

# ENVIRONMENT IN TIMES OF WAR

## CLIMATE AND ENERGY CHALLENGES IN THE POST-SOVIET REGION

edited by **Aldo Ferrari** and **Eleonora Tafuro Ambrosetti**  
introduction by **Paolo Magri**



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## 4. How Is Climate Change Shaping Russia's Arctic Policy and Activities?

Pavel Devyatkin

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Climate change is one of the greatest challenges of our century and Russia is one of the most affected countries. This chapter explores how immense transformations of the Arctic environment are reflected in the rhetoric and activities of Russian Arctic policy. The focus is on climate change and its effects on cooperation and diplomacy with other nations, security concerns, energy and natural resources, and shipping and transport.

Reports published by the Intergovernmental Panel on Climate Change (IPCC) reveal that climate change is affecting the whole world. Perhaps the most impacted region is the Arctic, generally defined as the polar region in the northernmost part of Earth above the 66°33'N latitude line. The effects of global warming are noticed sooner and with more severe consequences in the Arctic. These include melting sea ice, thawing permafrost, eroding coastlines and extreme weather. A 2022 report from the Russian Federal Service for Hydro-meteorology and Environmental Monitoring found that average temperatures along the Russian Arctic coast have increased by approximately 5 degrees Celsius since 1998.<sup>1</sup> Air temperatures have been

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<sup>1</sup> Federal Service for Hydrometeorology and Environmental Monitoring of Russia (Roshydromet), *Doklad Ob Osobennostyakh Klimata Na Territorii Rossiyskoy Federatsii* (Report about Climate Features Within the Territory of the Russian Federation), 2021.

rising at a rate three times the global average over the past few decades, in part because of a phenomenon known as Arctic amplification, that is, the loss in sea ice that gives way to a darker, more heat-absorbent ocean.<sup>2</sup>

Climate change is also a political issue, and Russia's climate-related policies and interests in the Arctic are influenced by an array of governmental and non-governmental actors, including individuals and groups.<sup>3</sup> Russian climate scientists have been studying climate change since the late XIX century, with pioneering contributions to the field since the 1970s, and have produced many studies and analyses on the impacts of climate change in the Arctic.<sup>4</sup> Some Russian scholars believe that climate change is cyclical or natural, but newer generations of scientists recognise the anthropogenic sources of global warming.<sup>5</sup> Government bodies and agencies, such as the Ministries of Economic Development, Energy, and Natural Resources and Environment, promote the development and advocacy of climate policies and formulation of Russia's climate adaptation and mitigation. There are also conservative government actors, including close associates of President Vladimir Putin, influential in Russian legislative bodies, who are sceptical of climate change and block meaningful climate action beyond rhetoric. Several of Russia's richest business leaders have extensive ties to Arctic extractive industries.<sup>6</sup> Private, as well as state-owned or partially state-owned businesses are concerned with sustainability indexes, carbon taxes, regulation and foreign investment.<sup>7</sup>

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<sup>2</sup> Arctic Monitoring and Assessment Programme (AMAP), *Arctic Climate Change Update 2021: Key Trends and Impacts. Summary for Policy-makers*, 2021.

<sup>3</sup> A. Sergunin and V. Konyshov, "Forging Russia's Arctic strategy: actors and decision-making", *The Polar Journal*, vol. 9, no. 1-19. 2019.

<sup>4</sup> K. Doose, "Modelling the future: climate change research in Russia during the late Cold War and beyond, 1970s-2000", *Climatic Change*, vol. 171, no. 6, 2022.

<sup>5</sup> S.E. Jakobsen, *What is happening to Russia's climate policy?*, Forskning, 2021; O. Anisimov and S. Reneva, "Permafrost and Changing Climate: The Russian Perspective", *Ambio*, vol. 35, no. 4, 2006, pp. 169-75.

<sup>6</sup> B. Venditti, "Who are the Russian Oligarchs?", *Visual Capitalist*, 25 March 2022.

<sup>7</sup> T. Gustafson, *Klimat: Russia in the Age of Climate Change*, Harvard University

Human rights, Indigenous peoples' and environmental NGOs play some role in the debate on Arctic climate change, voicing concern about environmental consequences such as thawing permafrost. Indigenous peoples of the Russian North, who have lived in the Arctic for millennia, have long noticed the effects of climate change on animal migration, conservation of species important for fishing and hunting, and the health and well-being of communities.<sup>8</sup> The public and civil society are likewise involved, though public opinion surveys show mixed results regarding citizens' concern for climate change and environmental problems.<sup>9</sup> Given the strategic importance of the Arctic, there is a wide range of actors involved in formulating Moscow's approach to climate change at the national and regional level. In general, however, Arctic policy-making in Russia is a centralised affair, with the centre of decision-making concentrated in the Kremlin and executive agencies.<sup>10</sup> This chapter outlines how climate change has had an effect on Arctic cooperation, security and the economy. It is argued that climate is a key consideration of Russian Arctic policy in these fields.

## Cooperation and Science Diplomacy

Addressing the effects of Arctic climate change has been central to Russia's circumpolar cooperation in international institutions such as the Arctic Council (AC) and International Maritime Organization (IMO). Russia has supported and participated

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Press, 2021; E. Wilson Rowe, *Russian Climate Politics*, New York, Palgrave Macmillan, 2014.

<sup>8</sup> T.V. Callaghan, O. Kulikova, L. Rakhmanova, et al., "Improving dialogue among researchers, local and indigenous peoples and decision-makers to address issues of climate change in the North", *Ambio*, vol. 49, 2019, pp. 1161-78.

<sup>9</sup> Levada Center, *Environmental Problems*, 2020; O. Anisimov and R. Orttung, "Climate change in Northern Russia through the prism of public perception", *Ambio*, vol. 48, 2019, pp. 661-71.

