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RESEARCH ARTICLE

The Impact of Climate Change on India-Russia Relations

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Abstract: This study explores the implications of climate change for the bilateral relationship between India and Russia. While current research primarily focuses on the strategic aspects of their relationship, little attention has been given to the factors that could shape its future. Climate change has significant economic and social impacts on both countries, raising questions about how it will affect their relations. This paper examines the potential effects on livelihoods, agriculture, and trade, and investigates whether India and Russia can find areas of cooperation despite their differing roles as fossil fuel consumer and exporter, respectively.

Despite their reliance on Western technology transfer, India and Russia have the opportunity to collaborate and develop new technologies together. The study highlights the potential for joint efforts in renewable energy, such as wind and solar power, to reduce dependence on fossil fuels. It also explores collaboration in biofuel production using Russia's biomass resources.

Disaster risk management and information sharing emerge as additional areas of potential cooperation in the face of climate change. Collaboration in these areas can enhance preparedness and response mechanisms, strengthening overall resilience.

The study also considers the Northern Sea Route (NSR) as a potential collaboration opportunity. As the Arctic ice melts, the NSR offers a viable trade route between Russia's European and Far Eastern regions. India has shown interest in contributing to its development, which could reduce shipping losses and emissions in transporting liquefied natural gas (LNG) from Russia.

In conclusion, the paper emphasizes the need for adaptation and adjustment in the bilateral relationship to address climate change challenges. It underscores the importance of scientific collaboration, exploring joint initiatives, and developing sustainable solutions to mitigate the impacts of climate change while strengthening the long-standing India-Russia partnership.

Keywords: India-Russia, climate change, the Arctic, development, global powers, emitters, UNFCCC, Kyoto Protocol, energy

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Numerous scholarly works have extensively discussed the resilience of India-Russia relations, particularly in light of India's abstention from condemning Russia's actions in Ukraine. However, existing academic research predominantly focuses on the strategic aspects of this bilateral relationship, leaving little room for exploration of its future trajectory and underlying driving forces. Notably, climate change, given its global implications, holds significant potential to shape the future dynamics of India-Russia relations. The economic and social impacts stemming from climate change are expected to be substantial in both countries. Hence, this paper aims to analyze the prospective effects of climate change on the future of India-Russia relations, considering its potential repercussions on livelihoods, agriculture, trade, and other pertinent areas. By examining the interplay between climate change and the bilateral relationship, this study seeks to elucidate how these factors may influence India-Russia relations. Furthermore, it investigates whether there exist avenues for cooperation between the two nations in addressing climate change, or if their disparate roles as fossil fuel exporter and consumer respectively will hinder convergence. Through an in-depth exploration of these questions, this paper aims to provide valuable insights into the future of India-Russia relations in the context of climate change.

This paper is structured into eight sections. The first section presents a comprehensive literature review, offering an overview of the existing scholarly works on the topic. The subsequent section provides a concise examination of climate change and its potential ramifications on domestic politics and international relations. Section three analyzes the evolving stance of India on climate change, while section four investigates the probable effects of climate change on India as a nation. The fifth and sixth sections delve into Russia's position on climate change and its potential implications for the country. In the seventh section, the article explores the similarities between the Russian and Indian positions on climate change, identifying potential areas of collaboration. Lastly, the paper concludes with a final section summarizing the key findings.

The article employs a descriptive-analytical method, utilizing both primary and secondary data sources to derive conclusions. Historical analysis is conducted to trace the progression of the Indian and Russian positions on climate change. The article compares their respective positions and policies, aiming to identify potential areas for cooperation. Primary data sources include UN and government documents, while secondary data sources encompass journal articles, book chapters, newspaper articles, and relevant online resources. By employing a range of data from different sources, the paper seeks to provide a comprehensive analysis of the subject matter.

According to the Intergovernmental Panel on Climate Change (IPCC), human-induced climate change poses a significant threat to ecosystems and human populations[1]. The report highlights that the frequency and intensity of heatwaves, droughts,

[1] Climate Change 2022: Impacts, Adaptation, and Vulnerability. *IPCC Sixth Assessment Report*. URL: https://www.ipcc.ch/assessment-report/ar6/ (accessed 21.04.2023).

and floods have already surpassed the tolerance thresholds of plants and animals. In the realm of climate negotiations, India has been an active participant since the establishment of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. India has played a crucial role in shaping the background conditions and subsequently influencing the substance of the convention. While initially adopting a rigid stance with three non-negotiables, India later demonstrated flexibility and a proactive approach towards its position on greenhouse gas (GHG) emission reductions (Sengupta 2019).

Using the New Interdependence Approach, Nachiappan (2020) examines the rise of the Ministry of External Affairs (MEA) in driving India's climate change policymaking. He argues that the MEA's understanding of climate change was influenced by domestic environmental groups, namely the Tata Energy Research Institute (TERI) and the Centre for Science and Environment (CSE). Andonova and Alexieva (2021) explore the domestic and international determinants shaping Russia's climate position, shedding light on its evolving role in climate negotiations and the seemingly unexpected shifts in rhetoric and strategy. They contend that changes in domestic elite and bureaucratic politics are instrumental in understanding Russia's recent adoption of a more positive rhetoric and constructive role in climate negotiations.

In the context of climate change's impact on Russia, Gustafson (2021) predicts that the Russian economy and society will face significant challenges in the next three decades. Similarly, Conley and Newlin argue that climate change will pose several economic problems for Russia.[2] Poberezhskaya highlights various factors contributing to Russia's weak climate policy, including the prioritization of economic development over environmental protection, close ties between the state and the energy sector, weak environmental institutions, and a low level of public awareness and concern about climate change.[3]

In a comparative study of climate policies conducted by Compston and Bailey (2015), Japan and Europe are identified as frontrunners in terms of climate policy stringency, while Russia is positioned as a laggard in this regard. Kochtcheeva (2022) suggests that Russia's approach to climate change is influenced by the contradictions between its economic structure, domestic interests, and ambitious foreign policy objectives.

Climate change

Climate change is predicted to have far-reaching impacts on various aspects of society and the environment. One of the significant consequences is the potential effect on agricultural productivity, including changes in crop yields and viability. Fur-

[2] Conley H.A., Newlin C. 2021. Climate Change Will Reshape Russia. *The Center for Strategic and International Studies.* January 13. URL: https://www.csis.org/analysis/climate-change-will-reshape-russia (accessed 21.04.2023).

