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The Changing Arctic and India's Strategy for the Circumpolar North

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CENTRE FOR AIR POWER STUDIES

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Introduction

The Arctic region covers over one-sixth of the earth's landmass, and is set to play an increasing role in shaping the course of world affairs. The still less explored region is rich in exploitable natural resources, especially gas and oil and marine living resources. The Arctic Ocean around Earth's North Pole is full of floating ice, with ridges up to 20 metres thick. Global industrialisation has raised temperatures because of increased carbon dioxide and other greenhouse gas emissions. Therefore, the glaciers are rapidly melting. The 2021 minimum sea-ice extent was around 4.724 million square kilometres, which is around 1.6 million square kilometres lower than the long-term average. The Arctic Sea ice reduction has been at a rate of almost 13 percent per decade. At this rate, the Arctic could be ice-free in the summer by 2040. Melting ice will raise the sea level and submerge many island territories and coastal cities. So, clearly, climate change, and global warming are the main issues engaging the entire world. The shrinking of ice sheets results in new water bodies getting created. Some of the countries surrounding the Arctic Ocean have started claiming these water bodies and want to exploit the resources, especially oil and natural gas. The melting ice is also creating more maritime trade routes. Normally they should be treated as international waterways, but the territorial claims may restrict open access. It could open a sea route in northern parts of Canada, connecting the Pacific and Atlantic oceans in the summer months. It shortens paths and reduces transportation cost.

Both Russia and the United States have for long placed weapons, including Russian nuclear deterrence, in the Arctic region. Both also have significant surveillance systems in the region. Effectively, the Arctic is already militarised. The Arctic Military Environmental Cooperation (AMEC) agreement between Russia, the US and Norway did help decommission a significant number of former Soviet nuclear-powered submarines. The US also reduced the assets based in Alaska. Yet, control over the Arctic by many countries, especially the US and Russia, has begun a new Cold War. With the West and Russia drawn

into fresh showdown over Ukraine since 2014, the once cooperative approach has started breaking down.

As China grew into a significant power, it has been showing interest in the Arctic region. It has been building military and other capabilities to defend its interests in the region and has an aggressive Arctic policy. Denmark, backed by the US, refused China who offered to buy an old military base in Greenland, and build an international airport. China's Arctic forays are being monitored and challenged by the US. China released its official Arctic Policy paper in January 2018. It covers foreign relations with Arctic countries. China has interests in Arctic to create infrastructure for research, military, and other purposes. It wants to exploit resources. It has plans for a Polar Silk Road, through the Arctic, to help expedite global shipping delivery. China considers itself as a "Near-Arctic State" and a major stakeholder in the Arctic. While many Observer Nations consider themselves as "near-Arctic" nations, China claims to be a continental state that is closest to the Arctic Circle. As far back as 1925 China had become a signatory of Spitsbergen, later called the Svalbard Treaty. The treaty allows members to engage in certain amount of mining, while recognising Norway's sovereignty. They have set up a Polar Research Institute of China in Shanghai. They began Arctic expeditions in 1984. In 1996 China joined the International Arctic Science Committee. They have a series of research vessels, including the Chinese polar ice-breakers MV Xue Long. China built the Arctic Yellow River station in 2004. In 2018, the Shanghai-based COSCO Shipping Corporation Limited made eight transits through the Arctic between Europe and China. China insists that their one-fifth of the world's population must benefit from the Arctic resources. China spends more than the US on Arctic research. China's "Polar Silk Road" is a joint initiative with Russia and was launched in 2018. Russia has been operating nuclear-powered ice-breakers in the Arctic for some time. China is working towards becoming the second country to do so. Through the Arctic shipping route, the maritime shipping distance from Shanghai to Hamburg is around 7,000 kilometres shorter than the southern route through the Strait of Malacca and the Suez Canal.

India has had a permanent Arctic research station in Svalbard, Norway since July 2008. Named "Himadri", it is located within the International Arctic Research base, nearly 1,200 kilometres from the North Pole. The research is

centred on monitoring of the fjord dynamics, glaciers, space weather, and carbon recycling, among many others. India is also looking at genetics, glaciology, geology, pollution in the atmosphere, and space weather among other fields. It is estimated that the Arctic could be home to nearly 20 percent of the world's oil and natural gas. India is a growing major power. It would like to be a significant player of any power structure that evolves in the Arctic region. It would also like to be part of the economic exploitation. India's "ONGC Videsh" has been interested in investing in Russia's Arctic Liquefied natural gas projects. If India was to use the Arctic sea lanes for shipping, it could reduce voyage time considerably for some destinations.

Unlike Antarctica, which is uninhabited and administered by a treaty of 1959 that allows only peaceful activities, there is no such treaty covering the Arctic. The Arctic Council, set up in 1996 by the Ottawa declaration, is a grouping that looks into issues faced by the Arctic countries and the residents of the Arctic. The United States, Canada, Denmark, Iceland, Norway, Sweden, Finland, and Russia are the eight countries having territory within the Arctic Circle. All are members of this Council. The Council provides for countries with observer status. The Himalayas are often considered the "Third Pole" with commonality of elements with the Arctic and Antarctic. It was thus important for India to have a footprint in all three. In May 2013, India became the 11th country to become a permanent observer at the Arctic Council. In 2011, the Council clarified its criteria for admission of observers. The critical requirement was that the applicants must "recognise Arctic States' sovereignty, sovereign rights and jurisdiction in the Arctic" and "recognise that an extensive legal framework applies to the Arctic Ocean." In 2014, India also established an underwater moored observatory "IndARC" in the region with the purpose of finding linkages between the Arctic weather parameters and the south-west monsoon.

India released its Arctic policy in March 2022. It was titled "India and the Arctic: building a partnership for sustainable development". The policy enumerated India's interests in scientific research, climate and environmental issues, economic and resource prospects, sea connectivity, and having India's presence in the region. India is keen to explore the option of connecting with the Arctic through its already planned much shorter International North-South

Transport Corridor. Another option being explored is to have a Chennai-Vladivostok maritime corridor to reach closer to the Arctic.

This monograph, *The Changing Arctic and India's Strategy for the Circumpolar North* is the work of extensive research by two very experienced and respected scholars Dr. Ankita Dutta and Dr. Stuti Banerjee. The subject is very topical. The Arctic, still less charted, is where the global geopolitical action is unfolding. India is a rising global power and it must have its footprint in this resource-rich region. The monograph will make a great read for the uninitiated and for those who are watching India's global reach and status.

Air Marshal **Anil Chopra**
Director General
Centre for Air Power Studies

Abbreviations

AEPS	Arctic Environmental Protection Strategy
CHARS	Canadian High Arctic Research Station
CNARC	China-Nordic Arctic Research Centre
DSME	Daewoo Shipbuilding and Maritime Engineering
EEZs	Exclusive Economic Zones
GPS	Global Positioning System
GHGs	Greenhouse Gases
HFO	Heavy Fuel Oil
IPOs	Indigenous Peoples Organisations
IARC	International Arctic Research Center
IASC	International Arctic Science Committee
INSTC	International North-South Transport Corridor
NCPOR	National Centre for Polar and Ocean Research
NATO	North Atlantic Treaty Organisation
NSR	Northern Sea Route
NOW	Northwest Passage
OBOR	One Belt One Road
PLAN	People's Liberation Army Navy
SLOCs	Sea Lines of Communication
SDWG	Sustainable Development Working Group
UDWS	Unified Deep-Water System
UNCLOS	United Nations Convention on the Law of the Sea
USGS	US Geological Survey

1. Setting the Context

Climate change and the rapid decline in the ice-sheets in the Arctic have led to a growing interest in the political, economic, and social importance of the region. This has resulted in the region emerging as a new arena for geostrategic competition. The presence of resources such as oil and gas reserves, unexploited marine life and shorter shipping routes connecting two oceans—the Pacific and the Atlantic—presents an incredible opportunity to countries. This has resulted in the Arctic emerging from being the last frontier to a hotspot of major powers' geopolitical games. An ice-free Arctic would not only represent environmental degradation in the region, but would have a strategic impact at the global level as it would lead to a fundamental rearrangement of the High North.

It will not be wrong to say that the Arctic is changing in rapid and profound ways. The region is, according to several studies, warming twice as fast and is moving towards being seasonally ice-free instead of being permanently ice-covered. As the natural environment of the Arctic goes through a change, it will bring about a similar change in the strategic architecture of the region. Implications of these changes include rapid coastal erosion, increased greenhouse gas (GHG) emissions from melting permafrost, impact on monsoon pattern, loss of wildlife habitat, etc. Similarly, changes related to melting ice-caps have led to increased interests in the unexplored economic opportunities related to untapped resources such as oil and gas, and shipping.

These changes have an impact on various policy fields, including environment, economy and international security, thereby becoming a cross-cutting task of international politics. This has resulted in many States publishing respective Arctic strategies and integrating them in their foreign and domestic policies. These policies share several similarities but also opposing interests to engage in the Arctic—such as focus on maritime surveillance and situational awareness, joint and individual state missions to explore the region, and increased investment in survivable platforms. Where

there are differences, they are largely related to how to address actions that challenge established norms and international law. Apart from the individual strategies, the Arctic littoral States[1] cooperate through the Arctic Council. The Arctic Council was established in 1996, with an aim to address the need for sustainable development, environmental protection, and a stable social system (i.e., conservation of culture and traditions, and languages of the indigenous people of the High North) in the region.

As contemporary polar research is being relocated at the intersection of three dynamic disciplines—Geostrategy, Geo-economics and Climate Change—it has led nations to look at the region as an asset for future development. While there is a call to address the issue of climate change and preserve the Arctic environment, States are preparing for a no-ice or less-ice Arctic of the future. This has led many non-littoral States to formulate a comprehensive response or strategy for the region. To add complexity to the already complex geostrategic space, this region is also experiencing increased interest and competition from the States far beyond its proximity. This aspect has not been studied before and allows for new observations to be made on the strategic developments in the Arctic and to explore enhanced opportunities for engagement in the region.

In this regard, India's Draft Arctic Policy (2021) presents the blueprint of India's approach to the region. It is based on five pillars—"Science and Research; Economic and Human Development Cooperation; Transportation and Connectivity; Governance and International Cooperation; National Capacity Building". It lists a wide range of activities and initiatives to be taken through Action Plans encompassing scientific, economic and diplomatic fields. As India looks to increase its engagements with the Arctic, it becomes imperative to develop a deeper understanding of the region. The Arctic Policy, released in March 2022, further adds a pillar on Climate and Environmental Protection, with a specific focus on understanding the causative mechanism of warming Arctic and to predict the outcomes to formulate mitigation policies.

The objective of the study is to understand the changing dynamics of the Arctic region. The study will analyse the changes that are emerging in the region and how India is responding to it. The planned study looks at the strategies adopted by India and how it approaches the region. It is true that, scientifically, India has achieved substantial expertise and has considerable stakes in the

Arctic. The study seeks to look at how India aims to accommodate itself in the emerging geopolitics of the region and tries to project itself as a relevant player, through increased engagements with the Arctic Council, the various permanent participants within the Council and other civil society organisations. The study will also look at the growing importance of the Arctic for the non-littoral States and its impact on the dynamics in the Arctic region. This aspect has not been studied before and allows for new observations to be made on the strategic developments in the Arctic.

This paper is an attempt to understand the importance of the Arctic for India and how it can bring an Asian perspective to the discourse on the future of the Arctic. The following three sections will attempt to—first, place the Arctic region in terms of its resource wealth, major stakeholders, and how the region is governed. This section also makes a mention of the presence of Asian countries in the region and how they are viewing the changes. Second, analyse India's policy towards the region—what it has achieved and what it hopes to achieve through these policies. The section also looks at what are the key interests and concerns. Third, provide the concluding thoughts on the study and recommendations as the way forward.

Note

1. Arctic Littoral States—Canada, United States, Russia, Iceland, Denmark, Sweden, Finland, and Norway—together they are also called Arctic 8.

