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Russia and India in the Arctic: a case for greater synergy*

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Abstract. The article studies the cooperation between Russia and India with specific reference to the Arctic region. The melting of the Arctic sea ice has seen increasing investment by Russia in the Arctic. The Russian Federation has sought strategic partners for the development of the Arctic, with the primary focus being on the development of the oil and gas industry and the Northern Sea Route. Russia and India have had diplomatic relations in diverse spheres such as space, atomic energy, defense, oil and gas, diamond industry, steel industry among other areas. Russia's focus on the Arctic ushers in many more opportunities for Russia and India to cooperate. India is one of the few countries to which Russia has accorded many investment opportunities in oil and gas and the diamond industry. India has made some investments in the oil and gas industry of the Russian Arctic. However, the article highlights that the energy deficit in India is critical, and it affects the development of the country. The article suggests more increased Indian investment in the Arctic, including phase II of the Yamal LNG project. The article brings out a need for greater cooperation in scientific research, specifically climate change and hydrography, and possible utilization of the enormous technically qualified human resource that India has in diverse areas of the Arctic. The article is relevant for diplomats, civil servants, oil and gas companies, strategic mineral companies, hydrographic authorities, and researchers in both countries engaged in developing the Arctic and the Northern Sea Route. The article may be of interest for relevant courses and programs at universities.
Keywords: *Russia, India, Arctic, natural resources, energy, Northern Sea Route, trade, scientific research, climate change.*

"We the leaders of India and Russia, in the year that marks the 70th anniversary of the establishment of diplomatic relations between our countries note that the Indian-Russian special and privileged strategic partnership is a unique relationship of mutual trust between two great powers." [1]

- Declaration by the Russian Federation and the Republic of India

Introduction

Improved access to natural resources, new trade routes and growing human activity has increased the global importance of the Arctic. The effects of climate change are more evident in the Arctic than anywhere else in the world, with major consequences for the environment and society. For the countries that border the Arctic Ocean, Russia, the United States, Canada, Norway, and Denmark (through Greenland), an accessible ocean means new opportunities. The Arctic region has abundant natural resources, such as minerals, fish, oil, and gas. Prospects of Arctic energy

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[1] Press Information Bureau. "Declaration by the Russian Federation and the Republic of India: A vision for the 21st century", 01 June 2017. URL: https://www.rt.com/news/420987-russia-arctic-development-putin (accessed 10 June 2018).

have been one of the key drivers behind increased Arctic attention from polar and non-polar states [2]. India is no exception.

Russia and the Arctic

In recent decades, Russia has stepped up its earlier nascent efforts to develop the Arctic. Russian leaders see the Arctic as a potential source of economic growth for the country, both as a strategic resource base for the future and a potential maritime trade route [3]. The region which has seen melting ice for part of the year may also witness opening of potential shipping lanes and real estate with an estimated $1 trillion in hydrocarbons [4]. Undeterred by the extreme environment and remote location, which makes it difficult to produce energy quickly and efficiently [5], the Russian Federation is focused on developing hydrocarbon areas that it claims are part of the country's continental shelf [6].

Russia's geographical location and its vast coastline bordering the Arctic make it synonymous with the Arctic and gives it a strategic advantage. Far more Russians live in the Arctic Circle than do Canadians, who share its second-largest border. Russia's long search for a warm-water port assisted the exploration of its immediate north after World War II. Geopolitical tensions with the United States led to the creation of several Arctic bases on both sides [7].

According to Jorgen Staun, "*Russia's strategy in the Arctic is dominated by two overriding discourses which at first glance may look like opposites. On the one hand, an IR [international relations] realism has a clear patriotic character with winning the Arctic…"* [1, Staun J., p. 4]. Staun argues that *"Opposed to this is the IR liberalism, international law-inspired …., which is characterised by words such as "negotiation", "cooperation," and "joint ventures". It means that all benefit if they cooperate peacefully. So far, the IR liberalism discourse has been dominating Russian policy in the Arctic* [2, Staun J., p. 314]."

Hydrocarbons. The Arctic is believed to hold 13% of the world's undiscovered oil and up to 30% of the world's undiscovered natural gas supplies.[8] In other figures from the United States Geological Survey, it was estimated that 33 geologic provinces have prospects for petroleum reserves. The sum of the mean estimates for each area suggests that 90 billion barrels of oil, 1,669 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquids may be lying in wait in

[2] Weir F. As Icecap melts Russia Races for Arctic resources, *The Christian Science Monitor*. URL: https://www.csmonitor.com/2007/0731/p01s01-woeu.html (accessed 23 March 2019).
[3] Gorenburg D. How to Understand Russia's Arctic Strategy, The Washington Post. February 2014. URL: https://www.washingtonpost.com/news/monkey-cage/wp/2014/02/12/how-to-understand-russias-arctic-strategy/?noredirect=on&utm_term=.8d092036982c (accessed 23 March 2019).
[4] Ibid.
[5] Ibid.
[6] Ibid.
[7] Loy J. Russia in the Arctic: Friend or Foe. URL: https://www.geopoliticalmonitor.com/russia-in-the-arctic-friend-or-foe (accessed 23 March 2019).
[8] USGS Factsheet 2008-2049, US Geological Survey Fact Sheet. URL: https://https://pubs.gov/usgs-factsheet/2008-2049 (accessed 11 March 2019).

the Arctic, of which approximately 84% is expected to occur in offshore areas [9]. Russia, having the largest coastline in the Arctic, will, therefore, have a direct claim on many of these energy resources [10].

