agenda for political and scientific cooperation. For instance, increased shipping activity will require heavy investments in search and rescue infrastructure to prevent loss of life and to handle environmental impacts (Andreassen and Borch, in this volume). Climate change will also prompt innovation efforts and business development. The chapter by Winther et al. in this volume is devoted to scientific cooperation on climate change.

### ***Pressure for a green transition will mount***

We expect continued pressure for a more rapid green transition, both from national actors around the Arctic and from international institutions such as the UN, the EU, and the Organisation for Economic Co-operation and Development (OECD). Europe is set to become climate neutral by 2050, according to the European Green Deal (EU Commission, 2019). The EU Arctic policy launched in October 2021 literally means that unexploited Arctic oil, gas, and coal resources must be left permanently in the ground. Green parties – once seen as radical outsiders – have increasingly claimed a place in mainstream politics, especially

in Western Europe (McBride, 2021). Further, youth climate movements are gaining influence. For example, on September 25, 2020, some 3,500 climate strikes took place in 154 countries, from the Arctic to South Africa, from the Pacific to Latin America, “to demand climate justice now”.<sup>2</sup> Perhaps we are on the brink of a generational upheaval involving a wholly new attitude toward environmental protection. Proposals for a truly low-carbon economy may jeopardize many existing or planned economic activities in the Arctic, as these are heavily based on raw material extraction. Investors may want to avoid projects that could appear controversial. The growing interest in protecting biodiversity could further slow down current plans in the Arctic.

### ***Technological development will continue to accelerate***

Rapid technological development is a global megatrend. Digitalization and robotization could be extensively used in the Arctic to make it easier to work in harsh weather conditions and to extract resources that are difficult to access. Increased use of advanced technology could reduce the need for manpower and minimize the risk involved. Artificial intelligence and machine learning may lead to breakthroughs in several fields that are relevant to the Arctic and to sub-Arctic areas (e.g., fisheries and environmental monitoring). However, the Arctic would probably lag southern and urban centers in technological innovation. For example, Smart Cities in the Arctic will likely be developed using ideas and innovations originating outside the Arctic (Alexandrov et al. in this volume). Historically, innovations have developed in larger metropolitan areas far away from the Arctic, but it is also conceivable that the Arctic could inspire more Arctic-specific technologies (Coates and Halroyd in this volume).

### ***Arctic demography is a permanent concern***

The world population is growing overall but not in the Arctic, where the trend is negative or flat in most areas. Demography and the robustness of local communities will always be an issue in the Arctic. Developing and maintaining infrastructure in remote, far-flung settlements is costly. According to studies made by Business Index North (Nord University in Bodø, Norway),<sup>3</sup> urban areas in the Arctic tend to be stable, while rural areas experience depopulation and an outflux of youth. Cross-border cultural and education cooperation has always been important to make the Arctic an attractive place to live in (Dybtsyna et al.; Fors and Steinholt, both in this volume). Nevertheless, population in the Arctic can be strengthened through big projects, yet these can also present a challenge as they tend to rely on commuting specialists and workers who move into the region for some time but who do not settle there for good. Extensive commuting adds little or no value to local communities in the Arctic – or anywhere else for that matter. Arctic communities are, however, especially vulnerable in demographic, economic, social, and cultural terms.

***Russia will remain heavily dependent on fossil fuel resources***

Russia will continue to have access to the world's largest fossil fuel resources, and we assume that there will be a continued Russian willingness to exploit these resources. Natural resource extraction (gas, oil, coal, metals) makes up about 13.5% of Russian gross domestic product (GDP). The three other largest industries – manufacturing, wholesale trade, and transportation and storage – are inextricably linked to the same natural resources: processing of the resources, sales of products made from the resources (e.g., fuel), and delivery to customers. In times of crisis such as that brought about by the COVID-19 pandemic in 2020, the government of Russia uses earnings from natural resources to support citizens and subsidize other sectors. Huge investments are made in the development of the NSR and the resource deposits along this route (natural gas, oil, minerals). The abundant energy resources in the Russian Arctic and the growing energy demand in China is an important explanation for the strategic alliance between the two countries. For more detail on Chinese-Russian cooperation in the Arctic, please refer to the chapters by Nore and by Mineev and Zhurova (both in this volume).

***China will strive to increase its global power***

China has emerged as the world's largest energy market, and we expect that China will forge ahead to extend its global influence and economic presence in the Arctic in the years to come. In 2017, the Arctic area and the NSR were added to the geographical scope of the Chinese Belt and Road Initiative (BRI). The BRI is a Chinese attempt to introduce a global governance concept and to give China a more prominent role on the world stage. Increasing its role in the Arctic, China has invested in or indicated its interest in joining large oil and gas projects like Yamal LNG and Alaska LNG, and to becoming involved in major infrastructure developments such as the Kirkenes-Rovaniemi rail route and the NSR (Krivorotov, 2018).

***Geopolitical tensions will remain high***

Clearly, globalization has not reduced the potential for geopolitical unrest. As pointed out by Deutsche Welle analysts (Schacht and Koschyk, 2019), wars have become more complex: until the beginning of the 2000s, only two or three *external parties*, on average, participated in any given conflict. In the following years, this average rose to between four and five. The war in Syria, for example, has involved at least ten major external parties since it started in 2011, according to various estimates. Involvement of external parties can, inter alia, be in the form of sending troops or supplying weapons, expertise and training, and in staging campaigns in both mass and social media. This means that modern military conflicts tend to have a ripple effect, affecting the security of other countries and regions as well as having an economic, political, and social impact.

Professor Samuel P. Huntington argued that conflicts between civilizations (cultures) rather than interstate conflicts would dominate world politics after the end of the Cold War (Huntington, 1996). He pointed out that we now live in a multipolar, multicivilizational world. According to Huntington, the power of the West will be contested. Efforts of the West to promote its values of democracy and liberalism, to maintain its military predominance and to advance its economic interests, will engender countering responses from other civilizations (Huntington, 1993, 29).

If Huntington is right, it is highly unlikely that the underlying tensions between the West and non-Western cultures and societies (in particular, Russia, China, and Islam) will disappear in the next 15 years. When much is at stake, cultural affinity and loyalty, based on historical and religious identity, tend to override other factors in international politics. Geopolitical tensions, therefore, will influence the Arctic heavily in the years to come, perhaps even more so than in the past, as the Arctic is set to play a more prominent role in global politics.

## Two key uncertainties

### *Fragmented versus coordinated response to climate change*

It seems obvious that the most difficult and pressing issues related to climate change cannot be resolved at local or even at national level. The Arctic is an excellent example of both shared interests and divergent interests, of both common ground and a lack of common denominators. The Arctic is also a frontier territory, not quite a no man's land, but not a highly regulated area either.

This means that understanding and combating climate change in the Arctic is a truly complex and challenging undertaking. Given the many and varied national, economic, and institutional actors involved, the future response to climate change in the region and on a global level is profoundly uncertain. We do not know how policies will be formulated, to what extent they will be coordinated, and how effective they will be. To complicate matters, the four major powers – Russia, China, the EU, and the US – can be seen as rivals in a game to shape the future of the Arctic region. In some quarters doubts persist with respect to whether the world is facing a climate emergency.