2. The Arctic Imperatives—Exploring the Region

The Arctic is not one homogenous area, rather it comprises different regions with varied political, economic and social structures resulting in the region playing very different roles in the domestic and foreign policies of the littoral States.[1] The eight littoral Arctic States are Canada, Denmark, Greenland, Finland, Norway, Sweden, the Russian Federation and the United States. These States have territories within the Arctic and their national jurisdictions and international law govern the lands surrounding the Arctic Ocean and its waters. Unlike Antarctica, the Arctic is not governed by an international legal framework that makes it a global common. The legal treaties that govern the Arctic region are national laws of the littorals and international agreements such as the Svalbard Treaty of 1920 and the United Nations Convention on the Law of the Sea (UNCLOS) of 1982.

The Arctic is largely viewed as a desolate harsh place with minimum life. Nonetheless, archaeologists and anthropologists, who have studied the evolution and migration of early humans, have found evidence that the Arctic has had human presence since the Ice Age or for close to 30,000 years—providing the vital land link between the continent of Europe and North America. It has also been hypothesised that migration of early humans from the Arctic region populated Central Asia, Persia and parts of South Asia.[2] While little is known of the first humans who called the Arctic their home, "today close to 4 million people live in the Arctic and approximately 500,000 are indigenous peoples."[3]

Similarly, the Arctic has attracted travellers and explorers. "The first European marine explorer to travel to the Arctic was the Greek Pytheas, in 330 BC." In AD 1000, the Vikings, in an effort to expand their domain, set sail to the Arctic and conquered Greenland, Alaska and Canada. They established their colonies to develop new routes for trade and acquire more land for their growing population. In modern times, the need to build economic connections led to

Figure 1: Map of the Arctic

Source: https://www.arctic-council.org/resources/

search for sea routes through the region which spurred maritime exploration such as the route from the Atlantic to the Pacific Ocean through the Northwest Passage along the Arctic.

Resource Wealth of the Arctic

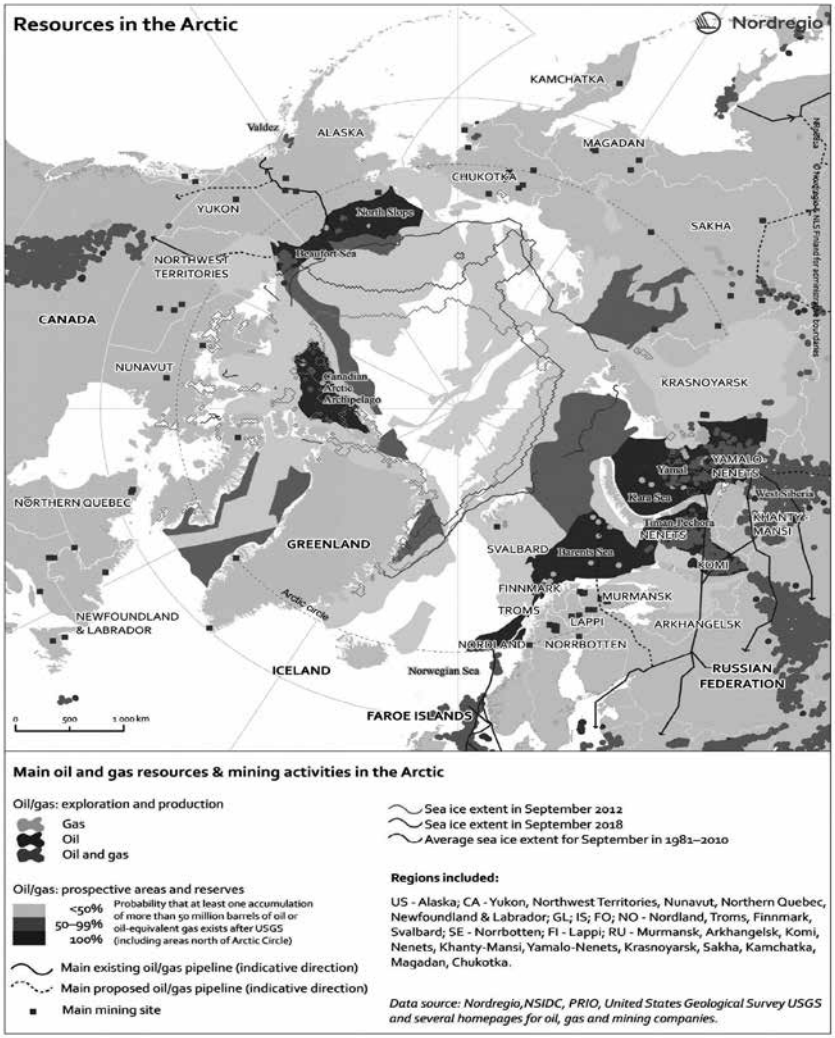
The Arctic has emerged as a geopolitical space of importance primarily due to two factors: first, is the impact of climate change; and second, the scramble for its resources. While accessing those reserves seemed impossible at one point

of time, the melting of ice caps has resulted in the opening of new shipping lanes, making it more feasible for countries to access these resources. Moreover, with the rise in temperature resulting in shrinking of ice caps, the issues related to the ownership of these vast resources is also quickly gaining salience in the international agenda. As countries push for geopolitical advantage in the region, both in terms of strategy and economics, a brief overview of the resources in the Arctic needs to be explored.

The main regions in the Arctic for oil and gas exploitation are the Beaufort Sea (North Slope, Alaska and Mackenzie Delta, Canada), the northwest part of the Russian Arctic (Barents Sea and West Siberia) and the Canadian Arctic Archipelago (Nunavut). Since the US Geological Survey (USGS) of 2008 on the oil and gas resources in the Arctic, these untapped resources have been attracting increasing international attention. According to rough estimates, "the area north of the Arctic Circle is expected to store recoverable reserves of 90 billion barrels of oil, 1,670 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquids—which constitute approximately 16 percent, 30 percent, and 26 percent of the world's undiscovered hydrocarbon resources respectively".[4] According to Russia's Ministry of Natural Resources, the Arctic territory claimed by Russia could be home to twice the volume of Saudi Arabia's oil reserves. Russia's Arctic hydrocarbon resources are estimated to be "13 billion tons of oil and about 86 trillion cubic metres of gas. However, only a small portion of this huge volume is currently categorized as reserves (1/20 of the oil resources and 1/8 of the gas resources)".[5] It is also estimated that some metallic and non-metallic minerals as well as coal resources can be found in the Arctic.

While the access to these resources is a recent phenomenon, it is fraught with twin challenges of exploration and transportation. The resource extraction and exploration are highly dependent on technical capacities of the nation states which is further compounded by unpredictable environmental conditions. Difficult exploration conditions combined with the transportation of the resources, navigating the harsh terrain, enhanced Search and Rescue capabilities along with effective management of oil spills, etc., can lead to higher costs of extraction and transportation. High economic costs, along with high demand for environmental protection are decisive factors for the exploitation of Arctic resources.[6]

Figure 2: Map of Resources in the Arctic



Source: https://nordregio.org/maps/resources-in-the-arctic-2019/

Key Players in the Region

Given the increasing geostrategic relevance of the area and that this region has played a critical role in their strategic outlook, the littoral States have outlined and defined their national priorities and policy objectives in the Arctic. Not only

these States, as a response of a growing global strategic importance of the Arctic region, non-Arctic States in Asia—such as Japan and South Korea—have also presented their vision for the region. This section presents a brief overview of the Arctic policies of the key players in the region.

The United States

As one of the eight nations that have both citizens and territory in the Arctic, the United States has a number of national policies that ensure that it remains not only engaged but also invested in the Arctic in order to serve its citizens and protect their interests. Keeping in view the changes in geopolitical and strategic interests of nations of the Arctic Council, the United States Arctic policy has laid stress on understanding the environment, building awareness, enhancing preparedness and strengthening the rules-based order in the Arctic. The Office of Ocean and Polar Affairs, under the Department of State, develops and implements the United States foreign policy related to the Arctic region.

American interests in the Arctic are not new. The region has been of interest for polar research and to investigate the future trajectory of environmental impact in both the Polar Region and the global ecosystems. The effort has been to build scientific expertise in the study of the region while also identifying challenges and opportunities for the economic benefit and the well-being of Arctic inhabitants. The National Strategy for the Arctic Region 2013 highlighted the need for involving the indigenous population in the development of the region and protecting American interests. These interests align with similar views that have been expressed by India over the years and mentioned in its draft policy document and the Arctic policy as well.

Similarly, in the economic sphere too, there is ample room for cooperation. The United States is studying the viability of exploiting the Arctic mineral wealth. India and the United States could collaborate on development of infrastructure in the region. As strategic partners that are committed to development projects, the Arctic could become a new region of cooperation. The other resource which can be mutually explored is the large-scale harvesting of mammals and fishes, which is expected to grow with global warming. With a change in global diet, leaning more towards seafood, the fisheries industry is looking at a boost. India

could explore the possibility of export of bio-maritime resources from the United States.

Canada

The Arctic is central to the identity of Canada, "with the Canadian Arctic covering nearly 40 percent of Canada's territory, 162,000 kilometres (approximately 101,000 miles) and is home to more than 200,000 people, a majority of whom are indigenous to the region. Canada, in September 2019, released its "Arctic and Northern Policy Framework", presenting the Government's priorities, activities, and investments in the Arctic till 2030. The document is a step in involving all the stakeholders in the region in policymaking. It states that the new northern strategies would include collaborations between the government, the indigenous and northern region populations and organisations working towards the preservation of the Arctic to address the challenges and harness emerging opportunities.

Canada has focused on the need to develop an Arctic policy that stresses upon the involvement of the people of the region. The policy takes an inclusive approach in which Canada is hoping to bridge its national and international priorities with respect to the Arctic region. In fact, the policy framework includes the views and aspirations of the indigenous communities while understanding the sectors for new investments and approaches for economic development. Canada believes that the economic development of the circumpolar Arctic would be beneficial equally to the people in their need for better infrastructures for health, education, and transportation, among other demands. Canada's Arctic capabilities are being expanded through enhanced scientific understanding, sustainable resource development and Arctic maritime readiness. Commercial opportunities are being utilised to advance expertise in areas such as clean technology and renewable energy solutions, earth observation technologies and services.

Regarding international cooperation, Canada has laid emphasis on the role of the Arctic Council. For Canada, the Arctic Council is the pre-eminent forum for Arctic cooperation. While Canada has a history of bilateral cooperation with Arctic States to address Arctic-related issues, cooperation with non-Arctic States is a new policy endeavour. Canada endeavours to strengthen the rules-

based international order in the Arctic, which has already helped ensure the region remains peaceful and stable.

Russia

Since imperial times, Russia has undertaken various expeditions to explore and discover the Arctic region, which has become central to its global strategy over the years. The Arctic offers access to the Atlantic, with further openings to the Pacific, while helping strengthen its economy.