As with Russia's involvement in the NSR, its energy interests are also multi-faceted. The Kremlin has put forth several government papers stressing the significance of hydrocarbons in the Arctic [11]. The annual development strategies of the Russian Arctic are evidence of this focus. By exploiting Arctic resources which are expected to have 90% of the hydrocarbon reserves located on the entire Russian continental shelf (66.5% located in its Western part: the Barents and Kara seas), Moscow will lessen its reliance on diminishing supplies in Western Siberia [3, Zysk K., p.105]. In 2012, the Arctic shelf was established as a new territory for exploration by state-owned energy giants Rosneft and Gazprom [12]. The Yamal region contains nearly 22 % of the global proven gas reserves and 70% of all Russian crude reserves [13]. Nearly 85 % of the natural gas production in Russia comes from the Yamal-Nenets Autonomous Okrug. The South Tambeiskoye field is estimated to contain proven reserves of 907 billion m^3 of natural gas [14]. Further, by 2020, the investment potential of Yamal energy projects could be about 8 trillion roubles. Several major Russian companies are engaged in the development of oil and gas fields in Yamal.

For Russia, the year 2015 began on an anxious note with western sanctions looming large on the Arctic energy projects and the profits of Gazprom, a major Russian energy giant engaged in the Arctic, plummeting by nearly 62%. However, by 2018, the Yamal project was on track, clearly suggesting that the effects of the western sanctions have not deterred Russia from continuing its Arctic energy ambitions in the High North. Moscow is aggressively wooing Asian energy companies to invest in Yamal phase 2 after western companies have decided to withdraw from some of the projects [15]. According to a study by French political scientist Marlene Laruelle based on data from the International Energy Agency, the majority of the offshore deposits are not worthy of exploitation as long as the oil price is under 120 dollars per barrel [4, Laruelle M., p. 254]. It is fair to argue that sanctions have taken a toll on the rapidity with which Russia's Arctic plans can be executed. However, Russia has developed significant national resilience to thwart the impact of sanctions and respond in its way. Russia has invested in indigenous technology development and raised funds through local institutions to keep the Arctic energy projects alive [16]. Western countries are

[9] Salvatore Babones. India is poised to become the World's Fifth Largest Economy, op.cit.
[10] Ibid.
[11] Loy J. Russia in the Arctic: Friend or Foe, op.cit.
[12] Ibid.
[13] Ibid.
[14] Ibid.
[15] International Export Council on Cooperation in the Arctic. Yamal: Centrepiece of Russia's Arctic Development Strategy, 09 February 2015. URL: http://www.iecca.ru/en/the-arctic-explorations/general-questions/item/361-yamal-centerpiece-of-russia-s-arctic-resource-development-strategy (accessed 13 March 2019).
[16] Cohen A. Russia's Sets Sights on Energy Resources under the Arctic Circle. URL: https://www.forbes.com/sites/arielcohen/2019/04/17/russia-sets-sights-on-energy-resources-under-arctic-circle/#3568df5a6eea (accessed 18 April 2019).

exploring ways to skirt sanctions and resume business with Russia, while others have decided not to impose fresh or additional sanctions.

Fig. 1. Rosneft CEO and Chairman Igor Sechin meets President Vladimir Putin to discuss plans for Arctic oil development [17].

In April 2019, a meeting was held between Rosneft Chairman, CEO Igor Sechin, and President Vladimir Putin. Following that, the state-owned Russian oil giant announced plans to actively pursue the development of a vast production and transportation network throughout the Arctic [18]. The plan from Rosneft's perspective is simple: unlock the 1.5 billion tons of oil in Russia's Far North by developing an "Arctic Cluster" of oil and gas fields [19]. Rosneft's prospective projects will also help Russia establish a long-sought-after North Sea Route (NSR), which would cut the distance of shipping lanes between key ports in Europe and the Far East by as much as 40% [20]. Rosneft already operates several promising sites in Russia's Arctic region, incl. the Vankor field (together with Bharat PetroResources Ltd) and Suzunskoe field. The latter reached its 70-millionth barrel of oil produced since 2016 [21]. In essence, the Russian resilience in coping with political, fiscal, and technological challenges is unquestionable, and Moscow now has taken upon itself to reengineer its Arctic resource development strategy [22]. But Western experts are of the view that the plan is not economically viable at present oil prices and without foreign partnership [23].

[17] Igor Sechin tells President Putin how Rosneft plans to Master the Arctic. Oil Capital News, 01 April 2019. URL: https://oilcapital.ru/news/companies/01-04-2019/igor-sechin-rasskazal-vladimiru-putinu-kak-rosneft-budet-osvaivat-arktiku?id=igor-sechin-rasskazal-vladimiru-putinu-kak-rosneft-budet-osvaivat-arktiku&published_date=01-04-2019&rubric=companies&type=NewsItem&utm_campaign=communities_1mi&utm_medium=social&utm_source=telegram (accessed 18 April 2019).

[18] Ibid.

[19] Oil Capital New. Igor Sechin tells President Putin how Rosneft plans to Master the Arctic, op.cit.

[20] Devyatkin P. Russia's Arctic Strategy; Maritime Shipping (Part IV). URL: https://www.thearcticinstitute.org/russias-arctic-strategy-maritime-shipping-part-iv (accessed 01 January 2019).

[21] Cohen A. Russia's Sets Sights on Energy Resources under the Arctic Circle, *op*.cit.

[22] Ibid.

[23] Ibid.

India and the Energy Conundrum

Some experts have argued that in recent years energy is a vital part of the motive for India's actions in the Arctic. India's energy situation has been perilous for decades, with an increasing need for importing energy from abroad. According to the International Energy Agency, in 2012, India had the third-largest energy demand globally after China and the USA, and the need for energy is expected to increase rapidly in the years to come [24]. While coal and biomass constitute most of India's primary energy source for industrialization and households, opening up of the markets in India from the 1990s and onwards has caused a growing demand for hydrocarbon-related energy sources. The country is dependent on imports for about 82.1% of its crude oil requirement and to the extent of about 44.4% in the case of natural gas [5, Ministry of Petroleum and Natural Gas, India, p. 26]. To have a gas-based economy and enhance the share of gas in the energy basket, the Government has envisaged 15,000 km of gas pipeline network [5, Ministry of Petroleum and Natural Gas, India, p. 6].