Given that the Arctic region is extremely exposed and vulnerable to climate change and at the center of global concerns over melting ice, we arrive at a fundamental uncertainty: what kind of actions to mitigate climate change will be taken by Arctic nations, non-Arctic actors, and international institutions over the next 15 years (by 2035)? On the one hand, the growing threat of climate change may increasingly serve to unite Arctic and non-Arctic states in joint and well-coordinated efforts to stem and adapt to climate change. On the other hand, although agreeing in principle on the need to fight climate change in a coordinated manner, Arctic states may choose to follow their own agendas in the Arctic. Other considerations, which have little or nothing to do with the Arctic, may make binding international commitments impossible to achieve.

At one end of the spectrum, it is possible to envisage a coordinated supranational response to escalating climate problems in the Arctic and other areas. The issue of climate change could, in theory, be dealt with by a transnational organization with undisputable legitimacy and authority. Such an organization would employ universal principles of environmental protection, taking the perceived common good of the planet as its point of departure. Regarding climate change, it could override the economic and political interests of any given country or business corporation. At present, there are no supranational organizations in this pure form. Still, one can argue that clear signs of supranationalism can be found in the EU.<sup>4</sup> Seeds of supranationalism can also be found in the UN Sustainable Development Goals (SDGs), which are defined in universal (global) terms.<sup>5</sup> Another example of emerging supranationalism could be the growing willingness to pool resources using the World Health Organization (WHO) and other instruments in the wake of the COVID-19 pandemic.

There seems to be a growing awareness that global problems require global solutions and some degree of global authority. If the effects of climate change and associated problems become truly global and severe, one can hypothesize that a more binding approach to international, multilateral cooperation may emerge in the next 15 years. We may even see the beginnings of a supranational model of governance in the Arctic. International Maritime Organization's Polar Code and the Arctic Investment Protocol by WEF (World Economic Forum) can be viewed as such attempts.

At the other end of the spectrum, one can imagine a situation where countries with a strong stake in the Arctic pursue their own policies and economic interests and simply ignore calls for more international action. Their primary concern could be vital national interests. Countries like Russia, China, the US, Canada, and Norway have a strong interest in the development of Arctic resources and may actively resist attempts by politicians in the EU to forbid the extraction of hydrocarbons, coal, and metals from the Arctic. By the same token, the prospect of extracting tangible benefits from the Arctic resources may contribute to fragmented national responses to climate change in general.

States pursuing national interests may not consider climate change in the Arctic a separate issue, but rather as a part of a much broader problem. They may take the view that they are working to solve climate problems in a more realistic way through unilateral action. One can also reasonably imagine the evolution of a new set of bilateral and multilateral agreements that seek to coordinate action to combat climate change. Groups of likeminded countries may come together to improve existing bilateral and multilateral cooperation. In this case, the countries will maintain full formal sovereignty and can choose the terms of their participation. In case of dissent or conflict, they may either withdraw from the agreement<sup>6</sup> (which may be a costly alternative) or exercise their right of veto. Multilateral agreements can have a global, continental, or regional scope, leaving formal sovereignty untouched. How effective these arrangements are, and how much real sovereignty individual states are left with, is a different matter. It is decidedly

unclear how the interplay of strong national and economic interests will unfold in the years to come.

All in all, the response to climate change in the Arctic presents a fundamental uncertainty: will Arctic actors and the world at large respond to climate change in the Arctic by moving toward coordinated supranational solutions or will nations mostly “go it alone”?

### ***Arctic lockdown versus Arctic resource extraction***

The second major uncertainty zooms in on Arctic resources and public and political attitudes to their future use. On the one hand, the world is moving toward a low or non-carbon economy. Finite resources need to be used more carefully, and few will dispute that nature and wildlife must be afforded greater protection. On the other hand, the global population continues to grow and may increase by more than one billion before 2030. The world needs more resources in almost every form – water, food, and energy. Today, the world gets 80% of its energy from fossil fuels. These realities combine to create a global dilemma or conundrum: will hitherto largely unexploited Arctic resources be extracted, using either traditional or new technologies, or will pressure to preserve these resources completely prevail? This is a polar yes/no question and both outcomes seem plausible in a long-term perspective. One may, however, also foresee a situation in which resources are somehow both extracted and preserved within a set of strict environmental rules. The very nature of these rules remains uncertain. There are two legal maxims:

- A Everything which is not forbidden is allowed
- B Everything is forbidden unless it is permitted

The idea underlying maxim A, which is fundamental to liberal democracies, is that we are inherently and naturally free to do anything, so long as it is not expressly prohibited by law.<sup>7</sup> Maxim B may work in authoritarian settings but also in critical situations such as the COVID-19 pandemic, where there is a recognized common, overall danger. The strong call to “stay at home” during the lockdowns has been used in both democratic and authoritarian countries. One may not leave home unless an exception can be justified. The same approach could be taken to Arctic resources: in general, they are preserved and extraction is banned, but it could be possible to utilize some of them if, for example, the proper technology is applied or if a distinction is made regarding the resources taken (e.g., food resources are allowed while hydrocarbons are not). Traditionally, the Arctic has been developed based on maxim A: extraction of natural resources is allowed, but some restrictions apply (e.g., national and international environmental protection regulations).

If maxim A still applies in 2035, the Arctic will be a *place characterized by extensive resource extraction*. If we have a shift to maxim B, then the Arctic will be subject to a *resource lockdown*, although possibly with some exceptions. These

are two fundamentally different situations. For example, in the case of a resource lockdown, one can envisage the EU playing a leading role, setting the rules for conservation and the introduction of a more circular economy in Europe. Such a role would fit the environmental ideals and the high level of multilateral coordination in the EU. A resource lockdown in the Arctic would probably be part of a much wider change in thinking. Only “smart” cities and communities would then be encouraged in the Arctic and, as a rule, only smart (green) technologies would be allowed in the industry. Large tracts of the Arctic would, however, become a nature reserve or a museum.

A resource lockdown might be met with both enthusiasm and fierce resistance. There could be a backlash where national and commercial actors strive to have the Arctic recognized as the opposite: a resource base of global importance, essential to meeting the growing demand for energy and food in a world where resources are becoming increasingly scarce.

## **The four scenarios**

### ***Klondike Arctic 2035***

This is the story of a tense global race for resources in the Arctic. In 2035, nation-states and global corporations both compete and cooperate as they extract hydrocarbons, biomass, and other resources on a massive scale.

#### *Big picture in 2035*

“Klondike Arctic” can in many ways be seen as a logical continuation of current trends and conventional, convenient perceptions of how the world functions: “Business as usual” is preferable, the detrimental effects of climate change can be controlled through gradual improvements in technologies, the Arctic is becoming increasingly accessible, and the world urgently needs a more abundant supply of resources.