In 2001, Russia drafted a document on the Arctic titled, "Foundations of the State Policy of the Russian Federation in the Arctic", outlining its national interests and main strategies in the Arctic. The 2001 Arctic policy was refined in 2004, and then again in 2020. In the document, Russia laid down four broad objectives for the Arctic: "first, the use of the Arctic zone as a strategic resource base for providing solutions to socio-economic problems; second, maintenance of the Arctic as a zone of peace and cooperation; third, preservation of unique ecological systems of the Arctic; and fourth, use of the Northern Sea Route (NSR) as a national single transport route in the Arctic".[7]

Keeping the focus on regional and local governments' role in development of the Arctic, Russia in 2014, further updated in 2017, adopted a programme titled "Socioeconomic Development of the Russian Arctic Zone up to 2020". This programme included the creation and development of the core development zones; development of the NSR; and to increase Arctic navigation and development of equipment and technologies for hydrocarbons and other mineral deposits in the Russian Arctic. The country's latest Maritime Policy, released in July 2022, further lays emphasis on the Arctic. The region has been identified as a critical "regional direction" in the policy. The policy document identifies the strategic and geopolitical relevance of the region and identifies that the Arctic has a "conflict potential" due to increasing number of foreign navies. It calls for "the development of the Arctic zone of the Russian Federation as a strategic resource base and its rational use, including the full-scale development of the continental shelf of the Russian Federation outside the 200-mile exclusive economic zone of the Russian Federation; extensive development of natural resources, primarily fuel and energy; improvement of the navigation management system in the water area. It further lays emphasis on development

of the Northern Sea Route as a national transport communication, competitive in the world market."[8]

Iceland

Iceland's interests in the Arctic have always been shaped by its geographical position and access to natural resources. While Iceland does not have a detailed Arctic strategy, it approved a parliamentary set of Arctic policy guidelines, "Parliamentary Resolution on Iceland's Arctic Policy" in 2011. The resolution highlighted twelve priorities for Iceland: first, promotion of Arctic Council as the primary body for the Arctic issues; second, to be accepted and respected as a littoral state in the Arctic based on the fact that the "northern part of the Icelandic EEZ falls within the Arctic and extends to the Greenland Sea adjoining the Arctic Ocean"; third, to promote the geographical understanding of the Arctic region which extends to both the North Pole and to the parts of North Atlantic Ocean. The idea is to promote the norms that the Arctic is not a "narrow geographical definition"; fourth, to resolve the differences related to the Arctic on the basis of UNCLOS; fifth, enhance cooperation with the Faroe Islands and Greenland to "promote interests and political positions of the three countries"; sixth, to support the rights of the indigenous people and support their direct involvement on regional issues; seventh, to promote active cooperation between the state and stakeholders on the issues related to the Arctic; eighth, prevent environmental disasters and mitigate the impact of climate change to improve the well-being of Arctic inhabitants, and support the rights of the indigenous peoples and their inclusion in decision-making processes. The policy emphasises on using all means necessary to fight climate change; ninth, to safeguard its security interests in the region and to "work against any kind of militarisation of the Arctic"; tenth, to develop trade relations between the States in the Arctic, thereby increasing economic activity; eleventh, to advance Icelandic Arctic knowledge and to promote discussions and research on the issues related to the region; and twelfth, to promote discussions on the domestic level on Arctic issues. Apart from the two priorities that stress on Greenland's EEZ and strengthening bilateral relations, India and Iceland policy outlooks finds convergence on all priority areas.

Iceland, during its Chairmanship of the Arctic Council for 2019-2021, had the following priorities: first, Arctic Marine Environment where the issue of plastic pollution in the Arctic marine ecosystem was central, where the Arctic Council will prepare a Regional Action Plan to reduce marine litter; second, Climate and Green Energy Solutions where the member States will take stronger actions to address climate change with respect to their national policies and international commitments; third, People and Communities of the Arctic, as these communities are already facing challenges resulting from climate change, there is a need to find sustainable solutions and strengthen resilience and facilitate adaptations. These are areas in which India and Iceland could continue to collaborate in the future.

Sweden

In its formal Arctic policy adopted in 2011 which was further updated in 2016, Sweden identified three regional priorities: protecting the climate and environment, protecting local populations, and fostering economic development. With regard to the environment, Sweden is working towards reduction of GHG emission, it advocates sustainable maintenance of biodiversity and to engage multilaterally on dialogues related to climate change and environment.

Economically, Sweden, while holding the view that increased activities in the region should be socially, economically and environmentally sustainable, has found opportunities in sectors including resource exploration, tourism, infrastructure development, etc. Finally, it has focused on the living conditions of the indigenous population of the region, in terms of health, education, impact of climate change on the communities, survival and development of indigenous culture, language and traditions. Both India and Sweden share the view that promoting international cooperation and adherence to international law are important in achieving the said goals.

Sweden and India have also prioritised the need for environmental protection of the Arctic by emphasising the need for the Arctic Council to put forward concrete measures in terms of emission cuts, renewable energy, etc. The government of Sweden stated that it supports various initiatives put in place by the Arctic Council and the UN to create a "balance between conservation and exploitation of biodiversity." India's Arctic policy's cornerstone is sustainable

development, while Sweden has also stressed on sustainable use of resources, as substantial proportions of oil and natural gas resources are present in the region. With the changing climatic conditions, Sweden believes that "management should be informed by decisions made on scientific grounds, with a long-term perspective, and should seek to ensure that adverse effects on marine ecosystems are minimised."

Finland

Finland articulated its primary concerns, through its 2013 Arctic policy, as economic/business interests, environmental concerns, and the interests of local residents. Economically, Finland aims to take advantage of new emerging business opportunities in sectors like energy, maritime and shipping industry, renewable natural resources, etc. In terms of the environment, Finland wants to study climate change and its consequences for the region, assess the risks that are associated with human action, and find ways to prevent pollution.

To protect the interests of the local residents, the strategy focuses on improving living conditions of its citizens with emphasis placed on their working environment, health and mobility. Special attention is given to the rights of indigenous peoples to participate in the Arctic decision-making processes as well as on the preservation of their culture and languages. In terms of security, Finland aims to promote security and stability through international cooperation. The priorities were updated in 2016 keeping in view the significant changes in the Arctic. Four new priorities were identified: first, for the Arctic Foreign and the EU policy with a view to enhancing bilateral Arctic partnerships and synergising the Arctic and Nordic matters; second, for sustainable tourism to spearhead the marketing of international tourism in the region; third, to create Arctic expertise and business opportunities and benefiting from them; fourth, infrastructural development in the region.

As a whole, both India and Finland aim to strengthen environmental protection and security policy stability in the region and to promote sustainable development. Together they can achieve this goal by becoming a provider of solutions to problems by utilising its expertise on sustainable development.

Denmark

The Arctic has become a strategic issue for Denmark in the past decade. Released in 2011, its Arctic policy, "Strategy for the Arctic 2011-2020" emphasised a peaceful, secure and safe Arctic. It focuses on self-sustaining growth and development with respect to the region's vulnerable climate, environment and nature, and close cooperation with international partners. The strategy recognises changes in the region and the potential implications of climate change, technological developments and availability of economic resources. The strategy stands on four major pillars: first, a peaceful, secure and safe Arctic, as there is a growing interest in the Arctic; the focus of Denmark is on abiding by international laws and establishing forums of cooperation for conflict resolution and enhanced cooperation. Second, is self-sustaining growth and development of the region. Third, is the development with respect for the Arctic's vulnerable climate, environment and nature so as to understand the impact of climate change and its consequences on the Arctic. Fourth, is close cooperation with its international partners, the strategy prioritises global cooperation with special focus on environment, climate change, stricter maritime rules and prioritisation of indigenous peoples' rights. It also envisages a closely coordinated Arctic Council and an active role for the EU in the region. With similarity in policy vision, India and Denmark have a number of areas where they can cooperate with each other to develop the Arctic through sustainable means.

Norway

Norway has the most comprehensive Arctic policy in the Nordic region which has been developed and updated since the end of the Cold War. The Government of Norway published its High North Strategy in 2006 identifying seven goals and priorities for the Arctic which found resonance in the later policies (2011, 2014 and 2017) as well. The goals were: first, to exercise authority in a credible, consistent and predictable way by maintaining a presence through its military, police forces and prosecuting authorities. Second, to be at the forefront of international efforts to develop a knowledge base—as an Arctic nation, it is crucial for Norway to acquire knowledge of the region so as to meet the future challenges related to climate change, maritime transport, etc. Third, to be the steward of the environment and natural resources—this is to

promote sustainable use of resources and setting strict environmental standards and legislation. Fourth, provide a sustainable framework for development of petroleum resources in the Barents Sea. Fifth, is protecting the livelihoods, traditions and cultures of the indigenous people. This is to be achieved by integrating resource management and protection of the natural resource base used by the indigenous population. Sixth, extending from the fifth priority is the aim of the government to enhance the people-to-people dimension. Under this priority areas identified are health, education, culture, sports, youth and volunteer activities. Seventh, strengthen cooperation with Russia so as to maintain close bilateral relations and formulate common policies for common problems. The later policies of the government have largely been the extension of the guidelines presented in 2006 and highlight Norway's vision of an Arctic which is economically, environmentally and socially sustainable.

India and Norway have close cooperation in the Arctic since India started its scientific engagement with the region. Based on this foundation, the two nations have continued to work with each other. As the policy documents show, the two have similar priority areas which include sustainable development, acceptance of the principles of the Law of the Sea and increased cooperation among nations.

Asian Countries

In the past few years, several Asian countries have become interested in the Arctic region. So far, three Asian countries have put forth their respective Arctic policies—China, South Korea, and Japan. While the Arctic policy of China is discussed separately due to its differing priorities and ambitions, the section will analyse the overlapping priorities of India, South Korea and Japan.

Both South Korea and Japan boast a robust outlook towards the region which looks at both the strategic and economic dynamics of the Arctic. South Korea released its Pan-Government Arctic Policy Master Plan in 2013, becoming the first Asian country to release an official Arctic policy. In the document, one of the main goals is to build an Arctic partnership that contributes effectively to the international community. As for Japan, it became a co-sponsor of the International Arctic Research Center (IARC) at the University of Alaska in 1998. The Centre enables researchers to carry out joint research programmes to build an integrated understanding of the Arctic.

Following are key reasons for their increasing interest in the Arctic: first, is the need to enhance scientific knowledge and research in the Arctic. Under its Master Plan, South Korea has placed emphasis on enhancing its scientific and technological research capacity, and to support scientific researches across the Arctic Station, and build on the science infrastructure in the region. Moreover, these States have established themselves scientifically by opening research stations on Svalbard and by conducting scientific expeditions in the Arctic Ocean. Second, with the melting of the sea ice, the opening of the sea lanes may bring these countries closer to the world and may help them provide alternative sea routes as compared to the congested routes along the Malacca. These countries are keen to capitalise on the gains achieved in navigating the NSR for the transportation of its energy resources. Japanese policy documents have also acknowledged the need for enhanced research and development of Arctic shipping. It is felt that as the region opens up for commercial traffic, Japan could provide shipping and related expertise here. While South Korea is interested in facilitating the development of Arctic technologies and the requirement of special vessels like ice-breakers and fuel ships, industries like Hyundai Heavy Industries, Daewoo Shipbuilding and Maritime Engineering (DSME), etc., have been at the forefront of innovation and development. This is one area that India is interested in exploring and can collaborate. Third, is the economic aspect as these countries are highly resource-dependent nations. As the Arctic presents untapped opportunities in terms of oil and gas exploration, these countries are keen to capitalise on the situation to gain access to the region. Within this, Russia has emerged as a preferred partner with all the three nations cooperating in different capacities to import oil from the Russian Arctic.