[3] Poberezhskaya M. 2015. Why climate change is not on Russia's agenda. 19 November. OpenDemocracy. URL: https://www.opendemocracy.net/en/odr/why-climate-change-is-not-on-russia-s-agenda (accessed 21.04.2023).

thermore, climate change is expected to disrupt the quantity, quality, and availability of freshwater resources, leading to water scarcity and posing challenges for various sectors, including agriculture and human consumption. Coastal erosion and land degradation are additional concerns, particularly in vulnerable regions, which can result in the loss of landmass and infrastructure.

The frequency and intensity of natural disasters, such as hurricanes, floods, and droughts, are projected to increase due to climate change, exacerbating the risk to human lives, infrastructure, and ecosystems. These effects can also lead to internal migration, the displacement of populations, and the emergence of climate refugees. In turn, these factors contribute to the potential for famines, social unrest, and instability.

As climate change poses these risks to human security, food security, water security, and environmental security, it is increasingly recognized as a non-traditional security threat. Beyond these non-traditional security dimensions, climate change can also give rise to traditional security challenges. The economic and political instability caused by climate-related issues can strain countries and impact their relations with one another, particularly in cases where water-sharing or river-sharing arrangements are involved.

The magnitude of these challenges has garnered global attention, leading to concerted efforts to address climate change as a global issue. Notable initiatives in this regard include the 1985 Vienna Convention for the Protection of the Ozone Layer, UNGA Resolution 44/207 of 1989, the United Nations Framework Convention on Climate Change (UNFCCC) established in 1992, the Kyoto Protocol adopted in 1997, the Paris Agreement reached in 2015, and the Conference of Parties held in Sharm el Sheikh, Egypt, in 2022. These international agreements and conferences signify the recognition of climate change as a pressing global challenge and demonstrate the commitment to finding collective solutions.

India's position on climate change

India actively participates in global climate change negotiations, particularly within intergovernmental frameworks operating under the United Nations General Assembly (UNGA). By advocating for convention negotiations under the UNGA, India emphasizes the importance of openness, transparency, universality, legitimacy, and the full participation and commitment of all states[4]. This approach ensures that specialized agencies or forums do not exclude any country from the negotiation process.

India's engagement in international climate change discussions dates back to UNGA Resolution 44/207 of 1989, which called for the preparation of a "framework convention" to address climate change. Through strategic efforts, India managed to

[4] *Protection of Global Climate for Present and Future Generations of Mankind.* 44th Session of General Assembly. November 02, 1990 (A/45/696). General Assembly, p.1.

garner widespread support from the developing world for its key stance on climate change. One of its fundamental positions is the opposition to legally binding quantitative emission targets imposed on developing countries, as such targets would impede their development processes. Instead, India asserts that the primary responsibility for reducing greenhouse gas emissions lies with the developed countries, who are the major producers of emissions.

India's international position on climate change is based on three core pillars. Firstly, it emphasizes that the developed countries, being responsible for the majority of emissions, should bear the primary burden of emission reductions. Secondly, India argues against imposing emission reduction targets on developing countries, as it would hinder their efforts to address poverty and promote development. Lastly, India calls for the transfer of technology and additional financial resources to support developing countries in their climate change mitigation and adaptation efforts, as integral components of any formal agreement[5]. India has consistently advocated for developed countries to take the lead in combating climate change, rooted in a strong normative discourse around equity in global climate action. This perspective underscores India's commitment to promoting fairness and ensuring that global climate efforts consider the varying capacities and development priorities of different countries (Jogesh, Dubash 2015).

The adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in Rio de Janeiro in 1992 reflected the recognition and acknowledgment of India's position on climate change. The final text of the UNFCCC acknowledged that "the largest share of historical and current global emissions of greenhouse gases has originated in developed countries," and per capita emissions in developing countries are still relatively low and that "the share of global emissions originating in developing countries will grow to meet their social and development needs".[6] The UNFCCC text further emphasized the necessity for comprehensive cooperation and the participation of all countries in an effective and appropriate international response to address the global nature of climate change. It emphasized the principle of "common but differentiated responsibilities and respective capabilities" in accordance with the social and economic conditions of each country. This principle recognized that while all countries should contribute to combating climate change, the primary responsibility for taking the lead in addressing climate change and its adverse effects lies with the developed countries (Article 3.1 of the UNFCCC).

During the initial negotiations on climate change, both developed and developing countries were considered to have "common responsibilities," as reflected in the original draft of the First Assessment Report of the Intergovernmental Panel on Cli-

[5] *Greenhouse Effect and Climate Change: Issues for the Developing Countries, Proceedings of the Conference of Select Developing Countries on Global Environmental Issues.* Ministry of Environment and Forests, GoI. 1990

[6] *United Nations Framework Convention on Climate Change.* 1992. FCCC/INFORMAL/84 GE.05-62220 (E) 200705. P.1.

mate Change (IPCC). However, under pressure from developing country parties, the language was amended to "common but differentiated responsibilities" to highlight the differing capacities and circumstances of developed and developing countries in addressing climate change.

India's position on climate change negotiations has been strongly influenced by its development needs and poverty reduction objectives. This has led India to oppose additional commitments for developing countries when advocating for a robust legally binding protocol. The Kyoto Protocol, which was the first legally binding agreement, recognized the demands of developing countries while imposing binding emission reduction targets on developed countries.

According to Article 3 of the Kyoto Protocol, 37 industrialized countries, economies in transition, and the European Union (referred to as Annex B countries) were assigned an average 5 percent overall emission reduction compared to 1990 levels for the first commitment period from 2008 to 2012.[7] This established quantified emission limitations and reduction commitments specifically for developed countries.

India, supported by the Group of 77 (G77) and China, successfully resisted repeated attempts to impose "voluntary commitments" on developing countries. The argument put forth was that imposing new commitments on developing countries would hinder their entitlement to pursue economic growth and development. India emphasized that any notion seeking to deprive developing countries of their right to grow and develop could not be accepted or supported (Sengupta 2019: 119).