India's crude oil production for the year 2016–17 was 36.01 Million Metric Tonnes (MMT) as against the production of 36.94 MMT in 2015–16, showing a decrease of about 2.53% [5, Ministry of Petroleum and Natural Gas, India, p. 8.]. India's crude oil production continued to decline, and for the year 2017–18 was 35.68 Million Metric Tonnes (MMT) as against the production of 36.01 MMT in 2016–17, showing a decrease of about 0.9% [6, Ministry of Petroleum and Natural Gas, India, p. 12]. Import of crude oil during 2016–17 was 213.93 MMT valued at 470,159 crores as against import of 202.85 MMT valued at 416,579 crores in 2015–16 which marked an increase of 5.46% in quantity terms and 12.86% in value terms as compared to the import of crude oil during 2015–16 [5, Ministry of Petroleum and Natural Gas, India, p. 12]. This rising trend continued in FY 2017–18 with the import of crude oil during was 220.43 MMT valued at 566,450 crore as against import of 213.93 MMT valued at 470,159 crore in 2016–17 which marked an increase of 3.04% in quantity terms and 20.48% in value terms as compared to the import of crude oil during FY 2016-17 [6, Ministry of Petroleum and Natural Gas, India, p. 16]. The increase in value is attributed to the upward trend in oil prices during FY 2018–19, coupled with the depreciation of the rupee concerning the dollar. Natural Gas production during the year 2016–17 was 31.90 billion m^3 (BCM), which was 1.09% lower than the production of 32.25 BCM in 2015–16 [5, Ministry of Petroleum and Natural Gas, India, p. 8]. Import of LNG during 2016–17 was 18.63 MMT valued at 49,941 crore (provisional figures) as against import of 18.63 MMT valued at 40,804 crore in 2015–16 which marked an increase of 6.65% in quantity terms and 22.39% in value terms as compared to the import of crude oil during 2015–16 [6, Ministry of Petroleum and Natural Gas, India, p. 18]. Consequently, to provide safe access to energy is a high priority issue in Indian foreign policy. India relies heavily on varied energy suppliers, with most of its imports coming from West Asia and Afri-

[24] Ahn S-J., Graczyk D. Understanding Energy Challenges in India: Policies, Players and Issues. International Energy Agency, 2012. URL: https://www.iea.org/publications/freepublications/publication/India_study_FINAL_WEB.pdf (accessed 30 May 2018).

ca. According to the International Energy Agency, India's oil and gas demand is expected to continue its upward trend and expected to double by the year 2040 [5, Ministry of Petroleum and Natural Gas, India, p. 82] as depicted in Figures 2 and 3, in comparison with other regions of the world.

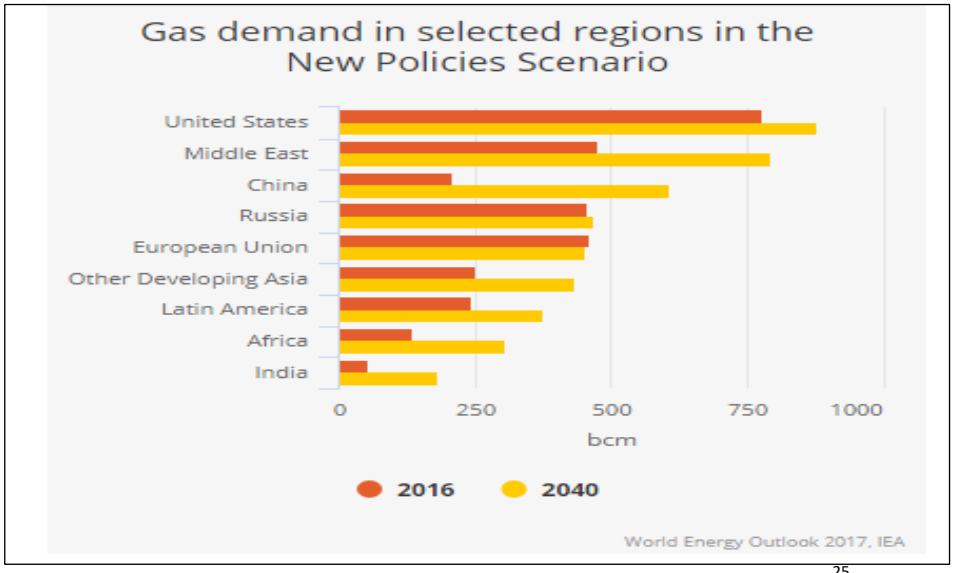

Fig. 2. Gas demand in selected regions as per World Energy Outlook [25].

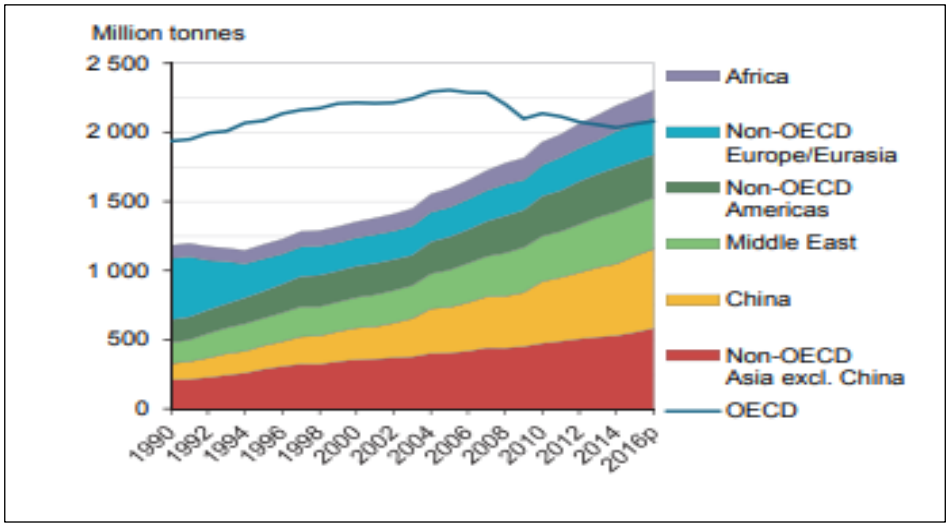

Fig. 3. Oil product demand by geographical regions [26].