Road to Governing the Arctic

The Second World War transformed the importance of the Arctic as the route that linked the Allied powers. It was the shortest and most direct route for the supply of key reinforcements for Allied forces fighting on the continent. Despite the difficult terrain, the area became an important theatre in the war, with Germany using its submarines to block this route. The war highlighted the military importance of the Arctic, and as the Cold War progressed, the Arctic witnessed increased militarisation. The Soviet Northern Fleet was established to

support the Soviet ground forces protecting the nation's northwestern borders and the Arctic Sea routes. Along with the overt military build-up, the Arctic region also saw covert espionage activities and the conduct of nuclear tests.[9]

In an effort to move beyond the security prism and focus on the political, economic and social interests of the Arctic, the countries of the region took the initiative to establish the Arctic Council. The foundations of this framework for international cooperation to address common issues such as environmental protection and sustainable development can be traced to a speech by then Soviet Secretary General Mikhail Gorbachev in Murmansk in 1987. Popularly known as the Murmansk Initiative, the speech outlined a number of policy initiatives that bound together a range of security, economic and environmental issues in one unified package. In his speech, Gorbachev stated that, "the Soviet Union was in favour of radically lowering the level of military confrontation. Let the North of the globe, the Arctic, become a *zone of peace*."[10] (Emphasis added)

This was followed by an initiative in 1989 when officials from the eight Arctic countries[11] met in Rovaniemi to discuss the cooperative measures to safeguard the Arctic environment. During this meeting, a proposal was initiated regarding the Arctic Environmental Protection Strategy (AEPS) which was aimed at addressing concerns regarding the environmental degradation in the Far North and trans-boundary pollution problems. This initiative was agreed by the Arctic States in 1991. Under the Rovaniemi Declaration, the objectives were defined as: "protection of the Arctic ecosystem, including humans; protection, enhancement and restoration of environmental quality and the sustainable use of natural resources, including by indigenous populations; recognise and as far as possible seek to accommodate the self-determined traditional and cultural needs, values and practices of the Arctic indigenous population related to protection of environment; review regularly the state of the Arctic environment; and identify, reduce and as a final goal eliminate pollution."[12]

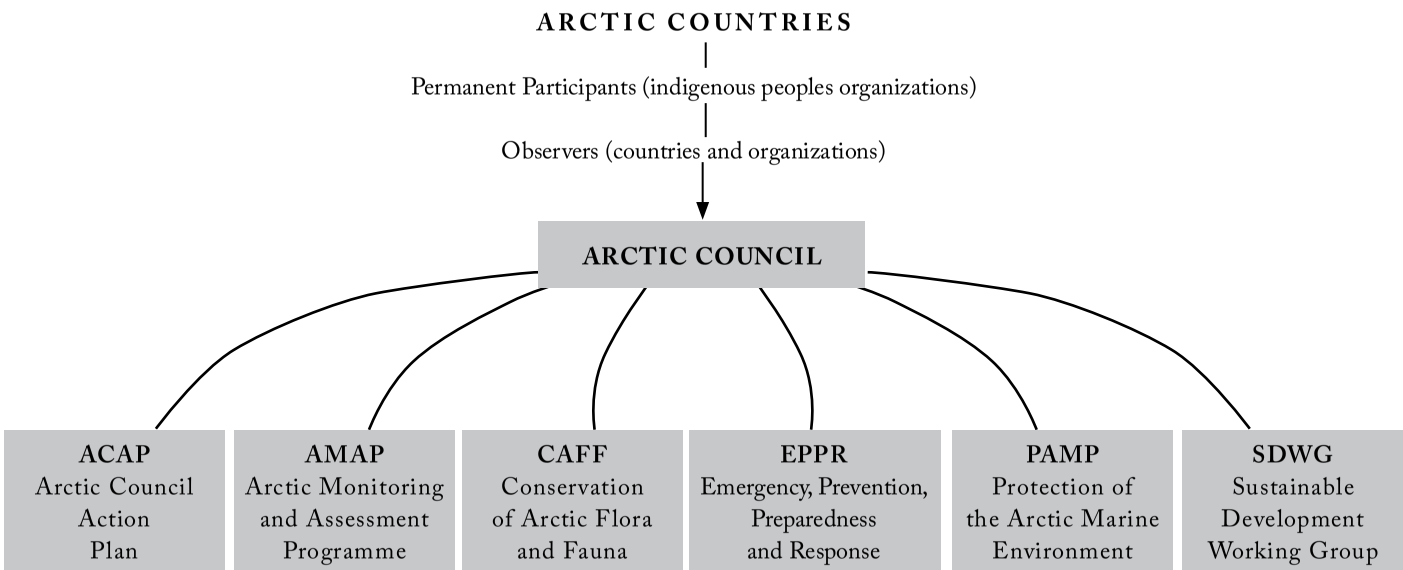
In the same year, Canada made a proposal for a wider multilateral framework for Arctic cooperation, which in 1996 took the form of the Arctic Council and integrated the mandate of AEPS. The Declaration on the establishment of the Arctic Council was signed in Ottawa on September 19, 1996 by the Arctic countries. The structure of the Arctic Council includes three categories of participants—States, Permanent Participants and Observer States. Each of the

eight Arctic States appoints a Senior Arctic Official, who meet every six months and direct the work of the Council. The Arctic Council's primary objective is to promote environmental protection which follows from the mandate of AEPS and addresses environmental issues like multilateral responses to pollution. The Arctic Council, initially, began with four working groups to address the various facets of the environmental protection, these are: "(a) Arctic Monitoring and Assessment Programme, (b) Conservation of Arctic Flora and Fauna, (c) Emergency Preparedness and Response, and (d) Protection of Arctic Marine Environment."

To take concrete steps towards the sustainable development of the region, Sustainable Development Working Group (SDWG) was established as the fifth working group during Iqaluit meeting of 1998. The goal of the SDWG was to "propose and adopt steps to be taken by the Arctic States to advance sustainable development in the Arctic. This includes pursuing opportunities to protect and enhance the environment and the economies, culture and health of indigenous peoples and Arctic communities. The guiding tenet for the work of the SDWG is to pursue initiatives that provide practical knowledge and contribute to building the capacity of indigenous peoples and Arctic communities to respond to the challenges and benefits from the opportunities in the Arctic region."[13] Similarly, Arctic Contaminant Action Programme was originally formulated to address the pollution sources which were identified through Arctic Monitoring and Assessment Programme. It became the Council's sixth working group in 2006 to "strengthen and support mechanism to encourage national actions to reduce emissions and other pollutants."[14]

A key area of priority for the Arctic Council is the inclusion of indigenous population in the forum. The indigenous people living in the region play a significant role in the Arctic and are represented as Permanent Participants of the Council. The Ottawa Declaration recognised the "...role of traditional knowledge of Indigenous people in the collective understanding of the circumpolar Arctic and committed to the well-being of the inhabitants of the region". The Council began with three Indigenous Peoples Organisations (IPOs) representing "Inuit (Inuit Circumpolar Council), Saami (Saami Council) and Russian indigenous people (Russian Association of Indigenous Peoples of the North, RAIPON)". At present, the number of the IPOs is six with Aleut International Association

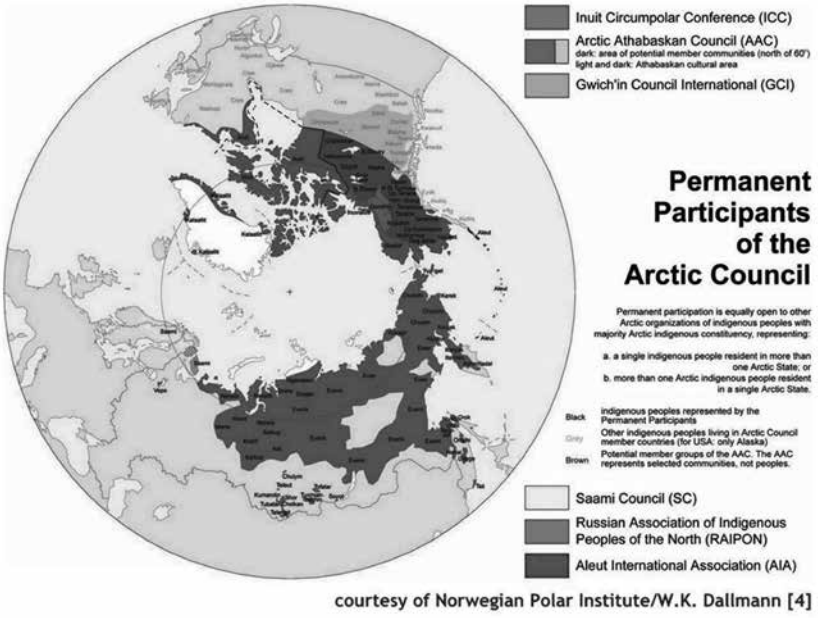
Figure 3: Structure of Arctic Council



Source: Arctic Monitoring and Assessment Programme, Arctic Council, at https://www.amap.no/about/organisational-structure

joining in 1998, and the Arctic Athabaskan Council and Gwich'in Council International joining in 2000. Although the decision making in the Council is based on the consensus between the member States, these organisations participate in all aspects of the Council's work in a manner as the member States.

Figure 4: Permanent Participants of the Arctic Council



Source: CPCML, at http://cpcml.ca/Tmlw2019/Articles/W490129.HTM

Since it was launched, the Council has become the most important intergovernmental forum for the Arctic. It has become a vital mechanism through which the eight Arctic States collaborate with each other. It also provides the space for the active participation of a diverse and growing group of Observers and Arctic Indigenous Peoples. The Council is a forum for negotiations and collaboration on environmental, ecological and social projects for the Arctic nations. The key to the success of the Arctic Council lies in the role it has played in not only identifying emerging issues, but also placing them before policymakers and making them a priority in policy agenda—it has emerged as a "producer of influential scientific assessments; mechanism for bringing to

prominence the concerns of the Arctic's indigenous peoples, and has provided a platform for the development of international initiatives such as the agreement on search and rescue in the Arctic signed at the Nuuk Ministerial Meeting in May 2011."[15]

Scientific research in the Arctic region is a focus of cooperation among the Arctic nations with the Arctic Council beginning to work towards an institutional arrangement on improving scientific research cooperation in 2013. In May 2017, the eight Arctic States signed the "Agreement on Enhancing International Arctic Scientific Cooperation" in Fairbanks, Alaska. The agreement came into force in 2018 and provides support for Arctic scientific activities, such as open access to scientific data and research areas for marine and airborne data collection, encouraging the holders of traditional and local knowledge to participate in scientific activities, and promoting education and career development for students and early career scientists.[16]

As the Arctic Council also includes 13 Observer States, 13 Intergovernmental and Inter-parliamentary organisations and 12 Non-Governmental Organisations as Observers, they are also invited to the meetings of the Council and are expected to contribute through their engagements at all levels. India became an Observer State to the Arctic Council in 2013. With its re-election to the Council in 2019, New Delhi continues to work within the global organisation's role in promoting stability in the polar region.

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3. India and the Arctic

Indian engagement in the Arctic region can be traced back to the 1920s when, as part of the British Empire, it signed the Treaty of Svalbard with Norway, Denmark, France, Italy, Japan, the Netherlands, the USA and Sweden, concerning the sovereignty of Norway over the Archipelago of Spitsbergen.[1] Since then, India has come a long way in taking steps to engage with the Arctic. Apart from establishing scientific expeditions it has become an Observer State in the Arctic Council, a step that has not only helped in expanding its political engagements with the Arctic nations but also to work with the various non-State actors who play an important role in Arctic governance, such as the indigenous communities.

As the Arctic becomes a geostrategic and environmental hotspot, India has understood the need to not only build its own expertise on the Arctic but contribute meaningfully to the debates on the region. Keeping in mind the flux in the international system which has led to a renewed interest in the Arctic, the importance of the region for India's own future needs, on the one hand and the growing role of other Asian countries in the region, on the other, has prompted New Delhi to articulate its own interests. With a view to understanding the Arctic and presenting its own vision for the region, India in January 2021 released its draft policy on the Arctic titled, "India's Arctic Policy: Road for Sustainable Engagement".

With no territory that falls in the Arctic, many have questioned the need for India to engage in the region. The policy document underscored the importance of the Arctic for India by pointing out that, "India is particularly impacted due to the likely effect of these changes [in the Arctic] on critical aspects of national development, economic security, water security and sustainability, weather conditions and monsoon patterns, coastal erosion and glacial melting…A good monsoon is critical for India's food security and the wellbeing of its vast rural

sector. Changes in the Arctic and global ecosystem induced by melting Arctic ice, can thus be highly disruptive for India."[2]

The release of the document came at a pivotal time and can be placed in the context of three broad themes in international politics. First, India is an emerging power with considerable political, economic, military and soft power, prompting the necessity to understand how this potential great power behaves in global affairs. As mentioned before, the Arctic is emerging as part of the international geopolitical agenda. The region is being discussed with a view to its future economic potential, irreversible effects of climate change, sustainable development, the rights of the indigenous communities to protect their way of life and the growing military presence. As an emerging power with great power ambitions, it is only imperative that India take an interest in global affairs, which includes the Arctic.