India's position on climate change negotiations has witnessed significant evolution while maintaining its fundamental stance. One notable instance is the country's acceptance of flexible mechanisms, exemplified by its embrace of the Clean Development Mechanism (CDM). The CDM enables nations with emission reduction commitments, known as Annex B Parties, to implement emission reduction projects in developing countries. The resultant certified emission reduction credits can be traded and utilized by developed countries to fulfill their obligations under the Kyoto Protocol.

Initially, India displayed opposition to the CDM, perceiving it as a stratagem employed by developed nations to transfer the burden of emission reduction onto developing countries. However, India subsequently assumed the role of host to numerous CDM projects and played an active role in shaping the rules, frameworks, guidelines, and institutions governing the mechanism.

A pivotal juncture occurred in 2007 when India unilaterally pledged that its per capita greenhouse gas (GHG) emissions would never surpass those of industrialized countries[8]. This marked the first instance of India voluntarily committing to limit-

[7] Kyoto Protocol to the United Nations Framework Convention on Climate Change. *UN*. 1998. P.3. URL: https://unfccc.int/resource/docs/convkp/kpeng.pdf (accessed: 21.04.2023).

[8] PM's intervention on Climate Change at Heiligendamm meeting. 2007. *MEA*. URL: https://mea.gov.in/outogingvisitdetail.htm?2453/PMs+intervention+on+Climate+Change+at+the+Heiligendamm+meeting (accessed 21.04.2023).

ing its future GHG emissions while concurrently pursuing its developmental and economic growth objectives. India emphasized its commitment to equitable distribution of responsibilities by ensuring that its per capita emissions remained below those of developed countries.

Despite this voluntary commitment, India steadfastly maintained its core position that the present circumstances were not conducive to introducing legally binding emission reduction commitments for developing countries. Traditionally, India's refusal to agree to emission reduction targets was influenced by: "(1) a sense of material limitation, (2) a lack of trust in the international process, (3) concerns over equity, (4) the likely technical and political difficulties in effectively regulating a large number of small and poor "polluters" and (5) a strong sense of national sovereignty" (Atteridge et al. 2012: 69). The transformation in India's position in 2007 and subsequent years can be attributed to various factors. These encompass India's aspirations to enhance its global stature, concerns regarding regional security and national economic interests, as well as endeavors to foster broader geopolitical alignments, particularly with the United States and China (Atteridge et al. 2012: 70). Additionally, domestic imperatives related to energy security and access further influenced India's evolving stance on climate change (Rastogi 2011: 127).

Therefore, to uphold its commitment, India has undertaken measures at the domestic level, exemplified by the formulation of the National Action Plan on Climate Change (NAPCC). The NAPCC, launched on June 30, 2008, encompasses a comprehensive set of policies and programs designed to address climate change within the framework of sustainable development. Recognizing the imperative of maintaining a high growth rate to enhance living standards and reduce vulnerability to climate change impacts, the NAPCC underscores the intertwining of economic progress and climate action.[9] A notable turning point occurred in 2009, demonstrating India's willingness to embrace a non-legally binding cap on its emissions. By signing the Major Economic Forum Leaders Declaration on Energy and Climate in L'Aquila, (Italy), India acknowledged, for the first time, the importance of limiting the global temperature increase to no more than 2 degrees Celsius (Sengupta 2019).[10] The declaration committed the signatories to collaborate in establishing a global target for substantial emissions reduction by 2050. Concurrently, India proactively announced a voluntary numerical pledge to reduce the emission intensity of its gross domestic product (GDP) by 20-25 percent by 2020, relative to the 2005 level. This announcement, delivered in the Parliament, emphasized India's commitment to mitigating emissions through domestic efforts, aligning with its own national interests (Sengupta 2019: p. 123).[11] Importantly, India has already achieved this target.

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[9] National Action Plan on Climate Change [Press Release]. 2021. *PIB*. URL: https://static.pib.gov.in/WriteReadData/specificdocs/documents/2021/dec/doc202112101.pdf (accessed 21.04.2023).

[10] Declaration of the Leaders of the Major Economies Forum on Energy and Climate [Press Release]. 2009. *White House.* URL: https://obamawhitehouse.archives.gov/the-press-office/declaration-leaders-major-economies-forum-energy-and-climate (accessed 21.04.2023).

[11] *Transcript of the Minister's Response in the Lok Sabha.* Lok Sabha. Parliament of India. New Delhi. 3 December 2009.

Without compromising its core principles, India has embraced the principle of voluntary emission reduction and set specific targets to be achieved through domestic measures. The country's updated national pledge, known as the Intended Nationally Determined Contributions (INDC), was revised based on the outcomes of COP 19. India has committed to reducing the emission intensity of its GDP by 33 to 35 percent by 2030 compared to the 2005 level. Additionally, India has pledged to create an additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through increased forest and tree cover by 2030.[12] The INDC of India revolves around various aspects, including promoting sustainable lifestyles, fostering cleaner economic development, reducing emission intensity, increasing the share of non-fossil fuel sources, enhancing carbon sinks, prioritizing adaptation, mobilizing finance, facilitating technology transfer, and strengthening capacity building. Notably, India's INDC places significant emphasis on adaptation measures and provides a comprehensive assessment of the financial implications associated with achieving climate change goals, underscoring its commitment compared to other nations. The updated NDC was communicated to the United Nations Framework Convention on Climate Change (UNFCCC) on August 3, 2022, aligning India's climate targets with the enhanced commitments announced at COP 26 and supporting its long-term objective of achieving net-zero emissions by 2070.[13] Following the update, India has politically committed to reducing the emissions intensity of its GDP by 45 percent by 2030, compared to the 2005 level, and aims to achieve around 50 percent of its cumulative installed electric power capacity from non-fossil fuel-based sources by 2030. Consistently adhering to the principle of common but differentiated responsibilities and respective capabilities (CBDR & RC), the updated NDC reaffirms India's dedication to pursuing low-carbon emissions while striving to achieve sustainable development goals. It is important to note that India's NDC does not impose sector-specific mitigation obligations or actions, as the primary goal is to reduce overall emission intensity and enhance energy efficiency.

India's vulnerability to climate change

The adoption of a "flexible" and "proactive" approach by India, while maintaining its traditional position on the "non-negotiables," was driven by the country's best interests. This perspective was expressed by Jairam Ramesh, the former Union Minister for Environment and Forest[14]. As India's vulnerability to climate change and its impacts increased, there was a pressing need for the adoption of more assertive strategies, including the establishment of performance targets for various sectors of the economy.