<sup>10</sup> A. Sergunin and V. Konyshov, "Forging Russia's Arctic strategy: actors and decision-making", *The Polar Journal*, vol. 9, 2019, pp. 1-19.

in United Nations environmental activities such as the IPCC, the UN Framework Convention on Climate Change, the Paris Accords and the 2030 Agenda for Sustainable Development.<sup>11</sup> Under the auspices of the IMO, Russia participated in the Sub-Committee on Pollution Prevention and Response and the ban on heavy fuel oil (HFO) in the Arctic. HFO is the dirtiest type of marine fuel and presents severe risks to the Arctic marine environment as a source of black carbon emissions. However, environmental groups criticise the ban for granting exemption to Russian-flagged ships in the Northern Sea Route (NSR) and allowing for the continued use of HFO until 2024.<sup>12</sup>

Russia aims to intensify the AC working groups' research, monitoring and assessment activities. As chair of the Council from 2021 to 2023, Russia plays a guiding role in setting the agenda of the AC in the areas of environmental protection and sustainable development. The chairmanship's priorities highlight the challenges of climate change and its goals include maintaining Arctic ecosystems, conserving biodiversity and sustainably managing natural resources.<sup>13</sup> Russia aims to intensify work in the AC working groups, the Arctic Monitoring and Assessment Program (AMAP) and the Arctic Contaminants Action Program (ACAP).<sup>14</sup> Climate-related cooperation with AC member states mostly happens in these working groups. Russia participated in the negotiation of legally binding agreements on environmental protection and scientific cooperation between 2011 and 2017.<sup>15</sup> One concrete objective of Russia's AC chairmanship is the establishment of the renewable energy-powered Snowflake International Arctic

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<sup>11</sup> A. Davydova, *What Is Russia's Place in the Fight Against Climate Change?*, Carnegie Moscow Center, 2022.

<sup>12</sup> M. Humpert, "IMO Moves Forward with Ban of Arctic HFO But Exempts Some Vessels Until 2029", *High North News*, 3 September 2020.

<sup>13</sup> A.N. Vylegzhanin, O.R. Young, and P.A. Berkman, "Russia in the Arctic Chair: Adapting the Arctic Governance System to Conditions Prevailing in the 2020s", *Polar Record*, vol. 57, 2021, pp. 1-10.

<sup>14</sup> *Russian Chairmanship 2021-2023*, Arctic Council, 2021.

<sup>15</sup> *International cooperation in the Arctic*, Arctic Council.

Station, a research hub for international cooperation in the Russian North.<sup>16</sup>

The escalation of the Ukraine conflict in 2022 led to seven of the AC member states condemning Russia's actions in Ukraine and pausing the work of the Council during Russia's chairmanship as of March 2022.<sup>17</sup> International cooperation around environmental issues may be affected by the suspension of the Arctic Council's activities. Russia's Arctic officials called the suspension "regrettable" and said it was important to preserve the activities of the AC, "so that – when circumstances allow – cooperation can continue without prejudice to those who depend on these projects".<sup>18</sup> Despite the freezing of the Council's activities, there is an enduring need for transnational ocean protection and environmental stewardship.<sup>19</sup> Russia will reorient its chairmanship agenda towards domestic development of the Russian North.

So far, Arctic cooperation has been particularly successful in the area of climate science, with Russia taking a leading role in science diplomacy.<sup>20</sup> An example showing how valuable such cooperation can be is the problem of black carbon emissions. The goal of reducing black carbon emissions is difficult to achieve without working closely with Russia, considering the weight of government-led action in this space.<sup>21</sup> Between 2011

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<sup>16</sup> *The Snowflake International Arctic Station – A hub for energy innovation and cultural exchange*, Arctic Council, 2020.

<sup>17</sup> G. Dickie and T. Gardner, "Arctic Council in upheaval over Russia as climate change transforms region", *Reuters*, 3 March 2022.

<sup>18</sup> "MID osudil resheniye semi stran priostanovit' uchastiye v Arkticheskom sovete" ("The Foreign Ministry condemned the decision of seven countries to suspend participation in the Arctic Council"), *Interfax*, 5 March 2022.

<sup>19</sup> Y. Rosen, "Against tough odds, Bering Strait residents seek cross-border ocean protections", *Arctic Today*, 24 March 2022.

<sup>20</sup> P.A. Berkman, L. Kullerud, A. Pope, A.N. Vylegzhanin, and O.R. Young, *The Arctic Science Agreement propels science diplomacy*, *Science*, vol. 358, no. 6363, 2017, pp. 596-98.

<sup>21</sup> A. Minter, *The Climate Fight in the Arctic Needs Russia's Help*, Bloomberg, 18 March 2022.

and 2014, researchers from the US Environmental Protection Agency (EPA) successfully convinced experts from the Russian Ministry of Natural Resources and Ecology about the health risks of black carbon in northern communities. The exchange led to the Russian government funding a new black carbon emissions inventory based on EPA methodologies.<sup>22</sup> Russia has likewise played leading roles in scientific expeditions such as the Russian-American Long-term Census of the Arctic (RUSALCA for short, which can be translated as “water nymph” in Russian). As part of the programme, researchers studied the marine chemistry, glaciology, oceanography and ecosystems of the Bering and Chukchi Seas between 2004 and 2015.<sup>23</sup>

Russian scientists have taken part in the internationally-coordinated Nansen and Amundsen Basins Observational System (NABOS). Since the program began in 2002, there have been 13 expeditions – the most recent in September–October 2021 – aboard the Russian ice-class research vessel Akademik Tryoshnikov. The results of the NABOS cruises have improved our understanding of the mechanisms behind sea-ice reduction. The study of this process greatly depends on repeated and concurrent oceanographic calculations and the long-term upkeep of mooring buoys – both of which are more easily achieved with international collaboration.<sup>24</sup> Unfortunately, at the moment it is not clear if NABOS will continue.

Lastly, Russia also took part in the largest polar expedition in history, the Multidisciplinary Drifting Observatory for the Study of Arctic Climate (MOSAiC), from 2019 to 2020. MOSAiC scientists studied the causes and consequences of the changing Arctic Sea ice cover on the global and local ecosystems, oceans and atmosphere. The expedition, with

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<sup>22</sup> *Black Carbon Diesel Initiative in the Russian Arctic*, U.S. Environmental Protection Agency (EPA), 2014.

<sup>23</sup> P. Devyatkin, *Environmental Détente: What can we learn from the Cold War to manage today's Arctic Tensions and Climate Crisis?*, The Arctic Institute, 2021.