Second, it cannot be denied that both India and China have been vying for enhanced international economic and political presence. In the past few years, China has steadily increased its efforts to engage with the Arctic. In its Arctic policy, China refers to itself as a "near Arctic nation", and has made diplomatic overtures to the Arctic nations, and is now heavily invested in many development projects across the Arctic, notably in Greenland, Norway and Russia. In this context of geopolitical competition, as a country that aims to have global influence, a policy outlining India's vision for the Arctic highlights its interest and engagements with the region.

Third, as an observer state in the Arctic Council, India was one of the few countries that did not have a published Arctic Policy. The document helps the other nations understand India's position and increase collaborative engagements in the region. The policy is a welcome sign of the growing awareness and increasing strategic relevance of the Polar Regions—the Arctic and the Antarctica—to India's national interests and security. Formulating the larger and future objectives and perspectives through a policy document will not only help navigate the country's policy to the Arctic but also projects the approach it would adopt for the region.

This was followed by the release of India's first Arctic Policy titled "India's Arctic Policy: Building a Partnership for Sustainable Development"[3] in March 2022. The policy follows from the Draft Policy of 2021 and goes on to define

India's Arctic Mission as fivefold: first, to enhance India's cooperation with the region; second, harmonise the polar research with the third Pole, i.e., the Himalayas; third, contribute to enhance humankind's understanding of the region; fourth, strengthen international efforts to combat climate change; and fifth, to advance study and understanding of the Arctic within India.

The policy recognises the increasing opportunities in the region due to melting ice such as energy exploration, mining, food security and shipping. The policy hopes to contribute as a way forward for India to ensure that the resource exploration in the region is done sustainably and in consonance with the international best practices. The interesting aspect of the policy is recognition of the synergies between the polar studies and Himalayas. As India has vast experience in scientific research in Antarctica and the Third Pole, this experience can help India's own scientific community to better understand the changes in the Arctic and enhance the knowledge base for the three poles. The following sections will look at India's interest in the Arctic and the policies that it has put in place to realise these interests. The section also analyses some of the concerns for India in the region.

Indian Interests in the Arctic

India's engagement with the Arctic has emerged to be multipronged and multidimensional. From a modest station at Svalbard, India has come a long way to establish itself as a credible actor in the region. While the policies are a recent addition to India's outlook to the region, New Delhi's interests in the Arctic can be broadly identified in three interlinked aspects: these are scientific, political and strategic.

Scientific Footprints in the Arctic

After signing the Svalbard agreement, India has made several efforts in the direction of scientific exploration and research. India started its polar research programme in 1981 with an expedition to the Antarctic. As it gained success and confidence, India sent out its first Arctic expedition in 2007 to study bacterial life and measure environmental changes in the Arctic. By doing so, the scientists also hoped to establish a link between the Arctic region and India. The importance of study of the Polar Regions was highlighted by Kapil Sibal,

the then Minister of Science and Technology and Earth Sciences. In December 2008, shortly after India had opened its research base in Ny-Ålesund, he expressed that, "Polar Regions offer an exceptional environment to study the natural processes operating on the earth, which cannot be recreated on main land. The research on microbial-diversity, climate change processes are going to have a large impact on our existence. Any investment in polar research is therefore essential for answering fundamental questions that are linked to human survival itself."[4] This established the rationale for India's polar research programme which had expanded to include the Arctic.

India initiated its Arctic Programme in 2007 with four broad aims: "first, to study the hypothesised tele-connections between the Arctic climate and the Indian monsoon by analysing the sediment and ice core records from the Arctic glaciers and the Arctic Ocean; second, to characterise sea-ice in the Arctic using satellite data to estimate the effect of global warming in the northern Polar Region; third, to conduct research on the dynamics and mass budget of the Arctic glaciers focusing on the effect of glaciers on sea-level change; and fourth, to carry out a comprehensive assessment of the flora and fauna of the Arctic vis-à-vis their response to anthropogenic activities. In addition, it proposed to undertake a comparative study of the life forms from both the Polar Regions."[5]

India sent its first scientific expedition to the Arctic Ocean in 2007 which was followed by the establishment of the research station "Himadri" at Ny-Ålesund, Svalbard, Norway in 2008. This marked the beginning of long-term scientific research in disciplines like atmospheric science, biological science and glaciology by Indian scientists in the Polar Region. In 2014, India established a new facility called "IndARC" at Kongsfjorden which was its first multi-sensor moored observatory to undertake studies and collect real-time data on the Arctic climate and its impact on the monsoon. The establishment of this facility highlights the vision of India-Norway scientific and technical cooperation to study Arctic and climate change. Another key atmospheric laboratory was established in 2016 at Gruvebadet in Ny-Ålesund. The aim of this laboratory is to focus its study on clouds, precipitation, long-range pollutants, and other background atmospheric parameters. India is also a member of International Arctic Science Committee (IASC), a non-governmental organisation which

facilitates and advocates cooperative research between all countries active in Arctic research.

With the ability to influence global weather patterns, the Arctic remains important for the Indian weather system. While sea ice exists primarily in the polar regions, it influences the global climate. India is likely to feel the effect of these climatic changes on critical aspects such as national development, economic security, water security and sustainability, weather conditions and monsoon patterns, coastal erosion and glacial melting.

The monsoon is the lifeline of agriculture in the Indian subcontinent, supporting the livelihood of millions and linked to the food and nutritional security of the country. "So far, the Indian summer monsoon has been known to be influenced by the North Atlantic Oscillation and the Southern Oscillation, two wind patterns that also interact with each other. Along with these scientists are now studying the Arctic Oscillation in forecasting Indian summer monsoon. The summer monsoon contributes more than 80 percent of Indian rainfall. The accuracy of these forecasts impacts India's vast farm sector as well as the overall Indian economy, and 17 percent of the world's population."[6]

Coastal erosion is another consequence of climate change. As the sea levels rise, along with increased storm frequency, the Arctic coastline is being gradually eroded, posing threat to the communities near the region. This coastal erosion may force entire towns to relocate, and is already necessitating numerous other coastal management projects. Similar challenges as a result of sea level rise will affect countries like India that have a long coastline. India's coastline is 7,516.6 km long, which is home to close to 171 million people who represent 14.2 percent of the population which are on the frontline of the impact of climate change.[7] Between 1990 and 2016, India lost 235 square kilometres of land to coastal erosion, resulting in massive disruption to livelihoods and internal movement of the population. The latest example of this was Cyclone Amphan of May 2020, which has been called the strongest storm recorded in the recent past in the Bay of Bengal, resulting in millions of people being evacuated. According to the Internal Displacement Monitoring Centre, "about 3.6 million Indians were displaced annually between 2008 and 2018, most as a result of flooding from monsoon rains that are the heaviest in South Asia in absolute terms".[8]

While the government has short-term disaster management plans for displacement in the event of monsoon flooding and cyclones, it needs long-term plans, or rather pre-emptive disaster management plans, for the relocation of human settlements. It can be said that displacement due to sudden disasters is easy to recognise; however, it is extremely important to study the impact of slow or long-term disasters such as displacement due to sea-level rise. This is important primarily because as the climate patterns change, they may change the nature of displacement as well as intensify the current patterns as are visible along coastal India, like in Sundarbans.[9]

Apart from displacement of people, rapid warming of the oceans needs to also be studied with respect to disruption in the marine ecosystem. It has led to a depletion of available fish stocks causing economic hardship to coastal communities depended on the sea for their livelihoods. Thus, the rise in sea levels leading to coastal erosion and the rise in temperature of the oceans have a dual impact causing economic insecurity along with internal displacement of people.

India's Arctic research is also with an aim to gain a better understanding of the glaciers in the Himalayan region. The Himalayan Mountain range, after the Antarctic and Arctic, is home to the world's third-largest amount of glacier ice and is often referred to as the world's "Third Pole". The National Centre for Polar and Ocean Research, India's nodal agency for research on the polar regions, in its annual reports has mentioned that there are similarities in the loss of glacier surface in Arctic and the Himalayas and this degradation level has accelerated in the past two decades.

India's policy document already notes that, "…there are several synergies between polar studies and the study of the Himalayas. Arctic research will help India's scientific community to study melting rates of the third pole—the Himalayan glaciers, which are endowed with the largest freshwater reserves in the world outside the geographic poles."[10] The glaciers of the Himalayas are a critical source of water—not only for the population of the region but also to feed into the major rivers of the region which include the Ganges, Indus and Brahmaputra. As the glaciers in the Himalayas melt at an "exceptional" rate because of global warming, it threatens the water supply of millions of people in Asia.

According to a study titled "Accelerated mass loss of Himalayan glaciers since the Little Ice Age"[11] (released in December 2021), "water released by Himalayan glaciers forms the headwaters of the major river systems in Asia, supporting food and energy production downstream, as well as maintaining a range of ecosystems and ecosystem services." The receding Himalayan glaciers have also raised concerns related to water supply, which is further compounded by the changing monsoon pattern in Asia. This is primarily because "without a reliable source of water, crop yields are expected to decline, potentially threatening food security in multiple countries. As the region warms up, critical rivers and groundwater sources could eventually dry up, which could trigger conflicts, undermine economies, and spur mass migration."[12]

Another issue that needs to be noted is the melting of permafrost which has twofold consequences for the earth: first, is the release of trapped methane and other gases which contributes to global warming. Second is the release of new pathogens that had previously remained trapped, thus increasing the possibility of future pandemics. As the world emerges from lockdowns and restrictions as a result of the Covid-19 pandemic, there is a need to understand the scale of disruption that can be caused by pathogens. This aspect has been very well noted in the draft policy of 2021: "Climate change induced melting of ice bears similar portents. The thawing of permafrost soil could potentially release viruses and bacteria that have lain dormant for thousands of years, thereby increasing the propensity of pandemics."

India's scientific presence in the Arctic has been well known and well documented. The contributions that have been made by the Indian scientific community have also been appreciated internationally. To take forward this work and in an effort to fulfil its policy objectives as mentioned in the document, *India would need to work towards maintaining a year-round presence in the Arctic and establish additional research stations in the Arctic, work to acquire a polar research vessel to ensure that it is not dependent on other nations and collaborate with other observer nations which would further expand the scientific and research expertise of India.* (Emphasis added)

Expanding India's Political Footprint

Leaving aside environmental challenges, the opening up of the Arctic is expected to bring enhanced economic opportunities. Apart from the littoral States of the Arctic, non-Arctic States are also looking towards the region with renewed interests and are recognising the potential of the Arctic, thereby reshaping the geopolitics of the region. Given this situation, India's approach towards the polar north needs to be broadened and deepened in the context of emerging opportunities and challenges from the circumpolar north.[13]

Foreign Secretary Harsh Vardhan Shringla, in a talk in 2021, outlined that Indian diplomacy is based on five pillars: Indian thoughts; multipolar focus; to act as an international force multiplier for the Government; to be a force of global good; and diplomacy that looks at the future.[14] As India gets ready to play a more active role in the activities of the Arctic, it will need to create strategic connections and increase its political and economic interaction with the nations of the Arctic. India's presence in the Arctic requires all five pillars to come into play. In this regard, India is very well placed as it shares cordial and friendly relations with all Arctic nations as well as stakeholders in the Arctic. India has made a conscious effort to increase its engagements with the Arctic Eight as well as with its fellow Observers in the Arctic Council.