In 2035, climate change issues are primarily handled through national policies and to some extent, through loose international agreements. Countries with strategic interests in the Arctic retain a high degree of sovereignty and are free to pursue their own interests. As the Arctic evolves into a global focal point for the extraction of natural resources, it also becomes an arena for tough international competition marked by political contradictions. Besides economic and technological capacities, a strong military capacity is an important prerequisite for success in the competition for resources.

Arctic resources are desperately needed. By 2035, 80% of world consumption stems from the 7.2 billion people living in Southeast Asia and Northwest Africa (out of a total world population of nine billion). Asian and African regions are the main destinations for shipments of goods, while the main destination of LNG shipments is China. Global energy use is now 25% higher than in 2020. Because the energy mix includes a greater share of renewables, CO<sub>2</sub> emissions have only

grown by 6% in the same period. In 2035, hydrocarbon-based fuels remain the principal source of energy. Nevertheless, the damage to the Arctic environment caused by climate change is not seen as a significant problem – the common perception is that the advantages outweigh the disadvantages. Both the North-West Passage and the North-East Passage have become ice-free and are now viable alternatives to shipping via Suez.

### *What has happened?*

Since 2025, the Canadian government has been committed to opening the North-West Passage to global trade, making essential investments in the development of its infrastructure, comparable to Russian investments in the NSR – the largest part of the North-East Passage in 2015–2025. Previously controversial areas in the Arctic have been opened for exploration and development of resources: Baffin Bay between Canada and Greenland, the Barents Sea between Norway and Russia, the Arctic National Wildlife Refuge (ANWR) in the US, and Chukchi Sea between Russia and Alaska (US). Modern coastal and offshore sea farming has been developed extensively along the circumpolar Arctic, alongside petroleum and renewable energy activities. Non-Arctic countries such as China, Japan, South Korea, and India are active through their governmentally backed companies, in addition to companies based in Arctic countries and transnational corporations.

In 2025, the opening of the ANWR area in Alaska for drilling and other activities and the continued production of tar sand in sub-Arctic Alberta (Canada) resulted in massive protests led by young environment activists and representatives of indigenous communities. The protests, which took place in the US, Canada, and Brussels, were quickly quelled by the police. In the wake of the protests, however, governments introduced stricter environmental regulations.

Since 2030, Arctic countries have discussed the establishment of a new inter-governmental institution – the Arctic Economic Union (AEU). The AEU discussions have achieved no results due to disagreements between the EU, Russia, and the US. In 2027, Greenland initiated the development of oil deposits in the Baffin Bay area in cooperation with Canadian and American companies. In 2030, Greenlanders tried to arrange a referendum on political independence from Denmark but were stopped in their tracks by the Danish government with the strong support of the EU, which was also skeptical of Canadian and American moves.

China has to a great extent managed to implement its Polar Silk Road initiative in the Russian Arctic and elsewhere in the period of 2020–2030. Western corporations have found ways to participate in the development of the Russian Arctic. The Russian government and national corporations must deal with Chinese and Western investors who, in turn, have somewhat opportunistic motives. Relations between Russia and the West have changed: both sides understand that there is a growing global need for resources from the Russian Arctic. A new progressive

government in Russia is intent on expanding trade and modernizing Russian infrastructure.

The Arctic has witnessed substantial investments, for example, in a grid of 5G transmitters, fiber-optic infrastructure, data centers, and development of *Internet of Things* (IoT) technology. Shipping operations, land transportation, mining, sea farming, and extraction of hydrocarbons are mainly unmanned and robotized. This has led to a loss of jobs and to further depopulation. In 2035, only the Scandinavian Arctic and the European part of Northern Russia have sizeable populations. People cluster in a small number of urban centers while the rural areas have declined noticeably. Arctic settlements along the circumpolar coastline are relatively small and far apart. Only highly skilled and educated employees involved in knowledge-intensive services live there with their families, enjoying high levels of economic well-being.

Svalbard has attracted increased attention. In 2025, large businesses in Russia, the US, and China demanded that Norway change its position and open the Svalbard shelf for exploration and development of marine biomass resources, hydrocarbons, and subsea minerals. EU Member States have pressed for increased fishing and snow crab quotas. Meanwhile, China has managed to establish a town in Svalbard devoted to climate research and the development of commercial Arctic tourism. China has also pulled off a coup by buying Hurtigruten, the renowned Norwegian Coastal Steamer company.

In 2032, an American-Russian joint venture company was established to explore minerals under the seabed in the Arctic, and a huge discovery of uranium ore was made in the so-called Svalbard box. In 2035, the Norwegian parliament was presented with an ultimatum by China, Russia, the US, and India. Norway was forced to interpret the Svalbard treaty in a nondiscriminatory way, meaning that the whole Svalbard box area should be a special economic zone open for international exploration and development.

### *In brief*

The global race for natural resources has accentuated the geopolitical and economic importance of the Arctic, leading, for instance, to the gradual deterioration of the ANWR in Alaska and to challenges to Norwegian authority on Svalbard. In 2035, the Arctic is no longer a neglected, secluded place but an arena of fierce competition. Convenient perceptions of “business as usual” (from the early 2020s) do not match with the reality of “business not as usual” in 2035. Illustration of the “Klondike Arctic” scenario is given on the Figure 1.2.

### ***Tech Arctic 2035***

This is the story of how the Arctic has turned its back on traditional resource exploitation and become a test bed for new green solutions and the scene of new technology-driven rivalry. In 2035, the main actors in the Arctic are hi-tech companies, newly set-up national Arctic ministries, the EU, and indigenous groups.



Figure 1.2 Illustration of the Klondike Arctic 2035.

Source: Authors.

*Big picture in 2035*

The Arctic has almost been turned upside down. New technologies and industries have emerged, making traditional extraction and production outdated, and old business models ineffective and obsolete. The oil and gas industry has had its Kodak moment<sup>8</sup>: the assets are stranded, and investments cannot be recouped. Advances in wind and solar energy and storage technologies have reduced the need for new fossil fuel and mineral resource extraction in the Arctic and elsewhere. Mineral resources produced before the green wave were reused multiple times through circular economy infrastructure. The global response to climate change has been indecisive and fragmented, something which paradoxically has increased the significance of the Arctic. The Arctic with its vast unpopulated areas has become extremely attractive to green energy entrepreneurs

and investors. In the Arctic, they have more freedom than in the more densely populated and regulated south; wind and solar companies have access to vast stretches of cheap land and they rarely need to worry about the effects on local communities. Similarly, conditions are ideal for data centers and data mining.

Contrary to expectations, the overall security situation in the Arctic has improved. Competing agendas and interests have made the Arctic politically more vulnerable but have also increased interest in keeping security problems at bay. The Arctic exemplifies complex interdependence, a concept formulated by Robert Keohane and Joseph Nye (1973). Relations between the Arctic and non-Arctic states have become close, multifaceted, and complex, leading to beneficial interdependence and improved security. No country is willing to risk escalation by advancing their interests and prestige too hard. The green agenda also imposes limits as to how far countries can promote selfish or belligerent foreign policies.