[12] India's Intended Nationally Determined Contribution: Working towards Climate Justice. 2015. *Ministry of Environment, Forest and Climate Change. Government of India.* New Delhi. P. 15.

[13] A step towards achieving India's long-term goal of reaching net zero by 2070 [Press Release]. 2022. *PIB*. 03 August. URL: https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1847812 (accessed 21.04.2023).

[14] Transcript of the Minister's Response in the Lok Sabha. Parliament of India, New Delhi, 3 December.

India ranks among the top three countries in terms of natural disasters experienced in the 21st century[15] and is the fifth most vulnerable nation to extreme weather events[16]. The Global Climate Risk Index 2021[17], placed India in the seventh position, considering the magnitude of weather-related loss events and their impact on fatalities and direct economic losses. Between 2000 and 2019, India reported 321 incidents of natural disasters, resulting in the loss of 79,732 lives and affecting another 1.08 billion people[18]. The economic loss incurred by the country during this period amounted to 80 billion USD.

In 2018, India experienced a significant economic loss due to climate-related events, amounting to nearly twice the losses incurred between 1998 and 2017, totaling 37 billion USD[19]. The impacts of climate change in India manifest in various forms such as rising land and sea temperatures, prolonged dry seasons, erratic rainfall, flash floods, cloud bursts, heatwaves, cyclones, and mini-tornados.

The rise in surface temperatures has led to drought-like conditions across the country, triggering the intensification of cyclonic storms. Approximately 76% of India's coastal line, spanning around 5,770 km, is vulnerable to cyclones. With cyclones often accompanied by heavy rainfall, the coastal areas are also at risk of flooding. Over the past eight years, India has faced 41 cyclones, of which 28 were severe. Additionally, due to changing climate patterns and rising sea temperatures, the Arabian region is projected to witness an increase in cyclone frequency. This poses a significant threat to districts in the eastern and western zones, making them vulnerable to extreme cyclonic pressures.

Coastal areas in India also face the risk of inundation and rising sea levels. The intrusion of saline water into freshwater sources further exacerbates the scarcity of freshwater and poses a threat to freshwater ecosystems. Groundwater depletion, pollution of freshwater sources, increased occurrences of dry spells, and unpredictable monsoons contribute to high water stress levels for a large portion of the Indian population. The NITI Aayog, India's policy think tank, has raised concerns about acute water shortages, with over 600 million people already affected[20]. It is projected that by 2030, the demand for water in India will be twice the available supply, highlighting the severity of the water crisis.

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[15] India's two-decade tryst with natural calamities. 2021. *India Today.* 08 February. URL: https://www.google.com/amp/s/www.indiatoday.in/amp/diu/story/300-disasters-80-000-deaths-100-crore-affected-india-s-two-decade-tryst-with-natural-calamities-1767202-2021-02-08. (accessed 21.04.2023).

[16] *Global Climate Risk Index 2021.* URL: https://www.germanwatch.org/en/19777. (accessed 21.04.2023).

[17] Ibid.

[18] India is not prepared for Natural Disasters. 2020. *The Business Line.* January 03. https://www.thehindubusinessline.com/opinion/india-is-not-prepared-for-natural-disasters/article30463153.ece (accessed 21.04.2023).

[19] Climate Change and Environmental Sustainability. *UNICEF INDIA.* URL: https://www.unicef.org/india/what-we-do/climate-change. (accessed 21.04.2023).

[20] Composite Water Index 2018. *NITI Aayog.* URL: http://social.niti.gov.in/uploads/sample/water_index_report2.pdf. (accessed 21.04.2023).

Recent studies conducted by the Council on Energy, Environment, and Water (CEEW) have revealed that a staggering 17 out of 20 people in India are susceptible to extreme hydro-meteorological disasters, including floods, droughts, and cyclones[21]. This implies that over 80% of the Indian population resides in areas that are highly exposed to risks. Among the states most vulnerable to such events are Assam, Andhra Pradesh, Maharashtra, Karnataka, and Bihar.

Over the past two decades, India has witnessed a significant increase in extreme weather events, with an average of 17 floods occurring annually. In fact, India ranks second globally in terms of flood-affected population. Official estimates indicate that more than 12% of the country's land is prone to flooding, 68% of cultivable land is vulnerable to droughts, and 70-80% of the coastal areas are at risk of cyclones and tsunamis[22]. As a result, 27 states and union territories in India are considered disaster-prone.

It is important to note that the current trends in extreme weather events have emerged from a mere 0.6 to 0.7-degree Celsius increase in temperature over the past century. Therefore, the projected rise of 2 degrees Celsius will have far-reaching consequences. If the current trajectory continues, all states in India are expected to experience temperatures surpassing 30 degrees Celsius[23]. Such temperature increases directly impact the food and agriculture sector, with estimated declines of 10-30% in rice production and 25-70% in maize production.

The health effects of climate change-related events are devastating, particularly for vulnerable populations such as children, low-income communities, persons with disabilities, pregnant women, and indigenous communities. Climate change acts as a multiplier of existing crises and can potentially lead to the emergence of new conflicts. Consequently, a large portion of the Indian population remains highly vulnerable to the impacts of extreme and erratic weather events and disasters.

Russia's position on climate change

The Russian stance on climate change holds significant importance due to its status as one of the top five emitters of greenhouse gases (GHGs) and its substantial fossil fuel reserves. Russia ranks third globally in fossil fuel production, possessing the second largest proven natural gas reserves, the third largest coal reserve base, and standing as the world's third largest oil producer, following the United States and Saudi Arabia[24]. Fossil fuel exports accounted for 63.2% of Russia's total exports

[21] Mapping India's Climate Vulnerability: A District Level Assessment. *Council on Energy, Environment and Water.* URL: https://www.ceew.in/publications/mapping-climate-change-vulnerability-index-of-india-a-district-level-assessment. (accessed 21.04.2023).

[22] Disaster Risk Profile (India). 2022. *National Institute of Disaster Management.*

[23] Climate Change 2022: Impacts, Adaptation, and Vulnerability. 2022. *IPCC Sixth Assessment Report.* URL: https://www.ipcc.ch/assessment-report/ar6/ (accessed 21.04.2023).