A year after becoming an Observer State, President Pranab Mukherjee visited Norway and Finland in 2014. This was the first visit by the Head of State to Norway and was with an aim to attract investments and technology from Norway to India. Norway has provided support for India's candidature in the Arctic Council as an Observer and has cooperated with India on Arctic scientific research. The deep-seated cooperation was spoken about by President Mukherjee when he said, "our countries have similar views on many issues of regional and global concern. We have been cooperating closely in the United Nations and other multilateral fora—where India appreciates the support that we have received and continue to receive from Norway. We are grateful for your endorsement of India's rightful claim to Permanent Membership of the United Nations Security Council and for your proactive efforts that helped India achieve Observer status in the Arctic Council."[15]

The official visit to Finland was the first visit after twenty-six years by an Indian President. The India delegation signed a number of agreements

on education, energy, science and technology, etc. He highlighted that, "Finland has made tremendous advancements in infrastructure development, communications and information technology, clean energy, shipbuilding, manufacturing, biotechnology, healthcare and services." and these are areas in which India "...would very much like to enhance bilateral cooperation, learn from the successful experience and practices of Finland and join Finland in creating new and innovative products and technology."[16] He also visited the Arctic Science Centre.

In 2015, President Mukherjee made the first ever State visit by the President of India to Sweden. The visit was important as it helped enhance bilateral relations with a renewed focus on innovation, sustainable development, urban development and scientific research. In 2018, Prime Minister Narendra Modi took forward the momentum when he visited Sweden for the Nordic Summit. This was the first visit by an Indian Prime Minister in thirty years. The visit was also an attempt to reach out to the wider Nordic region with the first India-Nordic summit which saw the Indian Prime Minister interacting with the leaders of Denmark, Finland, Iceland, Norway and Sweden on a single platform. During the Summit, the leaders pledged to "deepen cooperation between the Nordic countries and India, and focused their discussions on key issues related to global security, economic growth, innovation and climate change".[17] In 2021, with the Covid-19 pandemic forcing economic slowdown, Prime Minister Modi and Prime Minister Stefan Löfven held a virtual summit. While the focus was on joint India-Sweden cooperation in the health sector and economic recovery, the joint statement also highlighted enhancing scope for scientific collaboration in polar research through joint research projects and participation in polar expeditions. The two sides also agreed to intensify their collaboration within the framework of the Arctic Council to address global environmental protection and combating climate change.[18]

In 2019, President Kovind visited Iceland to hold bilateral talks. The visit aimed to enhance economic and political ties which include cooperation in the Arctic. India is also keen to leverage Iceland's capacity in sustainable fishery, marine economy, shipping, green growth, energy, construction and agriculture sectors. Also in 2019, Iceland assumed the chair of the Arctic Council, and India conveyed its desire to make meaningful contributions to its deliberations and

outcomes. Arctic also found mention in the Joint Statement issues after the Virtual Summit between Prime Minister Mette Frederiksen, of the Kingdom of Denmark and Prime Minister Narendra Modi on September 28, 2020. Both the leaders emphasised that "the Arctic Cooperation within the framework of Arctic Council has a global dimension and is essential for addressing the need of environmental protection and combating climate change." In this spirit, both sides expressed their desire for collaboration within the framework of the Arctic Council, especially in the area of climate change.

Apart from Nordic outreach, India shares multifaceted relations with Russia when it comes to Arctic. Russia is the largest Arctic nation in terms of geographical space. As a country that has the largest coastline facing the Arctic Ocean, it is natural that Russia gives the Arctic a prominent position in its economic policy outlooks. The importance of the region found its place in various policies that the Kremlin introduced—in 2004 and 2008, which was updated in 2020 to the "Russian Federation's Policy for the Arctic to 2035"—a long-term plan for the development of the Arctic. The importance of this region comes up in the speeches of President Putin as well as in the country's foreign policy or other strategic documents. The resource-rich region has both geo-economic and geostrategic importance for Russia.

Keeping this in view, the Russian government has taken steps to modernise its ice-breaking fleet, to make greater investments in infrastructure development and is seeking partners to explore the mineral resources of the Arctic. Russia stresses on the development of the NSR as a "globally competitive and viable transport corridor and would like to increase the traffic on the NSR to 80 million tons by 2024 from the current overall traffic of less than 30 million tons."[19] To provide safe passage, Russia is also strengthening its naval and coast guard presence in the region. These developments have, nonetheless, led to concerns being expressed by the other Arctic nations, notably the United States, over Russia's growing military presence. Russia has denied the claims and stressed that it is restoring old infrastructure.

India shares a close and strategic partnership with Russia, which has strengthened with time. As the two nations look to diversify their relations beyond the defence and energy sectors, the Arctic has presented a new front of opportunities and cooperation between India and Russia. As stated above,

the Russian leadership has taken cognisance of the economic potential of the region and has prioritised the development of the Arctic. In such circumstances, it would make sense to leverage the historically close relations that India has with Russia to chart their mutual interests in the region. The Arctic has emerged as a key pillar of the India-Russia relations. A review of the joint statements by the two nations in the recent past would point to the Arctic being looked at as an area of collaboration. In 2018, Prime Minister Modi, during his visit to Russia, spoke about the need to develop the Arctic region and to play an important role in the Arctic Council. During Prime Minister Modi's visit to Vladivostok in September 2019 for the 20th India-Russia Annual Summit, the Arctic was emphasised for the first time. The Joint Statement mentioned, "India looks forward to cooperating with Russia in the Arctic, India has been following the development in the Arctic region with interest and is also ready to play a significant role in the Arctic Council."[20] Russia's Far East and the Arctic offer an area of convergence and the potential to scale India-Russia relations while addressing India's strategic requirements. In May 2021, Russia assumed the chair of the Arctic Council, and during its tenure, India completed a decade as an Observer and aligned its Arctic goals with some of the shared aspirations of other Council members.

India also shares cordial relations with the countries from continental North America. India and Canada signed an MoU on Polar Research in 2020 and talks to establish more research stations in the Arctic are underway. As per the cooperation agreement, nodal organisations [National Centre for Polar and Ocean Research (NCPOR) and the Canadian High Arctic Research Station (CHARS)] will work to: "(i) identify mutual areas of interest and strive to integrate research projects where possible; (ii) develop mechanisms to facilitate reciprocal access to polar research infrastructure and logistical services; (iii) facilitate the exchange of personnel, data and other resources in areas of mutual interest; (iv) engage and collaborate with the appropriate entities in Canada and India to ensure research projects are inclusive." The two nations share the need to promote a rules-based approach to Arctic participation. With Canada, India may look at expanding the scope of scientific cooperation as related to climate change, its causes and effects. Another area of cooperation could be resource management, by investing in Canadian companies that are involved in Arctic

resource exploration. Cooperation in the Arctic would not only help facilitate sharing of research infrastructure, resources and data, but also help integrate research activities to advance knowledge creation in the Polar Regions.

India shares multidimensional strategic partnership with the United States. The relations between the two countries are based on shared values and common challenges that they face. While the two nations have developed mechanisms to work in the Indo-Pacific, the Arctic could be a new area of cooperation. The United States government has articulated its fundamental interest in the Arctic through a series of government strategies since the 1970s. However, it was perhaps because of the symbolic planting of a Russian flag on the Arctic seabed, which Moscow claims is connected to its continental shelf in 2007, that highlighted the gaps in United States policy towards the region. It needs to be pointed out that the planting of the flag on the ocean floor does not establish claim under international laws.

The United States has over the past few years realised the importance of the Arctic for its strategic policy. The growing interests of China in the region and increasing developments by Russia, both nations that are deemed strategic competitors, has highlighted the United States' shortcomings in the Arctic. The US Congress has tried to address the need for more polar vessels for its coast guard, the primary agency tasked with protecting American interests in the Arctic. The US Navy has also outlined its strategy to protect its interests in the region. The Arctic is important for the United States to conduct its maritime security operations, while ensuring the safety of its military bases in Alaska.

India and the United States have common goals towards the Arctic. The Arctic policy of both nations lays stress on the need to engage with the indigenous communities and use their knowledge to protect the Arctic. They also emphasise the need to protect the environment, while developing the area with the stakeholders. Thus, there is ground for the two nations to bring the Arctic within the framework of their partnership. The visits of high ranking officials of the governments from foreign policy to defence, including the visit of the US Envoy for Climate Change, John Kerry, to India highlights the diverse areas in which India and the United States are cooperating. India also has stakes in offshore oil and gas fields in the Northern Pacific building on the energy relations it shares with the United States. As two nations that share

similar values of inclusive and sustainable growth, there is tremendous scope for engagement in the Arctic.

Apart from the Arctic eight countries, India is also engaged with other Observer members such as Japan and South Korea. As the Arctic gains prominence within India's foreign and strategic policy, it is natural that it will increasingly feature in talks that India has with other nations. India is ensuring that while its government officials engage with their counterparts, there are also robust engagements between the civil society through academic exchanges, interactions between think tanks and research organisations.

The brief snapshot of the exchanges between India and the Arctic shows that India has stepped up its engagements both at the bilateral and multilateral levels. It is reaching out to these nations to enhance cooperation on a range of issues which include developing renewable energy technology and maritime economies. Nonetheless, the underlying theme has been sustainable development which also remains the core of India's Arctic policy. India's diplomatic engagements have allowed it to project its value as a partner who shares similar values and vision for the Arctic and one that can help counter the Chinese interests in the region (discussed later in the paper).

Beijing has long regarded the Arctic as important for its strategic, economic and environmental interests. China has through its Arctic policy highlighted the importance of the NSR for China's economic connectivity with Russia and Europe. The natural resources of the Arctic are an added attraction. China has invested heavily in the countries of the region. China has also expanded its scientific outreach and presence in the Arctic. Nonetheless, countries fear that civilian research and economic linkages could be used to strengthen Chinese military presence in the region in the future. This aspect is of strategic importance, not just for the Arctic nations, but also India.

Strategic Interests

As an aspirational power that has global interests and capabilities to correspond with its growing stature, India needs to respond to the questions of Arctic governance. Non-Arctic States, including India, have legitimate interests in the Arctic region. While the Arctic States' sovereignty and rights to exclusive economic zones (EEZs) and extended continental shelves are clearly scripted in

international law, other aspects of Arctic governance continue to evolve.[21] It is in India's interest to guide this discourse to highlight the concerns of non-Arctic States and the effects that the Arctic has on their socio-economic development. Today, challenges and opportunities before nations are not guided by national boundaries. As the world becomes more interconnected, there is a better understanding of how decisions in one part of the world have consequences for people far removed. Therefore, it would be right to say that the Arctic falls within India's strategic interests, which include energy security needs, food and nutritional security, environmental security, the need to protect geopolitical interests, as other nations raise their profiles in the Arctic, and long-term military interests also need to be studied.

Energy Security

Energy consumption in India has increased exponentially since 2000, propelled upwards by a growing population and a period of rapid economic growth. India's energy security is intricately linked to its economic and population growth, accessibility, availability, affordability, and supply and demand. India is a major force in the global energy economy. Its continuing industrialisation and urbanisation will make huge demands of its energy sector and its policymakers. While India is in the process of diversifying its energy needs by focusing on renewable energy, over 80 percent of its energy needs are still being met by three fuels: coal, oil and solid biomass. Therefore, affordable and reliable supply of energy remains a key concern for India.

The Arctic as a region boasts of an estimated "90 billion barrels of oil and almost 1,669 trillion cubic feet of natural gas, amounting to 22 percent of world's unexplored oil and natural gas reserves."[22] India being the third largest consumer of energy in the world, its future consumption is expected to rise by more than 4 percent annually.[23] Since 2018, India has been focusing on exploration of oil and gas reserves in the Russian Arctic. India and Russia have been closely cooperating in the energy field for years, and the former's investments in this sector in Russia are noteworthy. "The countries have expressed their support to companies from both sides for development of cooperation and exploring opportunities for joint development of oil fields in the Russian territory, including in the Arctic shelf of Russia and joint development of projects on the shelf of the Pechora and

Okhotsk Seas."[24] The latest cooperation includes joint developments in the Vankor oil region. India's major energy companies, including ONGC Videsh Ltd., are in discussions to buy stakes in Russia's massive Vostok oil project as well as a planned liquefied gas project, Arctic LNG-2. According to the Kremlin, "the enhanced cooperation between the two countries also includes geological exploration, including on the Arctic shelf, as well as Russian energy resource deliveries to India with the possible use of the Northern Sea Route (NSR)."[25]

Apart from hydrocarbons, the Arctic is also rich in renewable energy resources such as hydropower, wind power, etc. India as a leading voice on climate change and one that is committed to green development through renewable energy, can explore cooperation in these areas as well. The Arctic is also rich in other minerals such as copper, phosphorous, niobium, platinum-group elements and rare earths which are important for the information technology and innovation sectors. To explore and utilise these resources, India can identify opportunities for investment in infrastructure development such as offshore exploration, mining, ports, railways and airports. It also needs to encourage the Indian private sector along with the public sector to build their expertise and invest in the region. One method would be to encourage Indian companies to obtain membership of the Arctic Economic Council and engage extensively with its working groups on responsible resource development; maritime transportation; connectivity; investment and infrastructure; and energy.