In 2035, following “peak oil” and the collapse of “business as usual”, Arctic and non-Arctic states have reached a gentleman’s agreement that hydrocarbon resources, as a rule, should be left in the ground and that only renewable resources should be developed. In many parts of the Arctic, indigenous communities have become direct owners and beneficiaries of electricity produced using wind and solar power.

### *What has happened?*

The Arctic has become a place for political and commercial competition, characterized by a multitude of policies and views on the implementation of green change as well as changes in the roles Arctic countries play in the development of their northern territories. In this Arctic future, two surprising events have occurred. First, Greenland became independent in 2033 and expressed a strong interest in participating in Arctic international affairs. Second, the rise in the global sea level has forced inhabitants in some areas in Asia to relocate to the Arctic and other regions of the world. Some highly skilled eco-migrants from Bangkok, Jakarta, Manila, Tokyo, and other Asian cities – representing the first wave of Asian eco-migration – have moved to the Arctic and expanded the Arctic talent pool, especially as regards the Information Technology (IT) sector.

The EU has taken a strong pro-climate position and introduced a unilateral moratorium on the development of Arctic resources. The moratorium, which is rooted in UN Goals for a Green Arctic, and rigorous policies of major Western banks and rating agencies has influenced both Arctic and non-Arctic states, including Russia, the US, and China. However, a formal, binding agreement on a resource lockdown in the Arctic has been impossible to achieve. Interests differ too much, and the EU finds it difficult to exercise global leadership. The fragmented responses to climate change internationally have complicated matters: there is little agreement about the pace and scale of achieving carbon neutrality, meeting the needs of the developing world, and saving the ecosystems. In this

situation, the Arctic has become a prime example of the need to “think globally and act locally”.

Canada was the first country to establish a Ministry of the Arctic in 2027, signaling the growing importance of the Arctic as a valuable natural habitat and an area in need of environmental protection. Denmark, Iceland, Norway, Russia, and Sweden soon followed suit by establishing similar ministries for the Arctic. The interaction and communication between Arctic states largely takes place through informal and formal channels in the Arctic Council, intergovernmental agencies, ministries, networks of towns and cities, and councils consisting of representatives of local indigenous communities.

China has become a major investor in Arctic infrastructure and received informal approval from the Arctic Council. Since 2025, Norway has invested a fortune in the transformation of its oil industry, with offshore wind development north of Finnmark, and new battery and hydrogen plants becoming a cornerstone of green policies. Russia has started to look into large-scale offshore wind power development, slowly reacting to pressures for a green shift. Norwegian companies have found ways to participate in the development of the Russian Arctic.

The Arctic has become the major location of data centers and colocation centers in Denmark, Finland, Iceland, Norway, and Sweden. Back in 2021, the Arctic was already home to 40 distinct data centers in Greenland, Iceland, and Norway (Sovacool et al., 2022). By 2035, the number of data centers and colocation centers has quadrupled. Also, by 2035, the number of high schools and universities in the Arctic has tripled. Growing migration to the region, the emergence of data towns and environmental eco-centers spur the demand for high-quality education. Most of the educational institutions have merged with technological hubs and professional centers. The Arctic has seen the emergence of a new digital class of entrepreneurs and service providers. However, the region has also provided ample opportunity for professionals in fields such as green infrastructure and construction, renewable energy maintenance, and environmental protection.

Ultimately, technological breakthroughs and new business models rather than political agreements have paved the way for the resource lockdown. Oil, gas, and coal are hardly exploited and are no longer essential to economic growth. Many of the traditional producers were unable to foresee and adapt to the dramatic change in the business environment caused by the green transformation. The untapped resources, which seemed so attractive, became a trap. Extracting mineral resources in remote Arctic and sub-Arctic areas is too costly and risky. The looming climate crisis has accelerated the transition to a complete lockdown of mineral resources: everyone understands that the Arctic is especially vulnerable.

### *In brief*

Life in the Arctic is more technologically driven, more hectic, and even more sophisticated in 2035 than before. In contrast to the situation in the 2020s, when the Arctic faced a brain drain problem with the best minds leaving for opportunities elsewhere, in 2035 the Arctic states are experiencing a sizeable inflow of

highly skilled young labor to the region. Illustration of the “Tech Arctic” scenario is made on the Figure 1.3.

### Chinese Arctic 2035

This is the story of how China has become the dominant force in the Arctic, using cooperation with Russia to extend its influence. In 2035, China has wide access to Arctic infrastructure and resources, and is also eager to project itself as the chief global architect of “Net Zero”.

#### Big picture in 2035

Through patience and perseverance, China has managed to change the power dynamics, cooperation patterns, and commerce in the Arctic. In 2035,

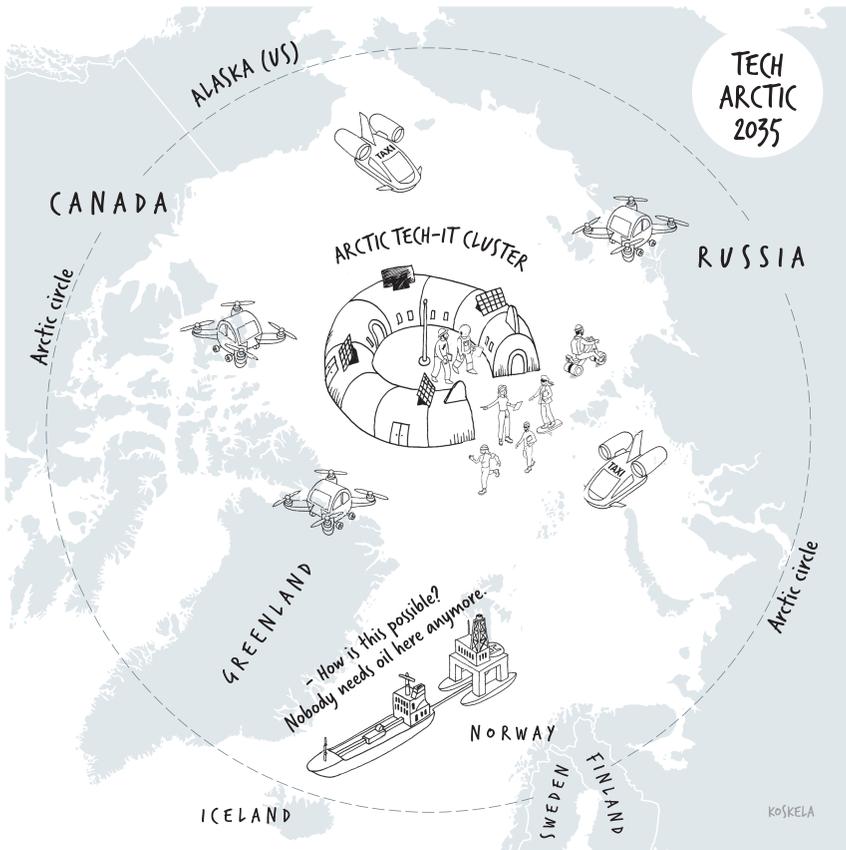


Figure 1.3 Illustration of the Tech Arctic 2035.