[24] Russian Federation: Energy resources and market structure. *OECD* URL: https://www.oecd-ilibrary.org/sites/23fe599b-en/index.html?itemId=/content/component/23fe599b-en. (accessed 21.04.2023).

in 2017[25], and oil and gas revenues contributed to 36% of the country's federal budget in 2016[26]. Consequently, Russia is often regarded as having one of the most carbon-intensive economies worldwide[27].

Given these circumstances, Russia's position on climate change has been shaped by concerns about the adverse impact of reduced fossil fuel usage on its economy. It has been estimated that implementation of climate-related policies by other countries could potentially lead to a decrease of around half a percent in Russia's GDP growth rate (Makarov et al. 2017, as cited in Yagodin 2021: 65).

In the early 1970s, Soviet climatologist Mikhail Budyko proposed that human activities had surpassed natural geological processes in terms of carbon dioxide emissions, resulting in an increase in air temperature that could potentially lead to the melting of the Arctic Ocean's ice cover as early as 2050. Initially met with scepticism[28], Budyko's views gradually gained global recognition, positioning the Soviet Union as a prominent advocate against climate change. Russia ratified the United Nations Framework Convention on Climate Change (UNFCCC) soon after its adoption in 1992, aiming to demonstrate active and constructive engagement. However, since then, Russia has displayed less enthusiasm in combating climate change, despite signing all UN treaties related to the issue[29].

Similar to many countries outside of Europe, addressing climate change is not currently a top priority for Russia. Russia's historical stance on climate change has been that of an outlier or sceptic, influenced by economic crises and a scientific community that was unconvinced of the anthropogenic impacts on climate. Russian scientists argued that international efforts to control climate processes would be ineffective, mitigation measures would be unaffordable, and that Russia's vast forests would naturally absorb most of its carbon emissions[30]. Furthermore, Russia viewed climate change as a Western conspiracy aimed at economically undermining developing countries, including Russia.

Climate change was not a prominent topic of discussion in Russian politics, public discourse, or media. When it did enter public debate, climate change was often portrayed in positive terms for Russia and its population, such as potentially lower electricity bills, a milder climate overall, reduced reliance on heating systems, decreased use of furs, enhanced agricultural productivity, and the opening of the Northern Sea Route due to Arctic ice melting[31]. A 2009 survey revealed that only 30 percent of Rus-

[25] Ibid.
[26] Ibid.
[27] Poberezhskaya M. 2015. Why climate change is not on Russia's agenda. 19 November. *OpenDemocracy.* URL: https://www.opendemocracy.net/en/odr/why-climate-change-is-not-on-russia-s-agenda (accessed 21.04.2023).
[28] Safonov G. 2021. Back to the Future? Russia's Climate Policy Evolution. *The Center for Strategic and International Studies.* March 01. URL: https://www.csis.org/analysis/back-future-russias-climate-policy-evolution (accessed 21.04.2023).
[29] Ibid.
[30] Ibid.
[31] Poberezhskaya M. 2015. Why climate change is not on Russia's agenda. 19 November. *OpenDemocracy.* URL: https://www.opendemocracy.net/en/odr/why-climate-change-is-not-on-russia-s-agenda (accessed 21.04.2023).

sian citizens considered global warming a serious issue (Andonova and Alexieva 2012: 627). The prevailing public perception in Russia is that climate change is a natural and cyclical phenomenon that is not catastrophic, and the country already assumes the status of a "great environmental power" by default, rendering new commitments on climate change excessive (Yagodin 2021: 65).

The influence of the fossil fuel lobby has also played a role in preventing Russia from fully engaging in climate change negotiations.

Despite ratifying the UNFCCC, Russia later aligned itself with the Organization of the Petroleum Exporting Countries (OPEC) and opposed setting quantitative emission limits in subsequent climate protocols (Andonova and Alexieva 2012: 619). During the negotiations for the Kyoto Protocol, Russia joined forces with countries in the Umbrella Group, including Japan, Canada, and Australia, which shared similar levels of greenhouse gas (GHG) emissions and were reluctant to adopt stringent emission reduction targets (Andonova and Alexieva 2012: 619). Notably, while negotiating alongside these countries, Russia was able to present a credible claim of economic weakness, which allowed developing and transitioning countries to demand concessions both normatively and by threatening an inability to implement more significant commitments. By 1997, Russia's economy had contracted by 39 percent, and its GHG emissions had decreased by 34 percent compared to 1990 levels (Andonova and Alexieva 2012: 619).

Following the collapse of the Soviet Union and the subsequent economic hardships, Russia's GHG emissions fell below the acceptable levels specified in the Kyoto Protocol[32]. Russia insisted that it would only commit to stabilizing its emissions at 1990 levels to regain its pre-1990 economic strength. Consequently, Russia secured one of the most favorable deals under the Kyoto Protocol: it had the option to either increase its emissions by 34 percent until 2012 (which was deemed unlikely) or sell a significant portion of its emission reduction allowances for economic gain (Andonova and Alexieva 2012: 619). However, it took Russia six years to sign and ratify the Protocol in 2007, along with some climate-related initiatives at the national level. As a result, these actions did not have a substantial impact on Russia's GHG emissions.

At the Copenhagen Summit, Russia made a pledge to reduce its emissions by 15-25 percent compared to 1990 levels, contingent on the participation of all major emitters and the recognition of its forests as carbon sinks. This demonstrated Russia's attempt to strike a balance between its reliance on fossil fuels for economic growth and revenue and its commitment to addressing climate change. President Medvedev stated that this approach would allow Russia to pursue development opportunities while still contributing to global efforts against climate change (Andonova and Alexieva 2012: 621).

[32] Ibid.

Prior to the Copenhagen Summit, President Medvedev signed Russia's climate doctrine, which recognized climate change as a dangerous anthropogenic phenomenon (Andonova and Alexieva 2012: 623). The doctrine outlined the potential adverse effects of climate change on Russia, including increased droughts, forest fires, floods, permafrost degradation, disruption of ecological balance, and an increase in infectious and parasitic diseases (Andonova and Alexieva 2012: 623). However, the non-binding nature of the declaration drew criticism from Russian environmentalists, who viewed it as a soft power effort (Kokorin and Korppoo 2013). Despite this criticism, the declaration represented a significant shift from Russia's previous scepticism toward climate change.