<sup>24</sup> H. McFarland, *Expedition Embarks to Assess the State of the Eastern Arctic Ocean*, International Arctic Research Center (IARC), 2021.

an unprecedented budget of approximately €140 million, produced many terabytes of data and thousands of samples.<sup>25</sup>

## Security Concerns

Defence and security likewise play a role in Russia's Arctic policy and foreign relations with Arctic states. Russia maintains a comprehensive land, sea and air presence in the Arctic, oriented towards protecting national sovereignty and securing its economic interests. Security concerns in the Arctic are also linked to tensions between NATO members and Russia in other parts of the world. Of the eight Arctic states, Canada, Denmark, Iceland, Norway and the United States are NATO members, while Sweden and Finland have signalled their willingness to join NATO.<sup>26</sup> In the context of global frictions, there has been a remilitarisation of the region, with the resumption of strategic bomber patrols, Russian naval manoeuvres close to Alaska and test launches of the Tsirkon hypersonic cruise missile in the Arctic.<sup>27</sup>

It is often claimed that the increasing accessibility to natural resources prompted by climate change will trigger a "bonanza" or geopolitical race among the Arctic states for reserves that were previously unreachable.<sup>28</sup> The idea of such an impending resource-driven conflict has largely been debunked in Arctic studies because there is a clear legal regime for the distribution of natural resources according to the exclusive economic zones (EEZs) and territories of the Arctic states.<sup>29</sup> There are no significant territorial or maritime disputes. Disagreements in

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<sup>25</sup> *MOSAiC Multidisciplinary Drifting Observatory for the Study of Arctic Climate Science Plan*, International Arctic Science Committee (IASC), 2016.

<sup>26</sup> "The Next NATO Expansion", *The Wall Street Journal*, 20 March 2022.

<sup>27</sup> M. Paul and G. Swistek, *Russia in the Arctic*, Stiftung Wissenschaft und Politik, 2022.

<sup>28</sup> I. Øverland, "Russia's Arctic energy policy", *International Journal*, vol. 65, no. 4, 2010, pp. 865-78.

<sup>29</sup> K. Dodds and M. Nuttall, "The scramble for the Poles: The geopolitics of the Arctic and Antarctic", *Polity Press*, 2016; A. Østhagen, "The Arctic security region: misconceptions and contradictions", *Polar Geography*, vol. 44, no. 1, 2021, pp. 55-74.

this area are resolved through negotiation and under the auspices of international bodies. Such was the case of the Norway-Russia Barents Sea delimitation dispute, which was resolved by treaty in 2010 after decades of disagreements.<sup>30</sup> Russia submitted scientific data to the UN Commission on the Limits of the Continental Shelf (CLCS) in 2021 to propose an extension of its continental shelf in the Arctic Ocean. After examining the data, the UN CLCS will make recommendations on the extension.<sup>31</sup>

In 2010, then-President Dmitry Medvedev, addressing Russia's Security Council, stated that "climate change can give rise not only to physical changes, changes in the natural environment, but also to interstate contradictions [related to] energy extraction, the use of sea transport routes, bioresources, and a shortage of water and food resources".<sup>32</sup> Since then, Russian publications on Arctic strategy reflect the view that there are no serious military threats originating from the Arctic. This is evident from the fact that defence and security concerns appear at the bottom of Russia's list of Arctic priorities in strategic documents.<sup>33</sup>

Russia remains a great power with first-rate military capabilities, but compared to the Soviet period, when the Arctic was another theatre for competition with NATO, Russia's current defence presence is more connected to providing search and rescue (SAR) capabilities and navigation assistance in an area of great economic importance and rapidly changing

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<sup>30</sup> C. Peterson McDaniel, *Russia's Arctic Strategy: An Analysis of the Role of Diplomatic, Cooperative, and Domestic Policies*, The Arctic Institute, 2017.

<sup>31</sup> UNCLS, "Commission on the Limits of the Continental Shelf (CLCS), Outer limits of the continental shelf beyond 200 nautical miles from the baselines: Submissions to the Commission: Partial revised Submission by the Russian Federation", Oceans and Law of the Sea, United Nations, Division for Oceans Affairs and the Law of the Sea, 2022.

<sup>32</sup> President of Russia, *Zasedaniye Soveta Bezopasnosti po voprosam izmeneniya klimata (Security Council meeting on climate change)*, Official Website, The Kremlin, 2010.

<sup>33</sup> A. Sergunin, *Thinking about Russian Arctic council chairmanship: Challenges and opportunities*, Polar Science 100694, 2021.

climatic conditions.<sup>34</sup> Russian security concerns in the Arctic are more in line with comprehensive security – an approach that takes into account economic, environmental and human security issues.<sup>35</sup>

Russia's 2021 National Security Strategy frames climate change adaptation as a national interest, but Russia has not securitised climate change as much as other states.<sup>36</sup> Unlike US Arctic policy, where climate change is seen as a “destabilizing force” in security and as a multiplier of “competition for resources and influence in the [Arctic] region”,<sup>37</sup> Russia is against linking climate change to security. Russia vetoed the UN Security Council draft resolution on climate and security in 2021 because the Russian delegation saw the proposed document as “coercing the Security Council to take a one-dimensional approach to conflicts and threats to international peace and security ... through the climate lens”.<sup>38</sup> President Putin's adviser on climate change issues, Ruslan Edelgeriev, says Russia opposes the inclusion of climate change in the Security Council's agenda to avoid the imposition of “sanctions or other deterrents on supposedly ‘unambitious’ climate targets”.<sup>39</sup> Russia sees climate concerns as a possible justification for Western unilateral actions.

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<sup>34</sup> P. Devyatkin, *Russia and the Arctic*, in NSI Team (Eds.), *Russian Strategic Intentions*, Strategic Multilayer Assessment, U.S. Department of Defense, 2019.

<sup>35</sup> G.H. Gjørsv and K.K. Hodgson, “Arctic Exceptionalism” or “comprehensive security”? *Understanding security in the Arctic*, Arctic Yearbook, 2019.