Source: Authors.

international arrangements in the Arctic increasingly favor the Chinese-Russian axis. At the same time, China has become the world's largest economy. The key to the country's success has been a shift in emphasis from traditional industry and capital-intensive export to technology, services, and a commitment to "Net Zero". China has become the world's leading superpower, and the Arctic has given the country new networks, revenues, and options to shape events.

By 2035, China has maneuvered itself into a position as the de facto hegemon in the Arctic. From both an economic and an institutional perspective, the writing is on the wall. And the Chinese have managed to achieve this without firing a shot or threatening military action, even if the country by that date maintains a sizeable military presence in the region. The Chinese have managed to fulfill the dictum of their historic strategist Sun Tzu, who in the 5th century BC stated: "To subdue the enemy without even fighting is the supreme act of war".

In 2035, however, Russia has second thoughts. Russia is on the verge of severing its strong ties with China and turning toward other partners.

### *What has happened?*

For a large country like China with limited natural resources and a need to expand economically, looking to the north was necessary. How could China control transport via the NSR and exploit natural resources in the Arctic? How could China strengthen its strategic position and role in international cooperation, especially in climate matters? China's increasing role in the Arctic has expressed itself through four factors:

First, China continued close cooperation with Russia, which has accelerated in tandem with tensions between the West and Russia. By 2022, the cooperation between Russia and China is no longer a "marriage of convenience", but rather a coming together of the two countries' profound common interests (Gabuev, 2021). In 2035, cooperation is even more complex and intimate.

Second, in the years leading up to 2035, China has used its vast economic power to become the economic superpower of the Arctic, a move that it has undertaken with the concurrence of Russia. During the same time, the Russian Arctic has been subject to a temperature rise that is two to three times faster than that found in the rest of the world. Huge investments have been necessary to protect Russian Arctic infrastructure, industry, and buildings from the devastation wrought by high temperatures and the melting of methane. China has concentrated on helping Russia to master the situation along the northern coastline of Siberia, where the NSR would pass. Russia, for its part, has been obliged to prioritize protection of the interior of the Arctic for domestic political and financial reasons.<sup>9</sup> In 2031, huge offshore deposits of critical minerals needed for the development of renewable energy were found in the Laptev Sea at the mouth of the Lena River. China offered Russia to take charge of developing these resources. Russia accepted the offer from its

closest strategic partner, while China ended up with a majority share in the project. China initially also tried to invest in projects in Western countries but was rebuffed for “security reasons”, largely on the initiative of the US. Around 2030, however, as the US retreated into increasing isolation, there was a new rapprochement between China and the EU, and such investments were again accepted.

Third, China supported the idea of “Net Zero” and broadly adhered to its principles in contrast to Russia. The reason was simple: many of the negative climate consequences affecting China had their origins in the Arctic. Concretely, this meant that while China was working diligently to open the Arctic for both mineral and some fossil exploitation, these projects would only be carried out under the strictest supervision, ensuring truly sustainable, cutting-edge outcomes. The first blue hydrogen and ammonia projects using CCUS (Carbon Capture Utilization and Storage) in the Arctic were organized by Chinese companies, which also invested heavily in wind power. The Russians viewed these projects with interest but chose not to make major investments.

Fourth, in parallel with China’s investments, China slowly, methodically, and with great skill strengthened its cooperation with other countries through international institutions. At the same time, China officially always paid lip service to the principles of the Law of the Sea.

In 2029, China managed to obtain full membership of the Arctic Council, arguing that its government and businesses have control over more than 50% of all investments in the Arctic. From then on, it managed to initiate a series of initiatives that favored the Sino-Russian axis, such as strengthening the Arctic dimension of the Shanghai Group. China also slowly tightened its grip on the NSR and invested in the newly independent Greenland. Last, but not least, China took full advantage of its formal position as one of the signatories of the Svalbard treaty. By 2030, several countries started a strong “pushback” against Norway and the way it was exercising its sovereignty over Svalbard. This gave China a new firm foothold in how the Arctic was governed.

However, by the mid-2030s, rifts between China and Russia started to appear. “Net Zero”, which until then had relatively minor consequences for the actual export of oil and gas from Russia, suddenly “kicked in” (see, e.g., Gustafson, 2021, p. 210, and the chapter by P. Nore in this volume). And what many traditional Russian analysts interpreted as yet another “temporary setback”, proved to be a turning point. Dramatically decreasing sales of oil, gas, and coal ensued. And Russia’s key partner China was leading the change that would have profound consequences for state income, economic growth, and social stability. The realization that almost all other countries had accepted ten years before finally hit Russia. And what was possibly even worse: with respect to diversification of its economic structure, Russia found itself in almost the same position in 2035 as it did in 2022. No strong alternatives to the dominance of the fossil fuel industry had been developed, especially not in the Arctic, while the brightest and best

educated young people in Russian society for many years had led the exodus out of the country.

The first post-Putin government understood much more clearly than the previous regime that Russia faced a truly existential choice. And it did not hesitate. The new government which took office in the autumn of 2035<sup>10</sup> recognized that the very close relationship with China, while important in many respects, stood in the way of necessary change. Russia therefore broke with China and started to look for other global partners.

*In brief*

The objective of “Net Zero” has given China legitimacy and influence in the Arctic. China uses its sway over the NSR to foster trade and to impose its will on Arctic countries. However, by 2035, the Sino-Russian alliance is effectively

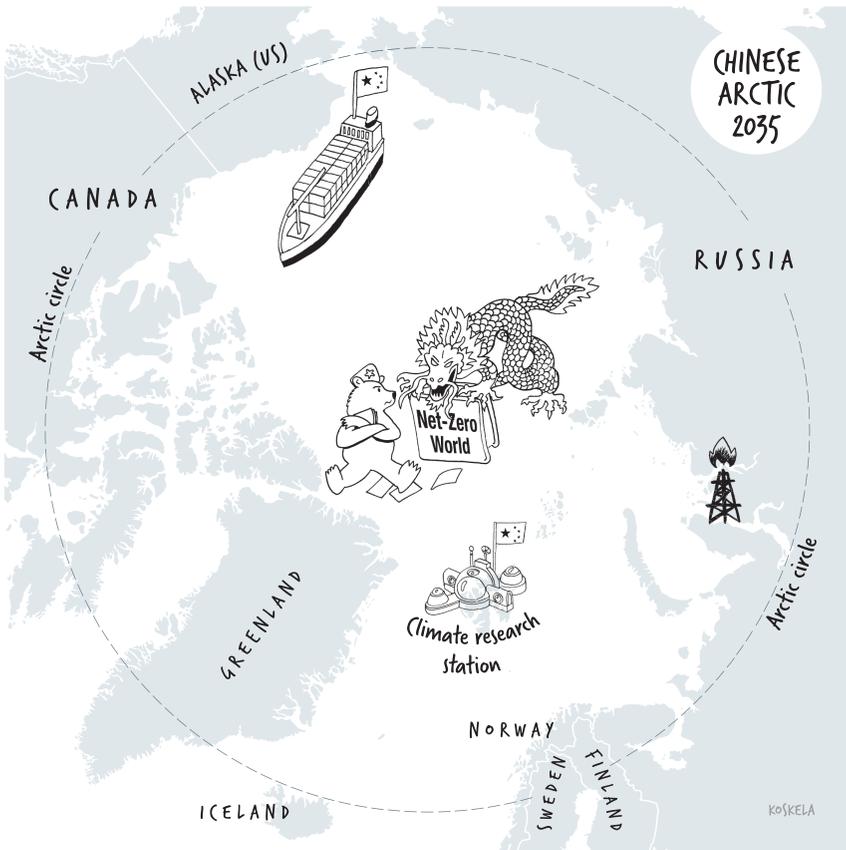


Figure 1.4 Illustration of the Chinese Arctic 2035.