Sea Routes and Connectivity Interest

The melting of the ice caps and shorter shipping routes connecting the Pacific and the Atlantic Oceans presents an incredible opportunity to countries. While there are existing transport corridors in the region, Russia is pushing the NSR as an alternative to the traditional sea routes through the Indian Ocean. This route is touted to be a potential alternative to the Suez Canal as it can reduce the distance between Europe and Asia by almost 4,000 miles.

India has expressed its interest to develop the route with Russia and also explore the possibility of linking connectivity between the resource-rich Arctic and the International North-South Transport Corridor (INSTC). The INSTC corridor plans to connect Mumbai, India with St. Petersburg, Russia in a seamless multimodal connectivity project. In this regard, India is also studying

the feasibility of integrating the INSTC with the TEN-T European rail networks like North Sea-Baltic Corridor, the Baltic-Adriatic Corridor, and the Scandinavian-Mediterranean Corridor. Similarly, with the signing of an MoU between Prime Minister Modi and President Putin in 2019, India is considering a maritime route connecting Chennai to Vladivostok.

Ship movement in the Arctic is hindered by two factors: first, specialised ships and crew. For the moment, India has neither. Second, navigation in the Arctic, despite the reduction in sea ice, is limited to a few months of the year which is sometimes hindered due to unpredictable weather. These limitations make transit through the Arctic difficult and expensive for shipping companies which also have to factor in the insurance of the crew, vessel and material. India has stated that it would be willing to partner to develop facilities for Arctic-related telecommunications and connectivity, maritime safety and navigation, search and rescue, hydrographic surveys, climate modelling, environmental monitoring and surveillance, mapping and sustainable management of marine resources. India is also looking towards engaging with partners for establishing satellite ground stations in the Arctic for optimal exploitation of Indian satellites placed in polar orbits. As India ranks third in the list of seafarers supplying nations catering to almost 10 percent of global demand, this maritime human resource can play a crucial role in meeting the growing global demand for Arctic shipping. The experience of the seafarers can also be used to train new recruits to undertake voyages in the Arctic. India, due to its activities and experiences gained in the Antarctic, also has a well-developed hydrographic capacity that could assist in the survey and mapping of Arctic routes.

While there is government support to the projects, there is a need to understand the feasibility of these projects and their impact on trade and security in the Indian Ocean. This line of thought is already present in the leadership of the country. This is evident in the statement on 2012 by A.K. Antony, former Indian Minister of Defence, that the "possible melting of the polar ice caps will have tectonic consequences to our understanding of what maritime domains constitute 'navigable' oceans of the world. Specific to Asia and the Indian Ocean Region, there may be a need to reassess concepts like chokepoints and critical sea lines of communication (SLOCs)." The Indian Ocean is India's hinterland and it is connected to both its economic and security interests. If and when the

Arctic trade routes become common, it might divert maritime traffic away from the Indian Ocean, and thus Indian ports. This would need to be factored into long-term economic planning and regional development policies.

The issues highlighted in the above section have been, to an extent, addressed in both the draft policy as well as the policy document released in 2021 and 2022 respectively. The following section analyses the key tenets of the policies.

India's Arctic Policy

India's polar programme includes activities in the Arctic, Antarctic, Southern Ocean and the Himalayas.[26] Both documents highlight the rationale for India's engagements in the Arctic and its goal within the larger regional framework of the Arctic Council. Since becoming an Observer nation in the Arctic Council in 2013, India has been participating in meetings of Senior Arctic Officials and of the sub-groups—Arctic Monitoring and Assessment Programme; the Arctic Contaminants Action Programme, and more. India has also participated in the Arctic Energy Summit, Arctic Science Ministerial and meetings of Task Forces.

The Arctic policy places "sustainable engagement diplomacy" as the underlying approach of India for the region. It spells out the roadmap for India's Arctic vision which would be achieved through a wide range of activities—scientific, diplomatic and economic. This policy is an attempt to understand the Arctic better and contribute to international efforts to maintain the Arctic. For the same the policy document identifies six pillars for the Arctic—the five pillars are the continuation from its draft policy: science and research; economic and human development; transportation and connectivity; governance and international cooperation; national capacity building; and finally, climate and environmental protection.

The policy recognises India's long association with the region and highlights that since 2007 it has sent 13 expeditions to the region and run over 23 active projects. It is not by coincidence that the **first pillar identified is science and research**. As a country that has been involved in scientific research in the Arctic, Antarctic and the Himalayas for several decades, India has much to contribute to the scientific study and understanding of the Arctic. Many commentators have highlighted that India's Arctic endeavour is a direct result of India's Antarctic

experience. India has been present on the Antarctic continent since the early 1980s, and has therefore established itself as a polar research nation. India's experiences in the southern pole have helped contribute to its Arctic study. The result was India establishing links with the Norwegian Polar Institute and also its own polar research station in the Arctic. Since it launched its first scientific expedition to the Arctic in 2007 and established its research station, over 300 scientists and researchers have conducted studies there.

"India began its scientific endeavours to initiate studies in the fields of Arctic microbiology, atmospheric sciences and geology."[27] Following the success in its initial programmes, India expanded its reach with long-term programmes in the Arctic in frontier areas such as polar biology, glaciology and earth and atmospheric sciences. Indian scientists at Ny-Ålesund have focused their research in frontier areas of polar sciences such as glaciology, atmospheric science, biology and climate change. "A comprehensive long-term Science Plan of research activities by Indian scientists in the Arctic realm has also been developed."[28] The contribution made by Indian scientists has been acknowledged by the international scientific community and has added to the Arctic knowledge of the nation.

The policy puts an emphasis on strengthening its capabilities in the area of scientific research and to build partnerships and bridges of cooperation with research institutions across the globe. One of its stated objectives is acquiring a dedicated ice-class polar research vessel and to build indigenous capabilities for construction of such vessels—*however, no timeline for this has been provided*. A key objective identified is to align Indian research with the International Arctic priorities in the arena of socio-economic, political, anthropologic, ethnographic and traditional knowledge.

Within the ambit of its scientific research pillar, India is also looking at space technology. India has developed world-class space technology which is low cost, innovative and has high social impact. The NASA-ISRO SAR (NISAR) mission will launch its first satellite in 2023. It will measure the Earth's changing ecosystems, dynamic surfaces, and ice masses. This will help scientists map the cause and consequences of climate change over both the land and water surfaces, including in the Arctic. India aims to expand its remote sensing capabilities for the Arctic and share the data with other nations, while developing facilities for low-cost digital connectivity effectively, using its satellites placed in the polar

orbit. Keeping in view this mission, the policy has stated that there is a need to strengthen "Himadri", further cooperation on polar sciences with scientific institutions, and acquire and build ice-class vessels that will enhance India's scientific research in the North.

The **second pillar** of the policy is **climate change and environmental protection.** As India becomes a leading voice in climate change mitigation, it is natural for it to support initiatives to try and preserve the Arctic's immediate physical environment while continuing to understand its long-term effects on regional and global environment. While the draft policy combines the two pillars of science and research with that of climate and environmental protection, the Arctic Policy has placed an added emphasis and recognised the need to study the impact of climate change separately. Identifying climate change as a critical dimension of India's scientific research in the Arctic, the policy calls for enhanced quality of India's engagement with the region on fulfilling the UN Sustainable Development Goals.

If one studies India's draft policy document as well as its policy for the Arctic, the emphasis is laid on its participation in "research on ecosystem values, marine protected areas and traditional knowledge systems to preserve Arctic biodiversity and microbial diversity." The policies aim to contribute towards environmental management in the Arctic—methane emission, micro-plastic, marine litter and more.[29] India has also pledged that its enterprises in the region—scientific and economic—will follow the highest environmental standards.

Understanding the changes in the environment would help build response mechanism for other climate emergencies across the world. For India, there is a link between a warming Arctic and the rising temperatures in the Indian Ocean. It has also been proven that there are cryospheric linkages between glaciers in the Arctic and the Himalayas. Therefore, it becomes imperative for India to understand links between the Arctic environment and India, and predict outcomes. "India is committed to a collaborative and cooperative approach to combat global warming in keeping with its ethos, traditional values and development needs. India seeks to harness the fruits of science and technology to not only meet its goals to reduce greenhouse gas emissions but to also exceed them."[30]

The **third pillar** of the policy looks at **economic and human development cooperation.** Climate change has presented opportunities to explore the

economic and resource potential of the Arctic. However, this endeavour is not without challenges. "The Arctic thus necessitates the creation of effective mechanisms that promote responsible business activities based on the three pillars of sustainable development—environmental, economic and social."[31] India supports the economic development of the Arctic as the resource deposits in the Arctic—copper, phosphorous, niobium, platinum-group elements and rare earths—are important for India.

While hydrocarbons have been the focus of most nations, India, as a leader for the promotion of renewable energy, is looking at exploring the potential of off-grid renewable power in the Arctic through hydroelectricity, bio-energy, wind power, solar, geothermal, and ocean energy. This is highlighted from the fact that India is increasingly interested in the study of geothermal energy initiative which was launched by Iceland. As India's demand for energy resources grows in the future, it will rely on hydrocarbons, but it is also increasingly focused on meeting its needs through renewable energy sources. An interesting addition to the policy is the idea to establish digital partnerships with the Arctic nations for promoting e-commerce in the region. This plays well with India emerging as a key digital hub in South Asia and can help in promoting good practices in the region by sharing its own experiences and developmental story.

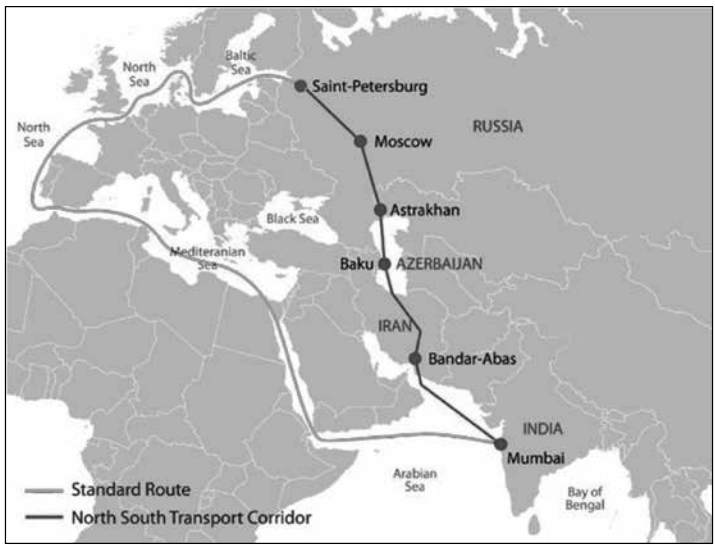
The policy also mentions the dynamics of human development as part of larger economic development in the region. The emphasis is laid on the similar socio-ecological-economic predicament of the Himalayan population and the indigenous population in the Arctic. Both of them have been severely impacted by climate change. The policy states India's experience in building low-cost social network using digitisation and innovation that provide services such as education, food supply to health system. The policy recognises these strengths and calls for sharing of this expertise with the Arctic states on issues related to governance and welfare of the indigenous communities.