<sup>36</sup> President of Russia, *O Strategii natsional'noy bezopasnosti Rossiyskoy Federatsii (On the National Security Strategy of the Russian Federation)*, Official Website, The Kremlin, 2021; J.M. Godzimirski, “Energy, climate change and security: The Russian strategic conundrum”, *Journal of Eurasian Studies*, vol. 13, no. 1, 2022, pp. 16-31.

<sup>37</sup> U.S. Department of Defense, *Secretary Austin Remarks at Climate Change Summit*, 2021.

<sup>38</sup> [Press Statement on the Draft UN Security Council Resolution on Climate and Security](#), Permanent Mission of the Russian Federation to the United Nations, 2021.

<sup>39</sup> “Ruslan Edel'geriyev: Rossiya protiv smeshvaniya ponyatiy klimata i bezopasnosti” (“Ruslan Edelgeriev: Russia is against mixing climate and security concepts”), *RIA Novosti*, 28 December 2021.

## Domestic Climate Policies

Looking inwardly, climate change has had a mixed effect on Russia's domestic Arctic policies and unilateral initiatives towards adaptation and mitigation. After ratifying the Paris Agreement in 2019, Russia unveiled its climate change adaptation plan in 2020. The national plan acknowledges the consequences of climate change in terms of public health risks, wildfires, ecosystem disruption, droughts, extreme precipitation, flooding and permafrost degradation and its risk to infrastructure.<sup>40</sup> In 2020, Russia's Audit Chamber reported that 56 million Russians across 143 cities suffer from exposure to air pollution, almost all rivers are poisoned by untreated sewage, the country is losing about 300,000 hectares of forest annually, and the damage caused by climate change may cost 2-3% of Russia's GDP per year until 2030. The Organization for Economic Co-operation and Development (OECD) has listed Russia as the world's worst affected country in terms of economic damage related to climate change.<sup>41</sup>

The Russian Arctic is particularly threatened by climate change and the aforementioned effects. The economic cost of climate change to Arctic infrastructure may amount to 9 trillion rubles (€90 billion) by 2050, according to the Ministry for the Development of Far East and Arctic.<sup>42</sup> Every year, the Russian Arctic loses about 7,000 hectares of land to coastal erosion – an area approximately the size of Central Moscow.<sup>43</sup>

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<sup>40</sup> P. Devyatkin, "Russia Unveils Climate Change Adaptation Plan", *High North News*, 2020.

<sup>41</sup> E. Mereminskaya, "Zagryazneniye vody, vozdukh i zemli v Rossii zamedlyayet rost ekonomiki" ("Water, air and land pollution in Russia slows economic growth"), *Vedomosti*, 13 January 2020.

<sup>42</sup> "V Minvostokrazvitiya otsenili pryamoy ushcherb ot global'nogo potepeniya v Arktike" ("Minvostokrazvitiya estimated direct damage from global warming in the Arctic"), *TASS*, 24 May 2020.

<sup>43</sup> "Arktika pod ugrozoy: kak global'noye potepeniye vliyayet na severnoye poberezh'ye Rossii?", ("Arctic under threat: how does global warming affect the northern coast of Russia?"), *MIR24*, 2021.

Indigenous peoples' and traditional occupations and the lives of Arctic residents are vulnerable to climate change. Dozens of apartment buildings have collapsed and hundreds of buildings have been severely damaged by degrading permafrost around populated areas such as Yakutsk, Norilsk, Pevek, Magadan and Vorkuta.<sup>44</sup> Natural disasters have also been increasingly noticeable consequences of global warming. President Putin and regional officials acknowledged climate change as a cause of unprecedented wildfires and flash floods across Yakutia and other parts of Siberia in 2021.<sup>45</sup>

For these reasons, Russia is organising a climate adaptation and monitoring policy for the Arctic region. A permafrost monitoring system consisting of 140 surveillance stations and meteorological "Arctic-M" satellites will be constructed to create forecasts and models of anthropogenic environmental change.<sup>46</sup> After wildfires affected 1.4 million hectares in the Russian North in 2021 and 3 million hectares in 2020, the Ministry of Natural Resources and Environment allocated an additional 4.3 billion rubles to forest fire prevention in 2022 – approximately a third of the ministry's budget.<sup>47</sup> Sustainable forest management in the Arctic receives considerable attention

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<sup>44</sup> O.A. Anisimov and M.A. Belolutsкая, "Assessment of the Impact of Climate Change and Permafrost Degradation on Infrastructure in Northern Regions of Russia", *Meteorology and Hydrology*, vol. 6, 2022, pp. 15-22.

<sup>45</sup> "Scale of wildfires, flash floods in Russia largely connected to climate change, Putin says", *TASS*, 5 August 2021; "Glava Yakutii nazval osnovnyuyu prichinu pozharov v respublike" ("The head of Yakutia called the main cause of fires in the republic"), *RIA Novosti*, 20 July 2021.

<sup>46</sup> Ministry of Natural Resources and Environment of Russia (Minprirodi), [K 2024 godu gosudarstvennaya sistema monitoringa mnogoletney merzloty nakroyet vsyu territoriyu kriolitozony](#) (By 2024, the state permafrost monitoring system will cover the entire territory of the permafrost zone), 2021.

<sup>47</sup> Ministry of Natural Resources and Environment of Russia (Minprirodi), [Sozdaniye sistemy monitoringa vechnoy merzloty, plany nauchnykh ekspeditsiy ledostoykoy platformy, itogi raboty za god](#) (Creation of a permafrost monitoring system, plans for scientific expeditions of the ice-resistant platform, results of work for the year-a meeting of the Public Council), 2021.

from Russia's Arctic officials.<sup>48</sup> In 2022, the Russian government announced a 5.9 billion ruble research program to study climate change adaptation, black carbon monitoring and emissions reduction.<sup>49</sup> The main goals of Russia's Arctic climate change adaptation programme include permafrost monitoring, the reduction of anthropogenic effects and pollution, and the maintenance and increase in surface albedo.<sup>50</sup>

Nonetheless, there remain political barriers to comprehensive climate action in the Arctic. Security Council Secretary Nikolai Patrushev and Security Council Deputy Chairman Dmitry Medvedev acknowledge man-made climate change, but argue that the West's push for environmental standards in the Arctic "are designed in such a way as to maximally infringe on [Russia's] economic interests ... and create a threat to national security",<sup>51</sup> This sentiment is also present in Russia's National Security Strategy, which states that the "attention of the world community to the problems of climate change ... is used as a pretext for restricting the access of Russian companies to export markets, curbing the development of Russian industry,

<sup>48</sup> "Ustoychivoye upravleniye lesami v Arktike obsudili na konferentsii po sluchayu Mezhdunarodnogo dnya lesov" ("Sustainable forest management in the Arctic discussed at the International Day of Forests conference"), *Izvestiya*, 2022.