Source: Authors.

over, and no one can rule out that Russia may attempt to take back control of the NSR and actively oppose Chinese policies. Illustration of the “Chinese Arctic” scenario is presented on the Figure 1.4.

### **EU Arctic 2035**

This is the story of how the EU has taken the lead in turning the Arctic into a “Northern Sanctuary” where extraction of oil, gas, minerals, and other important resources is expressly forbidden. In 2035, the Arctic has become a global beacon of hope and at the same time a source of great frustration for many of the actors located in the Arctic.

#### *Big picture in 2035*

The resource lockdown is appealing because it marks a clean break with the sins of the past: No further efforts to explore and extract the chief source of CO<sub>2</sub> emissions – fossil minerals – will be allowed. The ban is unambiguous and “smart”, at least on the surface. In 2035, the EU provides funding for small, digitally advanced “smart” communities in the circumpolar coastal areas and for measures to protect or recreate the unique biodiversity found in Arctic and sub-Arctic areas. The EU also promotes eco-friendly maritime transport in the Arctic Ocean. The new “smart” communities are cool in both senses of the word, and they attract a small band of artists, recluses, and researchers from all over the world. The original inhabitants in Arctic and sub-Arctic areas, however, tend to be skeptical of these developments.

While the resource lockdown is a source of pride for EU politicians, by 2035 it is increasingly contested politically. Sometimes complaints and civil cases are brought before national and international courts. The lockdown is also quietly ignored by various corporations, oligarchs, and indigenous groups. One strategy is to complicate the monitoring of the oceans undertaken by EU research agencies by sabotaging subsea surveillance systems. Some obstruct the EU’s efforts by jamming signals and creating streams of false data. Seen from a distance, the sanctuary appears to be functioning well and the bureaucratic procedures of the EU seem to be comprehensive and foolproof. In 2035, other geographical areas and political problems are in the spotlight in Brussels. Researchers and environmentalists despair because the lockdown, ironically, diverts attention from the Arctic.

By 2035, the Arctic Council, which was sidelined by the EU in discussions on the future status of the Arctic, has become a forum for dissent and at times angry resistance to the resource lockdown. New technology has emerged, and experts maintain that energy and minerals can be extracted in a much gentler way than before. Mining in the Arctic could help secure precious, rare minerals. Russian and Nordic actors argue that the rules and regulations should be more flexible and lenient, while the EU Commission responds that exceptions are dangerous because they would undermine respect for the “Northern Sanctuary” and

generally weaken resolve in the global struggle for carbon neutrality and a just green transition.

### *What has happened?*

In the mid-2020s, the demands for visible, radical action to combat climate change reached fever pitch. No politician could ignore the demands for a dramatic reduction of CO<sub>2</sub> emissions. However, few organizations were able to offer concerted action on a grand scale, and in most instances, strong interest groups could block progress and play for time by insisting on special transitional arrangements and by asking for further scientific studies. Storing CO<sub>2</sub> underground using Carbon Capture and Storage (CCS) technology was increasingly seen as a ruse and too risky. In this situation, the EU found that an unequivocal resource lockdown in the Arctic would cut the Gordian knot. The “Northern Sanctuary” could be used as a rallying point for environmentalists, politicians, scientists, and young people wishing to make a difference. It should also be noted that continental European countries, the EU Commission, and the European Parliament had little to lose in economic, social, and political terms, in contrast to the Arctic states, communities, and companies.

So it was that a string of qualified majority decisions was pushed through in the EU in 2025. The Arctic was considered “easy prey” and a chance for the EU to assert itself as a global champion of sustainability, biodiversity, and justice for marginalized, indigenous peoples.

The EU Commission persuaded and coerced the Nordic countries outside the EU – Norway, Greenland, and Iceland – into accepting the lockdown: the “Northern Sanctuary” was presented as an example of Nordic values and environmental ideals put into practice. Russia, which was keen to escape from the political and economic isolation that it had suffered for several years, paid lip service to the idea of the new “Northern Sanctuary”. So long as Russia could retain control of the Northwest Passage in the face of growing international interest, this would be an acceptable concession. Canada and the US, which could not be seen to obstruct efforts to fight global warming in any shape or form and which also wanted to be recognized as allies of indigenous peoples in the north, quickly gave their assent. Even China found it difficult to object to the resource lockdown as it was firmly committed to a policy of “Net Zero”.

The EU immediately initiated programs and projects to strengthen development in the Arctic regions. Far north in Greenland, a special reservation for polar bears was set up. Here, vulnerable yet obviously quite dangerous polar bears could be viewed by well-protected tourists with expensive cameras. Data center facilities on Svalbard and Novaya Zemlya were supported. However, transport and popular tourism were strictly regulated, all activities having to comply with an increasing number of EU directives. Only a few smart communities in the circumpolar coastal areas seemed to flourish after the initial EU honeymoon in the Arctic.

The lockdown was heavily criticized, especially by organizations, industries, and communities in Norway, Russia, and Greenland, for stifling natural growth

and encouraging reliance on subsidies and funding from outside sources. On top of this, European and national programs were often seen as incoherent, contradictory, and even too theoretical and ambitious. With permafrost thawing and forest fires adding to the worries of Arctic communities, infrastructure and economic growth should be given priority, not “eco villages”. Critics argued that the Arctic cannot be protected in the same sweeping way as Antarctica, not only because the resources in the Arctic are plentiful, valuable, and highly needed, but also because the Arctic is home to indigenous populations and old settlements.

The strongest criticism, however, was voiced over the rigid fisheries policies and food, health, and safety procedures that came on the heels of the new ban on the extraction of subsea minerals imposed by the EU in 2032. Fishing interests in Norway asserted that the EU had overreached itself and that the new policy played directly into the hands of Russian and Chinese pirate trawlers.

### *In brief*

The “Northern Sanctuary” seemingly heralded a new age of sustainability and a commitment to a greener and more prosperous Arctic. But, in truth, not much is happening in the region. In 2035, emissions have gone down but temperatures are still rising and the infrastructure is still deteriorating. Quite possibly, EU policies will be met with open defiance and the sanctuary be rolled back in the years to come. Illustration of the “EU Arctic” scenario is presented on the Figure 1.5.