In recent years, Moscow's position on climate change has become more constructive, reflecting a greater willingness to engage with global efforts to address the issue.

In 2015, Russia submitted its "intended nationally determined contributions" (INDC) and announced its intention to "likely" reduce greenhouse gas (GHG) emissions by 25-30% of its 1990 levels by 2030, with the condition that all countries share climate responsibilities and consider its forest reserves[33]. However, this commitment was met with criticism from the international community and national environmental NGOs. They argued that this target would not require Russia to make significant efforts to reduce its emissions, as it had already achieved a reduction below the announced levels.

In 2016, Russia signed the Paris Agreement, and it ratified the agreement in 2019. Under the Paris Agreement, Russia pledged to keep its greenhouse gas emissions to 75% of the 1990 levels, which was considered a relatively easy task for Russia to achieve. However, Russia has faced criticism for not doing enough to reduce its emissions. In 2021, Russia emitted a significant amount of carbon dioxide (1.76 billion tonnes), more than European countries like France (305.96 million tonnes), Germany (674.75 million tonnes), and the UK (346.77 million tonnes). However, Russia's emissions were still lower than countries like India (2.71 billion tonnes), the US (5.01 billion tonnes), and China (11.47 billion tonnes) in the same year[34].

[33] Ibid.

[34] Ritchie H., Roser M. Rosado P. 2022. CO_2 and Greenhouse Gas Emissions. *OurWorldInData.org.* URL: https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions'. (accessed 21.04.2023).

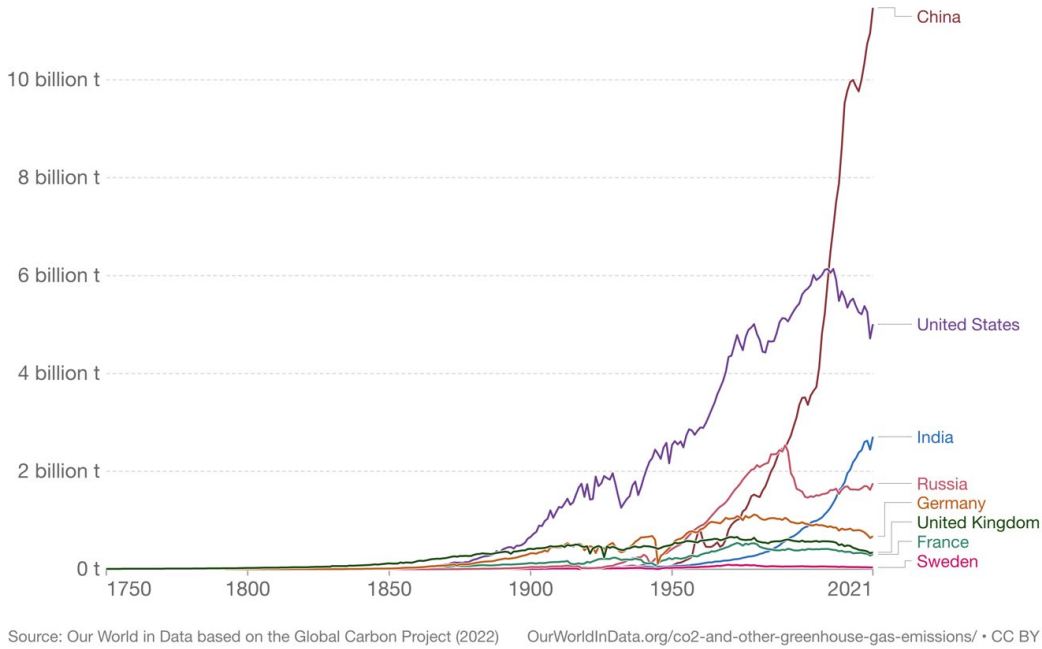

Figure 1. Annual Carbon dioxide emissions of some major countries.
Data Source: Ritchie, Rossr, and Rosado[35].

The release of Russia's "Energy Strategy - 2035" in March 2020, which outlined plans for a substantial increase in fossil fuel production, combustion, and exports[36], was viewed by the West as a sign of Russia's lack of commitment to reducing emissions. The strategy was interpreted as contradicting the country's goals to combat climate change. In November 2020, Presidential Decree 666 was issued, setting a target of lowering emissions by 30 percent compared to 1990 levels by 2030. However, it was noted that even with this target, Russia's carbon emissions could still rise by 40 percent and remain below the threshold.[37]

[35] Ritchie H., Roser M. Rosado P. 2022. CO_2 and Greenhouse Gas Emissions. *OurWorldInData.org.* URL: https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions'. (accessed 21.04.2023).
[36] Safonov G. 2021. Back to the Future? Russia's Climate Policy Evolution. *The Center for Strategic and International Studies.* March 01. URL: https://www.csis.org/analysis/back-future-russias-climate-policy-evolution (accessed 21.04.2023).
[37] Ibid.

Renewable energy plays a modest role in Russia's energy future, with forecasts indicating that it will remain below 1-2.5 percent of the energy mix by 2035[38]. In April 2021, President Putin announced during his state-of-the-nation speech that Russia aims to have lower accumulated net greenhouse gas emissions over the next 30 years compared to the European Union[39]. Russia's focus is on achieving carbon neutrality by 2060 without sacrificing its status as an energy superpower and ensuring social and economic stability[40]. The government emphasizes increasing the production and export of hydrogen and ammonia, as well as increasing the amount of greenhouse gases absorbed by forests and reducing emissions from Russian corporations[41]. However, the viability of these solutions is unclear at this point.

Russia's position in climate change negotiations following the Ukraine conflict is uncertain. It remains to be seen whether Russia will continue its half-hearted attempts at combating climate change and remain isolated or seek a new approach and potential grand bargain with the West on climate change. It is also unclear if Russia's position will change as its public becomes more concerned about climate change. Regardless of its stance, there is recognition that Russia could be significantly affected by climate change. The next section will explore the potential impacts of climate change on Russia.

How will climate change affect Russia?

Russia's position in the Global Climate Risk Index 2021[42] stood at thirty-ninth, indicating its vulnerability to climate-related risks. Notably, an annual climate report released in 2019 by the Russian national weather service revealed a concerning trend of increasing average temperatures in the country. The report stated that between 1976 and 2018, the average temperature in Russia rose at a rate of 0.47 degrees Celsius per decade, surpassing global standards by 150%[43]. Over the past 44 years, Russia experienced a temperature increase that was 2.8 times higher than the global average, leading to the occurrence of several natural disasters[44].