<sup>49</sup> V. Abramchenko, *Na nauchnyye resheniya v oblasti ekologicheskogo razvitiya i klimaticheskikh izmeneniy vydelyat 5,9 mlrd rubley* (5.9 billion rubles will be allocated for scientific solutions in the field of environmental development and climate change), Government of Russia, 2022.

<sup>50</sup> R.S.K. Edelgeriev and A.A. Romanovskaya, "New Approaches to the Adaptation to Climate Change: The Arctic Zone of Russia", *Russian Meteorology and Hydrology*, vol. 45, 2020, pp. 305-16.

<sup>51</sup> Security Council of the Russian Federation, *Zasedaniye Mezhvedomstvennoy komissii Soveta Bezopasnosti Rossiyskoy Federatsii po voprosam obespecheniya natsional'nykh interesov Rossiyskoy Federatsii v Arktike* (Meeting on ensuring the national interests of the Russian Federation in the Arctic), 2021; I. Grachev, "Sekretar' Soveta Bezopasnosti Rossii Nikolay Patrushev: 'Zelenaya' energetika ne dolzhna stanovit'sya orudiyem vmeshatel'stva Zapada v dela drugikh stran" ("Secretary of the Russian Security Council Nikolai Patrushev: Green energy should not become a tool for Western interference in the affairs of other countries"), *Komsomolskaya Pravda*, 30 October 2021.

establishing control over transport routes, and preventing Russia from developing the Arctic”.<sup>52</sup> In its public messaging, Russia is portrayed as an environmentally responsible country, familiar with the consequences of anthropogenic climate change. At the 2021 Energy Week International Forum, President Putin declared that Russia will achieve carbon neutrality by 2060 and reduce greenhouse gas emissions. However, in the same speech, Putin criticised the “systematic flaws” and “major market crisis” of Europe’s renewable energy transition.<sup>53</sup> Russia’s socio-economic development is still largely dependent on non-renewable energy and will remain so for the foreseeable future.

## Hydrocarbons and Natural Resources

As in other countries, energy plays a central role in Russia’s economic growth and strategic decision making. It is an instrument of power projection, a significant source of state revenue and a means of shaping the international environment.<sup>54</sup> For Russia, the Far North has been a particularly important source of energy and natural resources throughout history. Oil seeps have been known for thousands of years, but the commercial exploitation of oil in the Russian Arctic only started in the 1920s and dramatically expanded in the second half of the XX century.<sup>55</sup> Soviet Arctic extractive industries were severely polluting, with hundreds of square kilometres of forest and tundra turned into treeless wastelands and “zones of sacrifice”.<sup>56</sup> Today, some of Russia’s largest ongoing and planned

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<sup>52</sup> President of Russia, [O Strategii natsional'noy bezopasnosti Rossiyskoy Federatsii...](#), cit.

<sup>53</sup> President of Russia, [Russian Energy Week International Forum plenary session](#), Official Website, The Kremlin, 2021.

<sup>54</sup> J.M. Godzimirski, “Energy, climate change and security: The Russian strategic conundrum”, *Journal of Eurasian Studies*, vol. 13, no. 1, 2022, pp. 16-31.

<sup>55</sup> Arctic Monitoring and Assessment Programme (AMAP), *Arctic Oil and Gas*, 2007.

<sup>56</sup> A. Bruno, *The Nature of Soviet Power: An Arctic Environmental History*, New York,

oil and gas projects are located in the Arctic, especially around the Yamal and Gydan Peninsulas.<sup>57</sup> Offshore oil production currently occurs in the Prirazlomnoye and Yurkharovskoye fields.

The Arctic energy base is a key aspect of Russia's current and future economy as the region accounts for approximately 10% of Russia's GDP and 20% of Russia's exports.<sup>58</sup> Russian policymakers have repeatedly declared that the future of the country lies in the Arctic, with particular attention to the future of hydrocarbon production.<sup>59</sup> The aim to modernise and develop the region's resources is consistently reflected in Russia's official Arctic policy documents. One of the main government documents that outlines Russia's objectives in the Arctic, *Basic Principles of the Russian Federation State Policy in the Arctic to 2020*, underscores "using the Arctic zone of the Russian Federation as a strategic resource base of the Russian Federation" as the primary national interest and the utilisation of "hydrocarbon resources, water biological resources and other kinds of strategic raw materials" for social and economic development.<sup>60</sup>

These foci were reiterated in the 2020 renewal of the Basic Principles policy document for the period to 2035.<sup>61</sup> In

Cambridge University Press, 2016.

<sup>57</sup> R. McGee, *Mapping Russia's Arctic Hydrocarbon Development Scheme*, The Arctic Institute, 2020.

<sup>58</sup> "Rossiya investiruyet v Arktiku \$86 mlrd" (Russia invests \$86 billion in the Arctic), *Noviye Izvestiya*, 28 March 2019.

<sup>59</sup> President of Russia, *Direct Line with Vladimir Putin*, Official Website, The Kremlin, 2017; President of Russia, *Vystupleniye na plenarnom zasedanii III Mezhdunarodnogo arkticheskogo foruma «Arktika – territoriya dialoga»* (Speech at the plenary session of the III International Arctic Forum "The Arctic - Territory of dialogue"), Official Website, The Kremlin, 2013.

<sup>60</sup> Government of Russia, *Ob Osnovakh gosudarstvennoy politiki Rossii v Arktike na period do 2020 goda i dal'neyshuyu perspektivu* (On the Fundamentals of Russia's state policy in the Arctic for the period up to 2020 and beyond), 2008.