This diverse web of energy suppliers is, of course, vulnerable to breakages in the supply lines due to political instabilities and other security concerns, and India has tried to meet these challenges by building up a reserve stock of oil in case of disruptions. Keeping this in mind, India set up a long-overdue Strategic Petroleum Reserve at Visakhapatnam catering for ten days requirement of crude oil [5, Ministry of Petroleum and Natural Gas, India, p. 17]. Further, oil is geopolitically a sensitive commodity. The Middle East and North Africa, which supply 60% of India's oil

[25] International Energy Agency. Gas Demand in Selected Regions. World Energy Outlook, 2017. URL: http://www.iea.org/publications/freepublications/publication/OilInformation2017Overview.pdf (accessed 11 June 2018).
[26] Ibid.

requirements, have witnessed a high degree of geopolitical uncertainty in the recent past. Therefore, India has to remain prepared and diversify its energy sourcing. India has made a determined effort to diversify its energy suppliers and sought partnership, incl. from countries in Latin America, in addition to expanding its energy ties with Russia [5, Ministry of Petroleum and Natural Gas, India, p. 82]. Therefore, India needs to seek a long-term agreement with Russia for an increased supply of LNG and possibly crude oil on similar lines to the Russia-China agreement for the supply of gas. Russia and China agreed on gas supplies via the Power of Siberia 3000 km pipeline in 2014, when Gazprom and the China National Petroleum Corporation (CNPC) signed a 30-year contract to deliver 38 billion tons of gas per year by 2025 from Irkutsk and Yakutia [27]. The pipeline called "the world's biggest construction project" was launched on December 02, 2019, by the Russian President Vladimir Putin and Chinese President Xi Jinping. China is expected to become Russia's second-largest gas customer after Germany, which bought 58.5 billion m^3 of gas from Russia in 2018 after this pipeline becomes fully operational in 2025 [28]. India would need to study the German and Chinese procurement strategies for optimizing its long-term requirements for LNG. India's push towards renewable energy sources is advancing slowly, indicating that for the foreseeable future, India is dependent on importing much of its energy [29].

Energy Bridge – Russia and India

Since the Arctic holds the potential of vast reserves of oil and gas, there have been discussions on the possibilities of India's participation in the utilization of Arctic energy. Despite the difficulties of extracting energy from the harsh climate in the Arctic region, nothing suggests that this is not on the future of either Russian or any of the Arctic rim states. According to Stokke, for India to be able to benefit from these Arctic resources, they would need partners [7, Stokke O.S., pp. 770–783]. In this regard, Russia has played an essential role in enabling joint Indo-Russian cooperation in energy projects. Russia is India's largest oil and gas investment destination with over US $ 15 billion investments so far [6, Ministry of Petroleum and Natural Gas, India, p. 76]. India's state-owned oil company Oil and Natural Gas Corporation Limited's [ONGC] international branch ONGC Videsh Limited [OVL] has invested in Russian energy projects, such as the Sakhalin 1-project in 2002 [30]. In 2015, OVL signed an agreement with the Russian state-owned oil company Rosneft, for investment in the Vankor field in Siberia. As reported in the Indian newspaper *Daily News and Analysis,* both Russia's President Vladimir Putin and Prime Minister Narendra Modi were present at the signing, and the two oil giants signed a Memorandum of Understanding which emphasized *"cooperation for geologic survey, exploration, and production of hydrocarbons onshore and on the*

[27] Putin and Xi to launch strategic natural gas pipeline from Russia to China in December. Russia Today, 12 November 2019. URL: http://www.rt.com/business/473218-putin-xi-power-of-siberia (accessed 03 December 2019).
[28] Russia, China launch gas pipeline 'Power of Siberia. Deutsche Welle (DW), 02 December 2019. URL: http://m.dw.com/en/russia-china-launch-gas-pipeline-power-of-siberia/a-51500187 (accessed 03 December 2019).
[29] Ibid.
[30] Taneja K. China and India Go Arctic, 14 August 2015. URL:http://www.politico.eu/article/china-and-india-go-arctic-sanctions-gas-oil-explorationlng (accessed 30 March 2018).

continental shelf of the Russian Federation [31]. A new subsidiary company, viz., IOC Singapore Private Ltd. was formed as an investment company in Singapore to enable acquisition of a stake in E&P assets from Rosneft of Russia as well as to set up trading operations for procurement of crude oil and import/export of petroleum products. In 2016, Indian public sector companies invested over US $ 4 billion in the acquisition of oil and gas production assets in Russia [6, Ministry of Petroleum and Natural Gas, India, p. 76]. In 2017, Rosneft bought a 49% share of India's Essar Oil Ltd., and Russia is reportedly already supplying India with Arctic LNG. Rosneft's investment of nearly $ 13 billion in the Vadinar refinery is the most significant FDI investment in India in the oil and gas sector [6, Ministry of Petroleum and Natural Gas, India, p. 76]. In October 2018, Russia offered Indian companies a share in the second phase of Yamal, the most significant project to produce liquefied natural gas in the Arctic. It has also provided access to the NSR, which connects Europe to the Pacific and Asia. There was a specific reference to Indian-Russian participation in the Arctic [32]. The various Russian hydrocarbon projects where India has a stake are as tabulated below:

Table 1

India's involvement in Russian hydrocarbon projects
[6, Ministry of Petroleum and Natural Gas, India, p. 78]

Name of the Project in Russia	Participating companies and their share
Sakhalin-1, Offshore	ONGC Videsh – 20% Exxon Mobil – 30% (Operator) Sodeco – 30% SMNG – 11.5% RN Astra – 8.5%
Imperial Energy, Russia	ONGC Videsh – 100%
Vankorneft	ONGC Videsh – 26% OIL, IOCL, BPRL – 23.9% each
Tass-Yuryakh	OIL, IOCL, BPRL – 29.9% each
License 61	OIL: 50% Petroneft: 50%

Arctic energy could be an important part of India's necessary diversification of energy supply sources. The Arctic is a region where conflict and political instability do not threaten secure and reliable delivery; this is the advantage of Arctic resource exploitation, especially for the Asian giants Japan, China, South Korea, and India. India needs to participate actively in this resource exploration, as the Arctic energy reserves have the potential for a substantial impact on India's energy dynamics. Currently, the world's 11th largest economy (fifth in terms of purchasing power parity as per forecast for 2015 according to the IMF), India could occupy the third slot after the United States and China in 25–30 years, if India manages to sustain her economic growth rate [33]. As per the World Economic Outlook by the International Monetary Fund, India's growth rate in 2018 was

[31] Blank S. India's Arctic energy partnership with Russia. 24 October 2018. URL: http://www.lowyinstitute.org/the-interpreter/indias-arctic-energy-partnership-russia (accessed 30 October 2018).
[32] Ibid.
[33] Babones S. India is poised to become the World's Fifth Largest Economy, 27 December 2017. URL: https://www.forbes.com/sites/salvatorebabones/2017/12/27/india-is-poised-to-become-the-worlds-fifth-largest-economy-but-it-cant-stop-there/#6bf578213ff1 (accessed 11 June 2018).

7.1 %, whereas overall world economies grew at an average rate of 3.3–3.6% [8, Ministry of Commerce, India, p. 18].

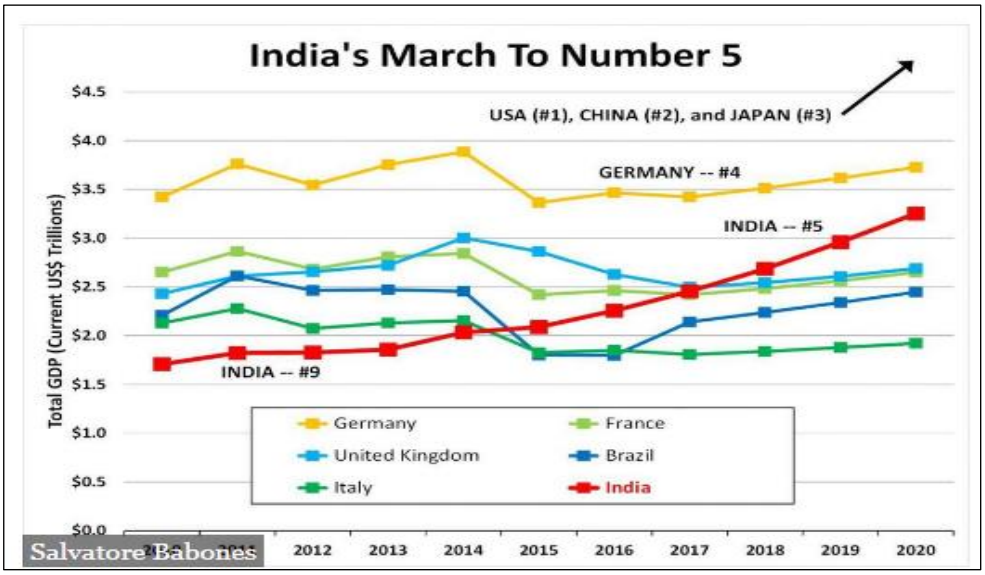

Fig. 4. Growth rate of the World's largest economies (source: IMF) [34].

Russia and India Strategic partnership

Russia has historically been an important partner for India in terms of atomic energy, space, military equipment, and technology. Despite India being one of the leaders of the non-alignment movement, ties between the then Soviet Union and India progressed through extensive bilateral engagements. Prime Minister Nehru himself visited the Soviet Union in June 1955, the same year as the eventful Bandung Conference, where the Non-Aligned Movement (NAM) saw its inception [9, Sen R., pp. 6–7]. Two generations of Soviet citizens cherished the close affinity and affection for India, politically represented by Jawaharlal Nehru and Indira Gandhi. Indian culture, incl. Indian films had a wide popular appeal all over the Soviet Union. This friendship between the two nations flourished. At a crucial juncture on the eve of the 1971 war and the formation of Bangladesh, a treaty was signed with the Soviet Union in 1971 by then Prime Minister Indira Gandhi, who was the chief architect of India's strategy [9, Sen R., pp. 6–7]. Russia has also been India's time-tested partner in the oil and gas sector. Our historic hydrocarbon relationship with Russia goes back to the 1970s when a team of Soviet oil and gas experts helped ONGC to explore and strike oil in Indian waters. Their joint efforts led to the discovery of Bombay High, which even today remains India's biggest oil and gas field [6, Ministry of Petroleum and Natural Gas, India, p. 76]. During the period of the political capitulation of the Soviet Union following the end of the Cold War in 1991, ties between India and (now) Russia were slightly less prioritized from Russia's side due to internal and external political challenges [9, Sen R., p. 7]. Following the collapse of the Soviet Union, a noticeable change in Russian attitude towards Indians became evident. There were two clear trends in changing attitudes [9, Sen R., p. 7]. Gradually, there emerged a clear genera-

[34] Ibid.

tional divide between the continued goodwill of the older Russians and the lack of interest in Asia of culturally and politically westernized generation of Russians. It was evident within the Russian governments as well. In India too, there began an unstated 'Look West' policy later balanced by a 'Look East' policy as well, which impacted the earlier close friendship.