## **Eight wild cards**

Nobody knows what the world and the Arctic will look in 15 years’ time. That is why we need both scenarios and “wild cards”. “Wild cards” are commonly defined as low-probability, high-impact events. Wild card events occur suddenly, seemingly out of the blue, and they tend to have irreversible effects. Frequently, they are exogenous to the system and the trends that underpin the main scenarios, yet sometimes they are tipping points of an underlying trend (Overland et al., 2015). Examples of wild cards are the fall of the Berlin Wall and the terrorist attacks against the US in September 2001. Wild card events divide history into a “before” and an “after”. Although difficult to imagine, wild cards are highly useful in scenario projects such as this one because they help to stretch thinking about what could plausibly happen.

We have conceived of eight wild cards that would significantly change developments in the Arctic at some point in the next 15 years. Please note that the wild cards are game changers that break with the logic in the scenarios and that they therefore stand alone. We invite the reader to reflect on the possible implications of the wild cards.

### 1 A sudden and dramatic acceleration in climate change

A sudden and massive release of methane from the permafrost in Siberia occurs, leading to environmental, economic, and infrastructural devastation



Figure 1.5 Illustration of the EU Arctic 2035.

Source: Authors.

in Arctic and sub-Arctic areas and to a radical change in both regional and global weather patterns. Key ecological processes are altered and the degradation becomes irreversible.

2 A pandemic that originates in the Arctic

A dangerous and highly contagious virus is released as old carcasses thaw in the Siberian permafrost. The virus, which is of an unknown kind, takes both the scientific community and authorities by surprise. Life in the Arctic becomes even more precarious.

3 A new global financial crisis

Following a collapse in the Chinese property market, the global financial system implodes. This crisis is much more severe than that of 2008, as it pulls out the rug from underneath global supply lines. Basically, only local and regional barter trade is possible in the Arctic.

4 The Suez Canal is closed

A radical Islamist group seizes control of Egypt. International trade is actively discouraged, and the Suez Canal falls into disrepair. This dramatic turn of events necessitates new alternatives and makes the NSR critically important. Accelerating infrastructure projects in the Arctic becomes urgent.

5 Russia turns to the West and goes green

Russia becomes a state that respects European liberal values. New policies are implemented to strengthen the rule of law, compliance with international law, and human rights after the first post-Putin new Russian government is elected. The new government surprises electors by giving priority to a close alliance with the EU and a massive political swing in a green direction. Much of Russia's oil, gas, and coal production is shut down.

6 Deep-sea metal mining alters the economy

Vast deposits of copper, zinc, cobalt, and other valuable metals are discovered in Norwegian and Russian waters. These metals are crucial for the green shift. Deep-sea metal mining alters the economy in Norway and Russia and hastens the end of oil and gas.

7 China's economic and political model weakens, and the country turns inward

The Chinese Communist Party (CCP) tries to regain full control of the economy but fails. Propping up the property market, monitoring the internet, and micromanaging entrepreneurs proves impossible. The CCP loses its grip on power and the Chinese state descends into chaos. Arctic countries push back against the Chinese Arctic initiatives.

8 The Arctic becomes highly militarized

Geopolitical tensions mount, and new technologies dramatically increase the importance of surveillance. A breakdown in trust between the West, Russia, and China leads to an intense arms race and a struggle for dominance in the Arctic. Arctic and sub-Arctic areas witness a massive military build-up.

December 2021

(Subsection *Geopolitical tensions will remain high* and wild card 8 *The Arctic becomes highly militarized* were included in May 2022)

## **Ex-post reflections**

The original chapter on Arctic cooperation scenarios was finished in December 2021. The Russian invasion of Ukraine on February 24, 2022, was a game changer, seemingly a “wild card” event that has divided history into a before and after. As of today, there is no consensus on how to stop the ongoing Ukraine war by diplomatic means. The world has changed and may be on the verge of even more dramatic geopolitical changes.

In our chapter, we have presented two fundamental uncertainties about Arctic cooperation: attitudes to the Arctic resources (fragmented vs. coordinated response to climate change) and response to climate change (Arctic lockdown vs. Arctic resource extraction). These uncertainties remain valid and important and

should be included in further scenario work. However, the war in Ukraine has brought to the forefront one more fundamental uncertainty – the future security architecture in Europe. This war is unfolding in the heart of Europe, and most European countries are indirectly yet heavily involved (by introducing serious, often double-edged economic sanctions and by providing military equipment and weapons to Ukraine). The outcome is uncertain, and there is always the risk of escalation.

Are we moving toward a new security architecture in Europe? Will we see a shift from a fairly stable security situation to one that is (perhaps for a long time to come) more precarious? The future architecture will be heavily influenced by whether a relatively clear resolution of the Ukraine war can be achieved, and further, by how this resolution comes about. A big question is if a peace deal that is satisfactory to all the major parties can and will be achieved. In this case, the security architecture will be stable even though tensions probably will persist. The resolution can also come as a result of the decisive victory of one of the parties and the strategic defeat of the other. What happens then is extremely unclear. If, on the other hand, no clear resolution is achieved, we may be entering an era of a continuous hostility, marked by more and less active phases of fighting and subversion on shifting fronts. We may experience a confusing blend of political, psychological, economic, and military warfare.

Most of the parties directly and indirectly involved in the Ukraine conflict have interests and ambitions in the Arctic. As has been pointed out throughout this volume, the Arctic region is unique in various ways, also in the sense that it is vulnerable. That is why this third major uncertainty – will we have a stable or unstable security architecture in Europe? – must be taken into consideration in further work on Arctic scenarios. The uncertainty we have briefly touched upon here will affect Arctic geopolitics, including prospects for keeping the Arctic as a region of low tensions. With mounting uncertainty, the urge to start a “Scramble for the Arctic”, even backed with military tensions, may grow. We recommend that readers keep this additional uncertainty dimension in mind while considering our four basic scenarios.

Finally, we would express the hope that building on successful cooperation of major powers in the Arctic after 2000, a new interstate cooperation in the Arctic during these turbulent and uncertain times will facilitate peace and security, building measures around which the European and global security will start consolidating and improving.

*May 20, 2022*

## Notes

- 1 For example, the Arctic Circle Assembly, which holds annual conferences in Iceland, is attended by heads of state and government, ministers, members of parliaments, indigenous leadership and representatives, officials, experts, scientists, entrepreneurs, business leaders, environmentalists, students, and activists.