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[38] Ibid.

[39] Message from the President to the Federal Assembly. 2021. *Kremlin*. 21 April. http://www.kremlin.ru/events/president/news/65418 (accessed 21.04.2023).

[40] Kitade D. 2021. Russia's Climate Change Measures Entering a Transitional Period-Analysis in Terms of Increase and Decrease. *Mitsui*. URL: https://www.mitsui.com/mgssi/en/report/detail/__icsFiles/afieldfile/2021/12/08/2111e_kitade_e.pdf (accessed 21.04.2023).

[41] Ibid.

[42] Global Climate Risk Index 2021. URL: https://www.germanwatch.org/en/19777. (accessed 21.04.2023).

[43] Bershidsky L. 2019. Even Putin Is Now Worried About Climate Change. September 24. URL: https://www.bloomberg.com/opinion/articles/2019-09-24/putin-is-finally-worried-about-climate-change?leadSource=uverify%20wall (accessed 21.04.2023)

[44] Kitade D. 2021. Russia's Climate Change Measures Entering a Transitional Period-Analysis in Terms of Increase and Decrease. *Mitsui*. URL: https://www.mitsui.com/mgssi/en/report/detail/__icsFiles/afieldfile/2021/12/08/2111e_kitade_e.pdf (accessed 21.04.2023).

These climatic changes have the potential to significantly impact Russia's economy. The Russian Audit Chamber has estimated that by 2030, the economic cost of climate change could reach approximately 2 to 3% of the country's GDP[45]. This projection underscores the magnitude of the potential consequences for various sectors, such as agriculture, infrastructure, and healthcare.

In recent years, Russia has already begun to witness the tangible effects of climate change. The year 2020, in particular, recorded historically high temperatures across multiple regions of the country, exacerbating forest fires that emitted approximately one-third more carbon dioxide into the atmosphere compared to the preceding year. Moreover, flash floods in Siberia caused extensive damage, including the destruction of entire villages and the displacement of thousands of residents. Another critical concern is the rapid thawing of permafrost, which blankets nearly two-thirds of Russia's territory (see note 2).

According to Gustafson (2021), the overall impact of climate change on Russia is expected to be predominantly negative. While some limited benefits may arise, such as slight improvements in agricultural productivity in certain regions and increased accessibility to Arctic waterways, the losses are projected to outweigh these gains. One significant concern is the degradation of infrastructure, particularly oil and gas pipelines, across 70 percent of Russia's landmass due to the melting permafrost.

The changing climate will also contribute to an increase in extreme weather events like floods and droughts, rendering certain parts of the country less habitable and less economically productive. These conditions will have adverse effects on food security, especially in key agricultural regions such as Rostov, which may experience droughts. Consequently, economic migration is anticipated, as rural populations are forced to relocate to already densely populated cities.

Additionally, as the global energy landscape shifts toward renewable sources, Russia is likely to face a substantial decline in revenue from its traditional fossil fuel exports. This revenue shortfall could lead to economic and social instability within the country.

Convergences

India and Russia play significant roles in climate change negotiations and efforts to combat climate change, despite their respective challenges and emissions profiles. India, being the third-largest consumer of oil, faces the task of balancing its fossil fuel consumption, which is seen as crucial for economic development, with its commitment to being a responsible global stakeholder in climate change issues. On the other

[45] Ibid.

hand, Russia, as a major exporter of fossil fuels and with a carbon-intensive economy, aims to maintain its status as an energy superpower while ensuring social and economic stability and working towards achieving carbon neutrality.

In terms of emissions, India is the third-largest emitter of carbon dioxide, while Russia ranks fourth. However, India's per capita carbon dioxide emissions are lower than those of many developed countries, including Russia. Despite this, both countries' climate policies have been assessed by the Climate Action Tracker as falling short of the required standards set by the Paris Agreement. India's climate policies are considered "highly insufficient," while Russia's are rated as "critically insufficient," indicating that their efforts are not in line with the Paris Agreement's objective of limiting global warming to 1.5°C.

India and Russia have a history of bilateral collaboration, particularly in the field of nuclear energy, which can contribute to India's transition towards cleaner energy sources. The Kudankulam nuclear power project in Tamil Nadu, for instance, involves the construction of six nuclear reactors by Russian enterprises. The first two units are already operating at full capacity, and work is underway on the third unit. President Putin has expressed Russia's readiness to build an additional 12 reactors in India over the next two decades, further strengthening their cooperation in the nuclear energy sector.[46]

India and Russia hold differing views on climate change compared to the West, primarily due to their unique circumstances and considerations. In the case of Russia, its heavy reliance on fossil fuel exports as a crucial revenue source, coupled with its limited economic diversification, hampers its ability to minimize fossil fuel usage. This economic dependence makes it challenging for Russia to prioritize reducing fossil fuel consumption, despite recognizing the importance of addressing climate change concerns. The country's carbon-intensive economy further complicates efforts towards transitioning to cleaner energy sources. Tynkkynen and Tynkkynen (2018) argue that the Russian climate change discourse emphasizes the country's Great Power status, highlighting its sovereignty and fossil energy resources as fundamental components of this status.

Similarly, India faces the predicament of being one of the largest consumers and importers of fossil fuels. As mentioned earlier, India's stance on climate change underscores the perceived hypocrisy of the West, which industrialized using fossil fuels and contributed significantly to greenhouse gas (GHG) emissions. India questions the Western insistence on developing countries managing their development without relying on fossil fuels. This shared viewpoint between Russia and India reflects a critical

[46] Frolovskiy D. 2021. Energy cooperation as the backbone of India-Russia ties. 28 October. *The Hindu*. URL: https://www.thehindu.com/opinion/op-ed/energy-cooperation-as-the-backbone-of-india-russia-ties/article37200740.ece (accessed 21.04.2023).

perspective on the distribution of responsibilities for climate change mitigation. Both countries, as members of BRICS, argue that the burden of addressing climate change should primarily lie with wealthy industrial nations, given their historical contributions as the primary producers of GHG emissions (Mizo 2016).