However, this altered with the appointment of Prime Minister Yevgeny Primakov and a couple of years later when Mr. Vladimir Putin was elected as President of Russia. Both these leaders sought to re-establish the earlier historical ties with India as a strategic partner. After the signing of "*Declaration on the India-Russia Strategic Partnership*" in October 2000 (during the visit of Russian President Vladimir Putin to India), India-Russia ties acquired qualitatively a new character with enhanced levels of cooperation in almost all areas of the bilateral relationship including diplomatic, security, trade, economy, defense, science and technology, and culture [35]. Under the Strategic Partnership, several institutionalized dialogue mechanisms operate at both political and official levels to ensure regular interaction and follow up on cooperation activities. During the visit of the Russian President to India in December 2010, this Strategic Partnership was elevated to the level of a "Special and Privileged Strategic Partnership" [36]. From 2007 to 2012, India was Russia's largest arms import partner, surpassing even China. In 2010, the then Indian Prime Minister Manmohan Singh explained this 'special' relationship, by saying that *"Relations with Russia are a key pillar of our foreign policy, and we regard Russia as a trusted and reliable strategic partner. Ours is a relationship that not only stands independent of any other but whose significance has grown over time. Our partnership covers areas such as defense, civil nuclear energy, space, science and technology, hydrocarbons, and trade and investment"* [37]. Bilateral trade showed a growth of more than 21% in 2017–18 over 2016–17. In 2017–18, bilateral trade was the US $ 10.69 billion. Both sides have taken significant initiatives to achieve the ambitious trade target of US $ 25 billion set for 2025 [10, Ministry of External Affairs, India, p. 100]. However, this target is an order of magnitude smaller than the India-China or India-US trade figures. Russia's share in India's exports was only 0.73% (the US $ 2.4 billion) for the period 2018–19 as compared to 15.91% for the United States (the US $ 52.4 billion) and 5.09% (the US $ 16.8 billion) for China [8, Ministry of Commerce, India, pp. 59–62]. Concerning imports, Russia's share was only 1.14% (the US $ 5.8 billion) for the period 2018–19 showing a decline of 31.88% from 2017-18 figures (the US $ 8.5 billion) as compared to 6.88% (the US $ 35.3 billion) for the United States and 13.7% (the US $ 70.3 billion) for China [8, Ministry of Commerce, India, pp. 68–74]. Katherine Foshko succinctly stated, *"As is increasingly recognized, the deficiencies of Indo-Russian trade, as well as most of the other pillars of the relationship are linked to the heavy involvement of the state – and the absence of energetic engagement from the private sector, which accounts for 70% of the economy in both countries. The state sector alone cannot influence the development of trade and defense, energy, science,*

[35] Ministry of External Affairs, India. India's Relations with Russia, 2018. URL: https://www.mea.gov.in/Portal/CountryQuickLink/597_India-Russia_Relations_2018.pdf (accessed 31 December 2018).
[36] Ibid.
[37] Ministry of External Affairs, India. India's Relations with Russia, op.cit.

and technology, or soft power in a globalizing increasingly competitive market" [11, Tsan K.F., India, p. 144]. There is much potential for the exchange of high technology for peaceful purposes.

The major geopolitical and geo-economics partnership for India in the region needs to be Russia as the majority of the natural resources of the Arctic are with Russia. There has been a historical relationship, and there is a strategic partnership. When developing thorough scientific and related knowledge of the area, it is important to have strong links with Russia in the context of Russia's plan to develop the Arctic region. The offer made by Russia to India to develop oil and gas fields in the Arctic is significant and needs progress to cater to our ever-expanding energy requirements [38]. As stated in the Saint Petersburg declaration, "*The economies of India and Russia complement each other in the energy sector. We will strive to build an "Energy Bridge" between our States and expand bilateral relations in all areas of energy cooperation, including nuclear, hydrocarbon, hydel, and renewable energy sources, and in improving energy efficiency…We are interested in launching joint projects on exploration and exploitation of hydrocarbons in the Arctic shelf of the Russian Federation*." [39.] Russia, on its part, could treat the Arctic as an exclusive economic zone for Indian investors and lower import / export tariffs. India can and should provide the necessary structure for bilateral interaction. Both countries need to encourage greater vitality and cooperation in the corporate sphere [11, Tsan K.F, India, p. 144].

Russian President Vladimir Putin, Indian Prime Minister Narendra Modi, and Rosneft CEO and Chairman Igor Sechin at the Zvezda Shipyard in Bolshoi Kamen, Russia (Press Release: President of Russia, Kremlin).

Fig. 5. President Vladimir Putin, Indian Prime Minister Narendra Modi and Rosneft CEO and Chairman Igor Sechin at the Zvezda shipyard in Bolshoi Kamen [40].

Russia invited the Indian Prime Minister Narendra Modi at the Eastern Economic Forum at Vladivostok in September 2019 as the chief guest. Post talks with the Indian Prime Minister, the Russian President stated at a press conference, *"Indian energy concerns are invited to participate*

[38] Blank S. India's Arctic energy partnership with Russia, op.cit.

[39] Press Information Bureau, "Declaration by the Russian Federation and the Republic of India: A vision for the 21st century", op.cit.