<sup>61</sup> President of Russia, *Prezident utverdil Osnovy gosudarstvennoy politiki v Arktike* (The President approved the Fundamentals of state policy in the following areas: In the Arctic), Official Website, The Kremlin, 2020.

the *Strategy of Development of the Arctic Zone of the Russian Federation and the Provision of National Security for the Period to 2035*, the strategic document for the realisation of the Basic Principles, the Russian Security Council also highlighted that “more than 80% of the Russian Federation’s combustible natural gas and 17% of its oil” are produced in the Arctic and despite the danger of “intense climate warming in the Arctic,” energy is still seen as a primary driver of economic growth and the Arctic as a strategic energy reserve.<sup>62</sup>

## Climate Pressures on Arctic Energy

Given the importance placed on Arctic energy and resources, it is interesting to see how Russia’s energy policy is balanced with increasing global pressure to decarbonise and adapt to the effects of climate change. Russia, heavily dependent on its energy exports for economic growth, is among the top emitters of greenhouse gases. Russia will be one of the few countries that may benefit economically from rising temperatures and their impact on improving prospects for agriculture and access to natural resources. In the short term, global warming will ease access to abundant natural resources in Russia’s northern regions.<sup>63</sup>

On the one hand, the warming of the region and decrease in the duration of winter provides more favourable conditions for drilling operations and pipe laying. Operating costs will effectively be lower and equipment will perform more efficiently under warmer conditions.<sup>64</sup> Russia’s climate change adaptation

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<sup>62</sup> Security Council of the Russian Federation, [Fundamentals of the state policy of the Russian Federation in the Arctic for the period up to 2035](#), 2020.

<sup>63</sup> B. Lo, *The Adaptation Game – Russia and Climate Change*, Russie.Nei.Visions, No. 121, French Institute of International Relations (Ifri), March, 2021; N. Kapoor, *Russia and the Future of the Arctic*, Observer Research Foundation (ORF), 2021; S. Kardaś, *Climate ambivalence: Russia’s climate change policy*, Centre for Eastern Studies (OSW), 2020.

<sup>64</sup> A. Pikaleva and I. Shkolnik, “Assessment of Climate Change Impacts on the

plan from 2019 mentions the “possible positive consequences” of climate change, including greater access to the continental shelf.<sup>65</sup> On the other hand, climate change creates unfavourable conditions for energy and natural resource extraction. Global warming leads to increases in precipitation, wind and wave activity, storms and coastal erosion. These processes will negatively impact production infrastructure and machinery and therefore raise operating costs.<sup>66</sup>

In 2020, in what turned out to be the worst Arctic oil spill in history, 21,000 tons of fuel were spilled into the Ambarnaya river near the industrial city of Norilsk, causing a state of emergency. Though Russia’s technical oversight agency Rostekhnadzor has since declared that the disaster was caused by technical faults and not by thawing permafrost (as was initially claimed),<sup>67</sup> the tragedy did draw greater attention to the fragility of Arctic infrastructure. In 2021, Russia’s Minister of Natural Resources and Environment Alexander Kozlov said that about 65% of Russia’s territory is located on permafrost, leading to great challenges in constructing railways and highways. Approximately 40% of buildings and structures built on permafrost in Russia have deformations and, according to some estimates, permafrost degradation is responsible for 23% of technical system failures and 29% of hydrocarbon production losses.<sup>68</sup> Scientists from Moscow State University and the Russian Academy of Sciences have estimated

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Economic Development of the Russian Arctic in the 21st Century”, *Russian Meteorology and Hydrology*, vol. 43, no. 6, 2018, pp. 347-56.

<sup>65</sup> P. Devyatkin, “Russia Unveils Climate Change Adaptation Plan”..., cit.

<sup>66</sup> L.V. Nefedova and D.A. Solovyev, “Assessment of the global climate change impact on Fuel and Energy Complex infrastructure and adaptation opportunities in the Russian Arctic”, *Earth and Environmental Science*, vol. 606, no. 012040, 2020.

<sup>67</sup> Federal Service for Environmental, Technological and Nuclear Supervision, Rostekhnadzor, *Tekhnicheskoye rassledovaniye anarii na «TETS-3» AO «NTEK» zaversheno* (Technical investigation of the accident at CHPP-3 of NTEK JSC completed), 2020.

<sup>68</sup> Ministry of Natural Resources and Environment of Russia, Minprirodi, *K 2024 godu gosudarstvennaya sistema monitoringa mnogoletney mersloty nakroyet vsyu territoriyu keriolitozony...*, cit.

that permafrost damage may cause \$132 billion in damage to Russian infrastructure by 2050.<sup>69</sup>

For the foreseeable future, hydrocarbon production will remain a staple of Russia's Arctic energy complex. Russia's Energy Ministry estimates that Arctic oil production will account for 26% of overall output by 2035, up from 17.6% in 2017. By 2035, 92% of natural gas is expected to be sourced from the Arctic, up from the current share of 82%.<sup>70</sup> The focus on liquefied natural gas (LNG) is associated with climate change awareness as the use of LNG generates about 50% less carbon dioxide than coal and 30% less carbon dioxide than oil.<sup>71</sup> Tax breaks recommended by the State Duma Budget and Tax Committee for oil and gas companies willing to operate in the Arctic are intended to facilitate domestic business and hope to create hundreds of thousands of new jobs.<sup>72</sup> Encouraging migration to the Arctic, especially to work in extractive industries, is a key aspect of Russia's development strategy.

Global climate concerns have influenced Russia's Arctic energy plans and climate policies. The European Union's carbon border adjustment mechanism (CBAM), a tax on emissions caused by the production of imported goods, has prompted discussions among Russia's largest businesses on how to minimise losses on exports.<sup>73</sup> As a result of the conflict in Ukraine, the EU has the ambition to terminate energy dependence on Russia by 2027.<sup>74</sup>

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<sup>69</sup> V.P. Melnikov, V.I. Osipov, A.V. Brouchkov et al., "Climate warming and permafrost thaw in the Russian Arctic: potential economic impacts on public infrastructure by 2050", *Natural Hazards*, vol. 112, no. 7-9, 2022.

<sup>70</sup> CDU-TEK, *Neftegazovyy klondayk Arktiki (Arctic Oil and Gas Klondike)*, Central Dispatching Department of the Fuel and Energy Complex, 2019.