Furthermore, both Russia and India exhibit limited media debate and relatively lower public interest in climate change compared to the West. Studies by Keller et al. (2019) on India and Yagodin (2021) on Russia reveal a lack of extensive public discourse or limited public engagement with climate change issues in these countries. This factor contributes to the complexity of climate change negotiations and policymaking, as it suggests that public pressure for more ambitious climate action may be relatively lower in comparison.

India and Russia share a similar perspective on the securitization of climate change negotiations and the involvement of the United Nations Security Council (UNSC). While the West, including the United States and European Union, aim to bring climate change into the agenda of the UNSC, India and Russia advocate for climate change discussions to remain within the United Nations General Assembly (UNGA), rather than being addressed by a specialized organ of the UN. India has consistently rejected alarmist notions regarding climate security, viewing such discourse as a Western strategy to impose its climate change agenda on India (Boas 2014).

As early as 2007, India, along with China, opposed discussing climate change at the Security Council, arguing that the Council lacked the mandate to address climate change and contending that climate change would not have significant security implications (Rajamani 2009). In 2021, both India and Russia voted against a draft resolution at the Security Council, which aimed to securitize climate change and was supported by a majority of members. Their opposition stemmed from the belief that framing climate change as a threat to global security would divert attention from the actual causes of conflict in different countries and potentially be exploited by developed nations to deny assistance to developing countries. They do not perceive a direct link between global security and climate change, and there are concerns that coercive actions may be taken under the pretext of addressing climate change.

Additionally, the West has sought to incorporate issues such as inequality and indigenous rights into the climate change agenda. Moscow objects to these attempts to link climate change with gender, indigenous rights, and other related issues. India may also resist such efforts, despite recognizing that climate change can have differential impacts on various population segments. This could explain India's decision not to sign the Glasgow Women's Leadership statement, which calls for the promotion of women and girls' role in addressing climate change. Given India's strong emphasis on sovereignty, it is likely to resist any perceived interference by the West in its domestic affairs.

In summary, there is a convergence of views between India and Russia regarding the securitization of climate change negotiations. Both countries advocate for climate change discussions to remain under the purview of the UNGA rather than the UNSC.

They perceive attempts to securitize climate change as potential distractions from addressing the root causes of conflicts and potential tools for developed countries to withhold assistance from developing nations. Furthermore, both countries resist efforts to expand the climate change agenda to include issues like inequality and indigenous rights, viewing them as potential Western interventions in their domestic affairs.

Conclusion

Both India and Russia will undoubtedly experience the consequences of climate change, including sea-level rise, coastal inundation, and severe natural disasters. Recognizing the need to address these challenges, both countries require technology transfer to effectively respond to the effects of climate change, often relying on the West for technological support. However, there exists an opportunity for India and Russia to collaborate and develop new technologies, rather than solely depending on the West, leveraging their robust history of scientific collaboration.

Although India and Russia possess immense potential for wind and solar energy, they currently lack expertise in green technology and rely on the West for technological advancements in this area. By joining forces, the two countries can collaborate on the invention of innovative technologies to harness renewable energy sources and enhance the efficiency of existing technologies. Notably, Russia's technological capabilities in producing green hydrogen align with the growing demand for this clean energy source. Establishing pipelines to transport green hydrogen from Russia to India, possibly through China, would not only benefit India but also facilitate collaboration between the two nations[47].

In the energy sector, it is worth mentioning that India has been purchasing liquefied natural gas (LNG) from Russia through a long-term agreement with GAIL, its main gas company. However, sanctions resulting from the Ukraine conflict have affected these supplies, despite GAIL receiving 2 million tonnes of LNG in 2021[48]. If the sanctions were lifted, the agreement could be revived and expanded, strengthening energy cooperation between India and Russia.

Russia's substantial biomass resources, such as wood waste, low-grade wood, and agricultural residues, present another potential area of collaboration between New Delhi and Moscow. These biomass resources can be utilized to produce biofuels, offering an alternative and sustainable energy source. Collaborating on biofuel production and sharing expertise in this field could benefit both countries and contribute to their efforts in combating climate change.

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[47] Safonov G. 2021. Back to the Future? Russia's Climate Policy Evolution. *The Center for Strategic and International Studies.* March 01. URL: https://www.csis.org/analysis/back-future-russias-climate-policy-evolution (accessed 21.04.2023).

[48] Russia defaults on supply of LNG to India. 2022. *Economic Times.* 19 July. URL: https://economictimes.indiatimes.com/industry/energy/oil-gas/russia-defaults-on-lng-supplies-to india/articleshow/92974767.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst (accessed 21.04.2023).

Disaster risk management and information sharing provide another avenue for collaboration between India and Russia. Given the shared challenges of climate change impacts, cooperating in disaster risk management strategies, exchanging knowledge, and sharing best practices can enhance their preparedness and response mechanisms, ultimately mitigating the negative consequences of natural disasters.

Furthermore, the Northern Sea Route (NSR) presents a significant opportunity for collaboration between the two nations. With the Arctic ice melting, the NSR is becoming increasingly viable and economically attractive as the shortest sea route between Russia's European part and the Far East. Recognizing the potential of the NSR, India, as a member of the Arctic Circle, has expressed interest in contributing to its development as an international trade artery. By promoting the NSR as an alternative marine transport route to the existing land corridor between Russia and India, the loss of shipping liquefied natural gas (LNG) from Russia to India can be reduced. This, in turn, would contribute to lowering Indian emissions both in the use of LNG and its transportation.

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Влияние изменения климата на отношения Индии и России

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Большинство исследований по теме двусторонних отношений Индии и России концентрируются на стратегических аспектах взаимодействия, тогда как факторам, которые могли бы повлиять на будущее отношений, уделяется сравнительно мало внимания.

Одним из таких факторов выступает изменение климата, поскольку оно приведёт к масштабным социальным и экономическим последствиям для обеих стран: их сельского хозяйства, торговли, уровня жизни населения. В статье рассматривается потенциальное влияния изменения климата на индийско-российские отношения, а также перспективы сотрудничества двух стран по климатическим вопросам. В частности, предпринимается попытка оценить, как на этих перспективах сказывается различный статус России и Индии как, соответственно, экспортёра и импортёра углеводородного топлива.

Ключевые слова: двусторонние отношения Индии и России, изменение климата, Арктика, международное развитие, мировые державы, РКИК ООН, Киотский протокол, энергетика.

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