[40] Devyatkin P. Russia and India set to deepen Trade and Investment in Arctic Energy. 05 September 2019. URL: https://www.highnorthnews.com/en/russia-and-india-set-deepen-trade-and-investment-arctic-energy (accessed 06 September 2019).

in projects such as Far Eastern LNG and Arctic LNG 2." [41]. The two leaders also proposed to develop a full-fledged maritime route between Vladivostok and Chennai. India needs to invest in the Russian Arctic and the Far East for its growing requirement for natural resources and minerals. In 2012, GAIL had already signed a 20-year contract with Gazprom for the supply of 2.5 million tons of LNG per year, which is worth about nearly US $ 2 billion per year. The first cargo of Russian LNG was received on June 04, 2018, at Dahej [6, Ministry of Petroleum and Natural Gas, India, p. 76]. However, unlike France, China, Japan, and Saudi Arabia, India has so far not invested in the Arctic LNG 2 project. The Indian Minister of Oil, Gas, and Metallurgy, in a statement, said that GAIL is looking at acquiring a minor stake in Arctic LNG 2. The Indian Minister of Commerce and Industry significantly stated that "India is ready to conduct exploration work in the Arctic."[42]. He further expressed the hope that Russia and India could jointly develop the Northern Sea Route [43]. It is also evident that relations with Russia are closer in the energy sphere due to India's commitment to diversify its energy imports in the context of US sanctions on the Iranian energy industry.

Gas Wars?

The Indian government and GAIL need to study the examples of Japan [44] (world's largest LNG buyer) and Germany, who though close security partners of the United States, have continued their energy links with Russia despite the threat of US sanctions. In response to President Trump's remark in July 2018, *"Germany, as far as I am concerned, is captive to Russia because it's getting so much of its energy from Russia"*, Chancellor Angela Merkel retorted diplomatically, *"we can make our policies and our own decisions."* [45] It is well known that these sanctions are due to competing for commercial interests [46] as the United States is the world's largest natural gas producer, and Russia is the second world's largest natural gas producer but holds the world's largest gas reserves [47]. U.S. LNG reportedly has the lowest cost of production in the world, but transportation (vis-à-vis pipeline supplies or from Iran / Qatar / Australia), and infrastructure costs at the recipient country means that gas supplies from other countries are more attractive, particularly to Asian customers such as China [48].

[41] Devyatkin P. Russia and India set to deepen Trade and Investment in Arctic Energy, op.cit.
[42] Quoted in Ibid.
[43] Quoted in Ibid.
[44] Ryosuke Hanafusa. Japan and Russia set to launch $9bn LNG project in Far East. Nikkei Asian Review, December 20, 2019. URL: https://www.asia.nikkei.com/Business/Energy/Japan-and-Russia-set-to-launch-9bn-LNG-project-html (accessed 06 January 2020).
[45] Karasz P. Germany Imports gas From Russia. But Is It a 'Captive'. July 11, 2018. URL: https://www.nytimes.com/2018/07/11/world/europe/trump-germany-russia-gas-html (accessed 12 July 2018).
[46] Salamah M. Gas Wars? June 29, 2017. URL: https://www. globalresearch.ca /gas-wars/559672-html (accessed 06 February 2020).
[47] Mikovic N. Energy-poor Europe torn between Russian and American gas. February 04, 2020. URL: https://www. global-comment.com /energy-poor-europe-torn-between-russian-and-american-gas-html (accessed 06 February 2020).
[48] Rapoza K. Russia, China and the U.S. Are Forever Changing the Global Gas Market. January 29, 2020. URL: https://www.forbes.com/sites/kenrapoza/2020/01/29/Russia-china-and-the-us-are-forever-changing-the-gloabal-gas-market-html (accessed 06 February 2020).

India has developed some expertise in the exploitation of offshore hydrocarbons though it must be admitted in far more benign geographical and geological conditions. Russia has had to rely on foreign companies to carry out some geological work in the Arctic [12, Voronkov L., pp. 115–124]. Other than investments, it may be worthwhile to have our petroleum engineers assist Russia in offshore exploration and extraction if the possibility exists. The reality is that Arctic energy forms a vital key component to propel India's economic growth further since consumption itself is linked with growth. Besides, the Arctic is a rich source of strategic minerals and diamonds which are essential for the rapidly growing Indian economy. There is a need for India to invest in such projects and cooperate actively in project materialization.

Climate change is another area of concern for India. Researcher UK Sinha aptly stated that "The contemporary Arctic expresses an "antithetical situation" [13, Sinha U.K., pp. 38–39] with economic and commercial interests on the one end and a need for mitigating climate risks and resource governance at the other [14, Sinha U.K., p. 126]." As brought out in the Saint Petersburg declaration, "*India and Russia note the wider use of natural gas, an economically efficient and environmentally friendly fuel, which has become an integral part of the global energy market is highly significant for reducing greenhouse gas emissions and will assist in fulfilling the provisions of the Paris agreement on Climate Change, as well as achieving sustainable economic growth.*" [49] There is a, therefore, a need for both countries to transit from fossil fuels to LNG and renewable energy at a more rapid rate. In Arkhangelsk Oblast, e.g., the possibility of utilization of wind and solar energy to a lesser extent exists. India has developed a reasonable amount of expertise in renewable energy, which could be utilized by Russia.