<sup>71</sup> V.A. Fedorova and A.O. Mitryaykina, "[Decarbonized LNG: Creating a path to sustainable Arctic development](#)", *Materials Science and Engineering*, vol. 1201, no. 012067, 2021.

<sup>72</sup> P. Devyatkin, "[Russian Government Supports Tax Breaks for Arctic Investments](#)", *Highb North News*, 19 February 2020.

<sup>73</sup> O. Mordyushenko, "[Rossiya mozhet trgovat' vozdukhom, ochishchennym ot CO2](#)" ("Russia can sell CO2-free air"), *Kommersant*, 24 November 2020.

<sup>74</sup> European Commission, [Joint Statement between the European Commission](#)

China remains a major importer of Russian oil and gas, but also has the goal to achieve carbon neutrality by 2060. The global transition to renewable energy and internal pressure from climate scientists and select governmental groups have prompted Russia's energy giants to promote LNG and explore the development of renewables such as green and blue hydrogen.<sup>75</sup> Hydrogen production is expected to mostly derive from natural gas as well as nuclear and wind sources in the Murmansk region.<sup>76</sup> Russia is also establishing wind energy farms in the Murmansk region.<sup>77</sup> The Snowflake International Arctic Station, powered by hydrogen, is expected to be a hub for research into best practices and technologies to provide Arctic industries with renewable energy.<sup>78</sup> Russia's nuclear power agency Rosatom, which holds operational and development responsibility over the NSR, promotes the sustainability of atomic energy and has constructed the world's first floating nuclear power plant in the Arctic port town of Pevek.<sup>79</sup> The NSR is a shipping lane along the Russian Arctic coastline.

Finally, climate change is also affecting Russia's interests and policies in other Arctic resources such as fisheries and minerals. Commercial fishing is banned across most of the Arctic, but sanctions imposed on Russia and migration of fish and crab stocks due to ocean warming are inducing Russia to explore

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and the United States on European Energy Security, Brussels, 2022.

<sup>75</sup> K. Westphal and Y. Zabanova, *Russia in the Global Hydrogen Race*, Stiftung Wissenschaft und Politik, 2021; Government of Russia, *Ob utverzhdanii Kontseptsii razvitiya vodorodnoy energetiki v Rossiyskoy Federatsii* (On Approval of the Concept for the Development of Hydrogen Energy in the Russian Federation), Decree of the Government of the Russian Federation, 2021.

<sup>76</sup> A. Dmitrieva and R. Griffin, "Insight from Moscow: Russia aiming to take major role in global hydrogen markets", *S&P Global*, 1 March 2022.

<sup>77</sup> C. Digges, *Russia's largest wind park opens near Murmansk*, Bellona, 2019.

<sup>78</sup> Arctic Council, *The Snowflake International Arctic Station – A hub for energy innovation and cultural exchange*, 2020.

<sup>79</sup> Rosatom, *World's only floating nuclear power plant enters full commercial exploitation*, Rosenergoatom Communications Department, 2020.

fishing in its Arctic territories.<sup>80</sup> The Russian Arctic contains vast deposits of minerals, leading Russia to extract more rare metals and commodities than any other Arctic country. There are noteworthy projects in Norilsk (copper, nickel and platinum), Yakutia and Arkhangelsk (diamonds), and Chukotka (gold).<sup>81</sup> The degradation of permafrost and growth in industrial mining have increased pollution and the need for environmental protection in the Russian Arctic.

## Arctic Shipping and Transport

Climate change is transforming the Arctic Ocean into a navigable sea, but this process is not without challenges. The changing ice conditions play a key role in the development of the Northern Sea Route, perhaps Russia's most ambitious Arctic project. The 5,500 kilometre-long NSR, consisting of dozens of straits from the Kara Sea to the Bering Strait, has served as a significant shipping lane along Russia's Arctic coastline since the late XIX century. Back then, navigating the length of the route took more than a year due to seasonal ice conditions. It was not until the construction of the first icebreaker vessel in 1932 that it was possible to traverse the NSR without long pauses.<sup>82</sup> Year-round navigation of the NSR began in 1978.

Moscow therefore regards the NSR as a historically established national transport passage under its exclusive jurisdiction. The UN Convention on the Law of the Sea (UNCLOS), particularly Article 234 concerning ice-covered areas in countries' EEZs, supports Russia's sovereign claim over the NSR.<sup>83</sup> However, as

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<sup>80</sup> K. Uryupova, *Perspectives of the Development of the Fisheries Sector in the Russian Arctic*, The Arctic Institute, 2021.

<sup>81</sup> Arctic Russia, *Not only gas: gold, diamonds and metals in the Arctic*, Investment Portal of the Arctic Zone of the Russian Federation, 2020.

<sup>82</sup> Universal Marine Company Arctic (UMCA), *Istoriya osvoeniya Severnogo morskogo puti (SMP) (History of the Northern Sea Route (NSR) development – JSC)*, 2022.

<sup>83</sup> P. Gudev, "The Northern Sea Route: Problems of National Status Legitimization Under International Law", *Arctic and North*, vol. 40, 2020, pp. 142-64.

the ice melts, some speculate that Russia's claim to the NSR may be at risk. Accordingly, scholars from the Higher School of Economics have called for "an expanded interpretation" of Article 234 under the auspices of the AC because of the fragility of the Arctic ecosystems.<sup>84</sup> However, other analysts have suggested that there may be no need for such a revision as the transpolar sea route through the Central Arctic Ocean is predicted to eventually replace the NSR with the advent of an iceless Arctic by 2050.<sup>85</sup>

Today, the NSR is mostly used to transport hydrocarbons sourced from the Arctic by companies such as Norilsk Nickel, Gazprom, Lukoil and Rosneft. With the establishment of the Yamal gas projects in 2017, the NSR has been largely used to transport LNG to East Asia.<sup>86</sup> However, there are more European shipping companies than Asian companies operating vessels on the NSR, contrary to media reports that claim otherwise.<sup>87</sup> Development of the NSR is a major objective in Russia's Arctic policy, as evidenced by the goal to transport 80 million tons of cargo along the NSR by 2024.<sup>88</sup> Russia's Basic Principles policy document highlighted the development

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<sup>84</sup> A.B. Likhacheva, I.A. Stepanov, D.V. Suslov et al., *Russian Policy in the Arctic: International Aspects*, Report of the HSE University, Higher School of Economics, National Research University, XXII April International Academic Conference on Economic and Social Development, Moscow, 2021.