- 2 Source: [fridaysforfuture.org](https://fridaysforfuture.org) – a youth-led and organized movement that began in August 2018, after 15-year-old Greta Thunberg and other young activists sat in front of the Swedish parliament every school day for three weeks, to protest against the lack of action on the climate crisis. She posted what she was doing on Instagram and Twitter, and it soon went viral. In 2021, FridaysForFuture had 14,000,000 supporters from all continents.
- 3 BIN (Business Index North) project aims at raising awareness of business opportunities and development challenges in the Arctic. Please refer to the website of the project for more information and reports (<https://businessindexnorth.com/>).
- 4 The European Parliament and the Council of the European Union are, to varying degrees, empowered to make and execute laws at a European level in the areas of trade, business, foreign policy, and security. Supranational EU influence is also felt through the EEA (European Economic Area), to which Norway and Iceland are tied.
- 5 The SDGs are conceptualized as the world's shared plan to end extreme poverty, reduce inequality, protect the planet, and so on by 2030. The plan has gained considerable support worldwide, not least because it offers an almost universally accepted view of a world where “nobody is to be left behind”. Many countries and institutions are committed to the SDGs and have made efforts to integrate them into their policies.
- 6 For example, consider the US decision made under the Trump administration to withdraw from the Paris agreement, a decision which was subsequently overturned by the Biden administration in 2021.
- 7 Please refer to “Everything is forbidden unless it is permitted” by Christine Van Geyn – an interesting discussion of these two maxims in case of Canada (<https://theccf.ca/everything-is-forbidden-unless-it-is-permitted/>).
- 8 The “Kodak moment” refers to a situation that occurs when a business fails to foresee disruption in the environment and sticks to a “business-as-usual” strategy despite warning signals. The well-known company Kodak, which produced analog cameras and was considered highly successful, was overtaken by digital picture producers. The Kodak moment signifies a sudden and total collapse of the very foundations of business.
- 9 This story of “two Arctics” is inspired by Gustafson (2021) “Klimat”, Harvard University Press.
- 10 Vladimir Putin, according to the Russian Constitution, can be President until 2036, but this scenario assumes that he resigns one year before that date “for health reasons”.

## References

- Amer, M., Daim, T.U. and Jetter, A. (2013). A review of scenario planning, *Futures*, 46, pp. 23–40.
- Bourmistrov, A. et al. (eds.) (2015). *International Arctic Petroleum Cooperation: Barents Sea Scenarios*. London and New York: Routledge.
- Bradfield, R., Wright, G., Burt, G., Cairns, G. and van der Heijden, K. (2005). The origins and evolution of scenario techniques in long range business planning, *Futures*, 37(8), pp. 795–812.
- Brigham, L.W. (2007). Thinking about the Arctic's future, *The Futurist*, Sept–Oct, pp. 27–34.
- Burger-Helmchen, T. (2008). From investment rules of thumb to routines: A real option approach, *Problems and Perspectives in Management*, 6(1), pp. 64–73.
- EU Commission. (2019). The European Green Deal – Communication from the Commission to the European Parliament, the European Council, the Council,

- the European Economic and Social Committee and the Committee of the Regions (December 11, 2019).
- Gabuev, A. (2021). The emergence of a pax sinica including Russia could draw new dividing lines over Eurasia. *Carnegie Moscow Center*. Retrieved 17 December 2021 from: <https://carnegiemoscow.org/commentary/84135>.
- Gustavson, T. (2021). *KLIMAT: Russia in the Age of Climate Change*. Cambridge, MA: Harvard University Press.
- Haavisto, R., Pilli-Sihvola, K., Harjanne, A. and Perrels, A. (2016). Socio-economic scenarios for the Eurasian arctic by 2040, *Finish Meteorological Institute*, 1, pp. 1–65.
- Heininen, L. and Finger, M. (2018). The “global arctic” as a new geopolitical context and method, *Journal of Borderlands Studies*, 33(2), pp. 199–202. <https://doi.org/10.1080/08865655.2017.1315605>
- Hjort, J., Karjalainen, O., Aalto, J., Westermann, S., Romanovsky, V.E., Nelson, F.E., Etzelmüller, B. and Luoto, M. (2018). Degrading permafrost puts arctic infrastructure at risk by mid-century, *Nature Communications*, 9(1), pp. 1–9. ISBN 978-0-8020-6041-9
- Huntington, S.P. (1993). The clash of civilizations? *Foreign Affairs*, 72(3), pp. 22–49.
- Huntington, S.P. (1996). *The Clash of Civilizations and the Remaking of World Order*. New York: Simon & Schuster.
- Keohane, R.O. and Nye, J.S. (1973). Power and interdependence, *Survival*, 15(4), pp. 158–165.
- Kristoffersen, B. and Langhelle, O. (2017). “Sustainable development as a global-arctic matter: Imaginaries and controversies.” In: Keil, K. and Knecht, S. (eds.). *Governing Arctic Change*. London: Palgrave Macmillan. [https://doi.org/10.1057/978-1-137-50884-3\\_2](https://doi.org/10.1057/978-1-137-50884-3_2)
- Krivorotov, A. (2018). China’s polar policy: Gaining momentum, obtaining scope, multiplying vectors, *China in the Global and Regional Politics: History and Nowadays*, 23, pp. 183–199.
- Lazariva, A., Kalinin, A., Middleton, A., Nilssen, F. and Belostotskaya, A. (2021). *Arctic 2050: Mapping the Future of the Arctic*. Moscow: SKOLKOVO Institute for Emerging Market Studies.
- McBride, J. (2021). How green-party success is reshaping global politics. *Council on Foreign Relations* ([www.cfr.org](http://www.cfr.org)). Retrieved 26 October 2021 from: <https://www.cfr.org/backgrounder/how-green-party-success-reshaping-global-politics>.
- McLuhan, M. (1962). *The Gutenberg Galaxy*. Toronto, Canada: University of Toronto Press.
- Miller, K.D. and Waller, H.G. (2003). Scenarios, real options and integrated risk management, *Long Range Planning*, 36(1), pp. 93–107.
- Myllylä, Y., Kaivo-oja, J. and Juga, J. (2016). Strong prospective trends in the arctic and future opportunities in logistics, *Polar Geography*, 39(3), pp. 145–164.
- Overland, I., Bambulyak, A., Bourmistrov, A., Gudmestad, O., Mellemvik, F. and Zolotukhin, A. (2015). “Barents sea oil and gas 2025: Three scenarios”. In: Bourmistrov, A. et al. (eds.). *International Arctic Petroleum Cooperation: Barents Sea Scenarios*. London and New York: Routledge.
- Petrov, A.N., Smith, M.S.R., Krivorotov, A.K., Klyuchnikova, E.M., Mikheev, V.L., Pelyasov, A.N. and Zamyatina, N.Y. (2021). The Russian arctic by 2050: Developing integrated scenarios, *ARCTIC*, 74(3), pp. 306–322.
- Schacht, K. and Koschyk, M. (2019). How war has changed since 1989. *Deutsche Welle*. Retrieved 23 May 2022 from: <https://p.dw.com/p/3SZ2K>
- Schatzmann, J., Schäfer, R. and Eichelbaum, F. (2013). Foresight 2.0 – Definition, overview and evaluation, *European Journal of Futures Research*, 1(15).

- Schoemaker, P.J.H. (1993). Multiple scenario development: Its conceptual and behavioral foundation, *Strategic Management Journal*, 14(3), pp. 193–213.
- Schoemaker, P.J.H. (1995). Scenario planning: A tool for strategic thinking, *Sloan Management Review*, 36(2), pp. 25–50.
- Sovacool, B.K., Monyei, C.G. and Upham, P. (2022). Making the internet globally sustainable: Technical and policy options for improved energy management, governance and community acceptance of Nordic datacenters, *Renewable and Sustainable Energy Reviews*, 154, pp. 111793.