Other Areas of Cooperation in the Arctic. India has substantial experience in research in Antarctica. In the Arctic, its research efforts began only in 2007. Since then it has been cooperating mainly with Norway though it is also part of India is also a part of the International Arctic Science Committee [IASC], which is a non-governmental organization that facilitates and advocates cooperative research between all countries active in Arctic research [50] and also of the Asian Forum for Polar Sciences [AFOPS] which was established in 2004 in order to facilitate better cooperation between Asian countries in polar sciences [51]. India's scientific interaction with Russia has been limited despite the Saint Petersburg declaration that "*We will develop joint strategies to harness for mutually beneficial cooperation in the field of deep-sea exploration and development of hydrocarbon resources, polymetallic nodules, and other marine resources utilizing strengths in the fields of maritime research and training to develop mutually beneficial cooperation.*" Presently there is no cooperation either at the level of the National Centre for Polar and Ocean Research [NCPOR] or

[49] Press Information Bureau. Declaration by the Russian Federation and the Republic of India: A vision for the 21st century, op.cit.

[50] International Arctic Science Committee. About the International Arctic Science Committee. June 2018. URL: https://iasc.info (accessed 01 June 2018).

[51] Asian Forum for Polar Sciences. About the Asian Forum for Polar Sciences. June 2018. URL: http://www.afops.org/m11.php (accessed 01 June 2018).

any other university. The Ministry of Earth Sciences listed the significant objectives of the Indian Research in Arctic Region as follows, which may also be areas of cooperation between Russian and Indian researchers:

- *"To study the hypothesized teleconnection between the Arctic climate and the Indian monsoon by analyzing the sediment and ice core records from the Arctic glaciers and the Arctic Ocean.*
- *To characterize sea ice in the Arctic using satellite data to estimate the effect of global warming in the northern polar region.*
- *To research the dynamics and mass budget of Arctic glaciers focusing on the effect of glaciers on sea-level change.*
- *To carry out a comprehensive assessment of flora and fauna of the Arctic vis-à-vis their response to anthropogenic activities. Also, it is proposed to undertake a comparative study of the life forms from both the Polar Regions."* [52]

As the Navigation Area-VII coordinator, India has substantial expertise in carrying out hydrographic surveys and the preparation of electronic charts for nations of the IOR. Though hydrography is generally a restricted area in which countries may not want to open for joint surveys if Russia is so inclined, India could assist in the preparation of electronic charts for the Northern Sea Route, which are presently not available, thus increasing the risks of transiting along this route.

It would in the interests of the Russian Federation and all countries interested in the Northern Sea Route to establish two transshipment hubs at Murmansk and Petropavlovsk Kamchatskiy and obviate the necessity for ice-class ships which are expensive to build and operate to be used other than in actual sea-ice conditions such as the Northern Sea Route [53]. Russia may consider a joint venture with Asian Arctic Council observer states such as China, Japan, the Republic of Korea, India, and Singapore to set up such a transshipment hub at Petropavlovsk Kamchatskiy.

Conclusion

Recommendations for Russia-India Cooperation in the Arctic. In view of the above, other than the so-called "energy bridge", India needs to deepen the collaborative relationship with Russia with specific reference to the Arctic region. Salient recommendations concerning a framework for India – Russia cooperation in the Arctic region are as follows:

(a) Make sure that India's strategic energy policy factors in the energy resources of the region, which are presently mainly with Russia. There is, therefore, a need for ONGC or GAIL to invest in projects such as the Arctic LNG 2 project as specific offers have been made to India in this regard by the Russian Federation.

(b) To meet India's burgeoning energy requirements as one of the world's fastest-growing economies, formulate long-term contracts for greater quantities of petroleum products with the Russian Federation.

(c) Russia and India may consider signing a Comprehensive Economic Cooperation Agreement at least for the Arctic and the Far East to lower import/export tariffs and facilitate both public and private sector investment.

[52] Ministry of Earth Sciences, India, Scientific Endeavours in the Arctic. June 2018. URL: http://www.moes.gov.in/programmes/indian-scientific-endeavors-arctic (accessed 01 August 2018).

[53] Gunnarsson B. Ship Traffic Analysis on the Northern Sea Route and Development of an Arctic Transportation and Logistics. Lecture to the International Ph.D. School, Northern Arctic Federal University, Arkhangelsk, 05 April 2019.

(d) The Indian government has given the in-principle approval for the procurement of a polar research vessel, and the Ministry of Earth Sciences and National Centre for Polar and Ocean research could examine cooperating with Russia in the acquisition of this vessel.

(e) Acquisition of at least one Arc 7 ice-class LNG tanker by the Shipping Corporation of India [SCI], which will enable LNG to be transported throughout the year without the assistance of icebreakers. It needs to be combined with the training of human resources critical for navigation and ship-handling in the polar Arctic region for the arduous transit from Russia's Far North to India, for which India will need the assistance of Russia.

(f) India has a highly qualified human resource, which has the potential to contribute to the building of various infrastructure projects in the Arctic region, resource exploitation, scientific research, and shipping activities in the region, which in turn could benefit the overall development of the country and generate employment opportunities for different sectors in our economy.

(g) A collaborative relationship with Russia in terms of scientific research is at a nascent stage, and this could be strengthened. According to the NCPOR Polar university status and then having a partnership with the Northern Arctic Federal University at Arkhangelsk would be a welcome step forward. Organizing a joint seminar to examine areas of cooperation would be another step in the right direction. Sending of a research scholar to the Northern Arctic Federal floating university ship also could be an essential component of the cooperation in scientific research.

(h) India needs to be actively concerned that the possibility of the melting icecap may affect us as a peninsular coastal nation, both due to the rising sea level and the possible collateral effects of global climate change. A joint research project with Russia on climate change could be initiated.

(i) India and Russia can contribute to Russia's development of the Arctic by its experience and expertise in renewable energy.

(j) Though the hydrographic survey is a sensitive area not usually shared by nations, India has substantial knowledge in carrying out hydrographic surveys, which may be of interest to the Russian side.

(k) India may consider a joint venture with other Asian Arctic Council observer states such as China, Japan, the Republic of Korea, and Singapore, as and when offered by Russia, to set up a transshipment hub at Petropavlovsk Kamchatskiy for shipment of energy resources.

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