<sup>85</sup> T.C. Stevenson, J. Davies, H.P. Huntington, and W. Sheard, "An examination of trans-Arctic vessel routing in the Central Arctic Ocean", *Marine Policy*, vol. 100, 2019, pp. 83-89; A. Vylegzhanin, I. Bunik, E. Torkunova, and E. Kienko, "Navigation in the Northern Sea Route: interaction of Russian and international applicable law", *The Polar Journal*, vol. 10, no. 2, 2020, pp. 285-302.

<sup>86</sup> M. Gutenev, "Northern Sea Route in Arctic Policy of Russia", *World Economy and International Relations*, vol. 63, 2019.

<sup>87</sup> B. Gunnarsson, "Recent ship traffic and developing shipping trends on the Northern Sea Route - Policy implications for future arctic shipping", *Marine Policy*, vol. 124, no. 104369. 2021.

<sup>88</sup> President of Russia, *O natsional'nykh tselyakh i strategicheskikh zadachakh razvitiya Rossiyskoy Federatsii na period do 2024 goda* (On the national goals and strategic objectives of the development of the Russian Federation for the period up to 2024), Official Website, The Kremlin, 2018.

of the NSR into a “globally competitive national transport corridor”.<sup>89</sup> The NSR has gained international interest as an alternative shipping route between the markets of East Asia and Western Europe. In the aftermath of the 2021 blockage of the Suez Canal route, Russian officials and international analysts hailed the NSR, highlighting the Arctic route’s shorter distance and therefore lower fuel costs.<sup>90</sup> China has likewise published plans to integrate shipping along the Russian Arctic coast into the “Polar Silk Road”, as part of the Belt and Road Initiative.<sup>91</sup>

However, the diminishing ice along Russia’s Arctic coast may also present challenges to northern shipping. Floating ice floes or ice drift remain considerable dangers to ships’ hulls. Vessels must adapt their route to avoid the risk of getting stuck or struck by ice. Sea ice may be thinner and younger, but it will also move faster with unpredictable movements.<sup>92</sup> Lack of infrastructure along the NSR, changing meteorological conditions and remoteness remain challenges to operating in the Russian Arctic. For this reason, Russia is building its fleet of powerful next-generation icebreakers and developing a comprehensive monitoring system with special “Arctic-M” satellites to track ice movement and weather conditions.<sup>93</sup> Rosatom operates the NSR and manages the fleet of icebreakers. Despite the melting

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<sup>89</sup> President of Russia, [Prezident utverdil Osnovy gosudarstvennoy politiki v Arktike...](#), cit.

<sup>90</sup> J. Cordell, “[Could Russia Benefit From the Suez Canal Blockage?](#)”, *The Moscow Times*, 26 March 2021.

<sup>91</sup> State Council of the People’s Republic of China, *China’s Arctic Policy*, 2018.

<sup>92</sup> L. Fedi, O. Faury, and L. Etienne, “Mapping and analysis of maritime accidents in the Russian Arctic through the lens of the Polar Code and POLARIS system”, *Marine Policy*, vol. 118, no. 103984, 2020; F. Lasserre and P.L. Têtu, *Transportation in the melting Arctic: contrasting views of shipping and railway development*, Cahiers de l’Institut IEDS, 2020.

<sup>93</sup> Government of Russia, [Ob utverzhdenii gosudarstvennoy programmy “Razvitiye sudostroyeniya na 2013-2030 gody”](#) (On approval of the state program “Development of Shipbuilding for 2013-2030”), Ministry of Industry and Trade, 2012; “[Northern Sea Route online: How satellites monitor navigation](#)”, *TASS*, 31 March 2021.

ice, most vessels traversing the NSR still require icebreaker escorts.

Beyond Arctic shipping, climate change is impacting land-based transport routes in the Russian North. The structural integrity of infrastructure, including roads, pipelines and railways, are disrupted by degrading permafrost. Several Arctic land transport projects to connect Russian ports to Russian cities, such as the Northern Latitudinal Railway (NLR), the Belkomur Railway and the Murmansk Transport Hub, are in development, but the effects of climate change make them more expensive and difficult to implement.<sup>94</sup>

## Conclusion

Climate change has had varied effects on Russia's policies and interests in the Arctic, with the most pronounced effect found in Russia's plans for economic growth. The consequences of climate change are becoming the cause of natural disasters, permafrost degradation and a shifting land and seascape. Local residents and Indigenous peoples' livelihoods and well-being have been impacted by such consequences. As a result, climate change adaptation is a noticeable part of Russia's Arctic policy. Despite the dramatic changes, the region will still be regarded by Moscow as a strategic resource base for hydrocarbon development and shipping along the NSR. Coastal development will continue to be prioritised.

Russia's oil and gas policies will likely remain in place, but there is a chance they will be affected by external forces, such as the global transition towards green energy and sanctions on Russia. These factors could have a deep impact on Russia's Arctic development at the international level. In the aftermath of the 2014 Ukraine crisis, Russia invited non-Arctic countries, such as China and India, to participate in joint projects

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<sup>94</sup> Roscongress, Rogozhin: "Northern Latitudinal Railway and Belkomur are extremely important projects for Russia", The Arctic – Territory of Dialogue, 2017.

following the withdrawal of Western companies' investment.<sup>95</sup> The new sanctions in 2022 may have a similar effect. The Russia-China joint statement issued in February 2022 declared that "friendship between the two States has no limits" and affirmed the continuation of "consistently intensifying practical cooperation for the sustainable development of the Arctic".<sup>96</sup>

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<sup>95</sup> P. Devyatkin, "[Russia and India set to Deepen Trade and Investment in Arctic Energy](#)", *High North News*, 4 September 2019.

<sup>96</sup> President of Russia, [Joint Statement of the Russian Federation and the People's Republic of China on the International Relations Entering a New Era and the Global Sustainable Development](#), Official Website, The Kremlin, 2022.