Linked to the economic development prospects is the **fourth pillar of India's policy—transportation and connectivity.** Ice-free conditions have opened the possibility of the existing sea routes in the Arctic to be used for longer periods of time. The Northern Sea Route (NSR) has gained attention in this regard. *While none of the sea routes have major economic benefits for Indian container movement, it needs to be understood how this will affect movement of ships in the Indian Ocean.*

While the sea routes may not be economically viable for the moment, India needs to be prepared for the future.

While the maritime connectivity might not prove to be the most economical for India, it hopes to reach the Arctic through the International North-South Transport Corridor (INSTC). The INSTC is a multimodal transit corridor that will connect India with Russia. India is exploring the possibility of extending this route to the Baltics and the Arctic region. India's Arctic Policy aims to explore the linking of International North-South Transport Corridor (INSTC) with the Unified Deep-Water System (UDWS) of Russia and its further extension to the Arctic. UDWS is a 6,500-km long system of inland waterways in Russia which links the White, Baltic, Caspian, Azov, Black Sea and the Volga. It carries 75 percent of all the inland waterway traffic volume in Russia. Connecting INSTC with this inland water system of Russia, if realised, would provide quick, cheap and a direct connection between India and the Arctic. India hopes that apart from East-West connectivity, such projects would help in the overall development of the hinterland and of indigenous communities.

Figure 5: Map of INSTC



Source: https://www.logisticsinsider.in/the-instc-another-stepping-stone-in-indias-export-journey/

An interesting addition is the promotion of opportunities for Indian seafarers to crew ships engaged in the Arctic transit. India ranks third in the list of seafarers supplying nations, catering to almost 10 percent of global demand. These human resources have the capacity as well as the capabilities to contribute towards meeting the growing demand. As one of the countries that contributes large numbers of seafarers in the world, it is likely that commercial ships plying on the Arctic routes would have a predominantly Indian crew. India needs to plan for the future and build human maritime resources that will be able to guide ships in these waters. India also has a well-developed hydrographic capacity which could be used to map and survey the Arctic.

An important aspect of working in the Arctic is the need to have a collaborative approach towards the challenges and opportunities that are presented by the region. The policy articulates this need in its **fifth pillar** on **governance and international cooperation.** India has stated that it will pursue cooperation with all stakeholders in the Arctic. It will actively participate in the deliberations of the Arctic Council and the other forums such as the Nordic Defence forum, Arctic Coastguard forum, etc. India is also party to international laws, treaties and agreements that have been entered into and are applicable to the Arctic. The collaboration is not restricted to just the government-to-government or business-to-business sectors only. The policy encourages academic exchanges, enhancing the knowledge base, active participation by scholars and researchers in workshops, projects, conferences, etc., on the Arctic. The idea is to move beyond the official level to build cooperation through a "whole of nation" approach.

To do all of the above, India would also have to build its **national capacity.** This important element forms the **sixth pillar** of India's Arctic policy. Currently, India's expertise on the Arctic is limited. There is a need to involve the states, civil society organisations such as think tanks, universities, scholars and experts from both pure sciences and other subject areas to collaborate with institutions in the Arctic region and across the world to gain a better understanding of the region. With this aim, India plans to increase its national capacity to understand the Arctic by strengthening its research capabilities in academic and scientific institutions. It hopes to have Arctic specific studies in global climate change modelling systems, in institutions that study mineral/oil and petroleum. It also needs to study the Arctic for its tourism potential while building the capabilities

of Indian seafarers to work in the Arctic environment. The goal is to build a wide-ranging institutional base on the Arctic in terms of maritime, legal, environmental and governance issues.

While the policy document has been able to articulate India's vision for the Arctic, it has overlooked the geopolitical dimension of the ongoing struggle within the Arctic region. This may have been a deliberate step to ensure that India's first policy document is focused on its priority areas and highlights sectors in which it can make a meaningful contribution.

Concerns for India

The key concern for India in the region is the rapid militarisation of the region. As the warmer climate, exploration of newer maritime routes and newer technologies for resource extraction reshape the Arctic landscape, it has led to the emergence of a new power game in the region. With the Arctic becoming more accessible, many States are in the process of securing their assets in the region. The planting of a flag on the Arctic seabed in 2007 by Russia began the process of renewed militarisation of the Arctic. This led other littoral States like the United States, Norway, Canada, etc., to reformulate their policies towards the region. Russia is upgrading its military capabilities with new fighter jets, navy vessels, submarines, and is in the process of refurbishing its older naval military bases. The steady build-up by Russia comes in the backdrop of its deteriorated relations with the West and its need to protect its military as well as natural resources.

As the largest State in terms of territory, Russia dominates the Arctic geography and correspondingly dominates the security and infrastructure development. After Russia, the United States and Canada have the largest stakes in the Arctic. The United States' Arctic policy is driven by certain identifiable issues; primary among them is its military-strategic interests. Canada is also realigning its policy to ensure its strategic interests are protected. As national security comes to play an important role in the Arctic strategy of other nations, it may overshadow the consensus building approach that has been followed vis-à-vis the Arctic till date. With growing militarisation of the Arctic and exercises being conducted for "training and interoperability for Arctic conditions", tensions and mistrust are likely to grow. For the United States, Russia has become

the most prominent challenge that needs to be addressed. The probability of misunderstanding between the United States and Russia is further heightened due to NATO (North Atlantic Treaty Organisation) manoeuvres. Instances like jamming of the Global Positioning System (GPS) telecommunication channels during a major NATO exercise, "Trident Juncture," in 2018 by Russia[32] or the presence of Russian bases separated from Norway by a few kilometres, etc., have raised concerns among the littoral countries.

This is further compounded by the fact that out of eight littoral States,five are NATO allies (the United States, Canada, Denmark, Iceland and Norway) and Finland and Sweden are enhanced opportunity partners of NATO, and are now prospective members of the Alliance in the aftermath of the Ukrainian crisis. This has led to the change in dynamics in the Arctic. The impact of the Ukrainian crisis on the Arctic governance, research, and economic activities is already visible and is going to multiply in the near future. The seven littoral Arctic States have denounced Russian action and have temporarily suspended all Arctic Council-related activities. Along with this, many projects—such as Arctic PASSION, which aims to make Arctic environmental observations more readily available and understandable to groups, including people living in the Arctic, who need them—have been suspended for the time being.

Given this situation, India has to walk a very critical diplomatic tightrope as its capabilities and its geographical distance do not allow it to comprehensively secure its own interests in the Arctic amid emerging great power competition that is increasing instability in the region. As India shares good relations with these countries, and its emphasis on multilateralism can help the country play a critical role in the region's security architecture.

China

China in the past few years has been promoting itself as a "near Arctic" country. With the granting of Observer Status in the Arctic Council in 2013, it has been preparing itself to play a larger and more prominent role in the region. Its approach towards the Arctic has changed from its emphasis on scientific research and study of the impact of climate change on China to a more multifaceted agenda, whereby it is concentrating on the economic potential of the Arctic in

terms of resource extraction and shipping routes. It is also actively pursuing its diplomatic relations with the members of the Arctic Council, especially Russia, to gain a substantial foothold in the region.

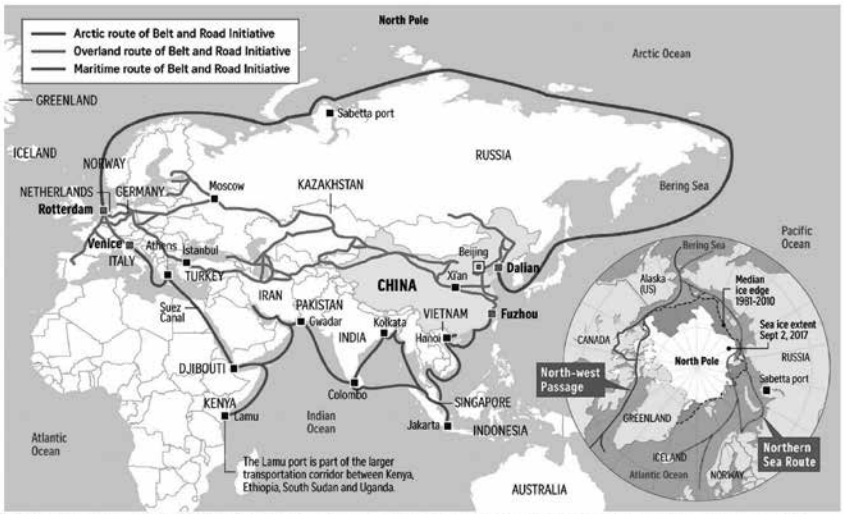
China, apart from the scientific research and development, has also steadily built its Arctic capabilities to achieve its interests. Geopolitically, it started to take interest from 2007 when the Russian explorers planted a national flag on the seabed below the North Pole. Till 2010, China was promoting the declaration of the Arctic as a "common heritage of mankind" and its equal rights for the exploration of the region which was backed by its military. In 2010, Rear Admiral Yin Zhuo, former president of the Chinese Naval Strategy Institute, articulated that "Arctic belongs to all the people around the world and that no nation has sovereignty over it" observing that "China should play an indispensable role in the Arctic exploration as it shelters one-fifth of the world's population."[33] China has based its argument on the fact that the distance between mainland China and the Arctic is of 900 miles.[34] The significance of the Arctic was mentioned in China's Twelfth Five-Year Plan in 2011. The vast accessibility of opportunities that the Arctic offers due to climate change and melting of the sea ice have ignited interests of China.

China's interest in the region is driven primarily by two reasons: first, the area is host to untapped energy and natural resources. Taking advantage of the changing climatic conditions, the countries are vying for these region's resources. In this regard, China is cooperating with Russia by holding stake and financing a part of Yamal Liquefied Natural Gas project. Second, due to melting of the ice-sheets new routes—Northwest and Northeast passage—have opened up, which provide shorter transit periods and alternative routes for energy goods coming from Europe and North America. The "Northwest Passage"and "Northeast Passage" (or the Northern Sea Route) will help China to reduce the travel distance to Europe from 15,000 miles to 8,000 miles, thereby reducing time and cost of shipping goods. These passages can also provide safety to the Chinese commercial ships from the other security threatened routes of the African Horn and the Red Sea. These routes also provide an alternative that allow the Chinese to bypass critical chokepoints like the Strait of Malacca, the Cape of Good Hope and the Suez Canal.[35]

In 2014, Chinese President XI Jinping declared that his government wants to make China a "Polar Power".[36] In 2015, China's Vice Foreign Minister Ming, while speaking to the Arctic Circle Assembly, declared that his country is "a major stakeholder in the Arctic."[37] The narrative and the statements are important to notice—while China has had a presence in the Arctic for a long time, there were no official declarations of intent regarding their long-term ambitions until 2013, when it became an Observer State in the Arctic Council. The change in the Chinese narrative highlights the country's strategy in the region. Keeping in view the changing realities of the Arctic, China released its first White Paper on the Arctic in 2018 whereby it acknowledged that "natural conditions of the Arctic and their changes have a direct impact on China's climate system and ecological environment, and, in turn, on its economic interests in agriculture, forestry, fishery, marine industry and other sectors."[38]

One of the key highlights of the strategy is the idea of building a "Polar Silk Road". It states that "China has played a constructive role in the formulation of the Arctic-related international rules and development of its governance system. The Silk Road Economic Belt and the 21st-century Maritime Silk Road (Belt and Road Initiative), an important cooperation initiative of China, will bring opportunities for parties concerned to jointly build a Polar Silk Road, and facilitate connectivity and sustainable economic and social development of the Arctic."[39] The planned route passes through "Japan, crossing the Bering Sea, following the NSR above Russia, Norwegian Sea and ends near Netherlands. With the completion of this project, China aims to circumvent the Asian and European continents, as well as make some inroads into Africa."[40] It can be argued that by integrating the Arctic policy in its larger flagship programme, China is positioning itself to play a more assertive role and is strengthening its position through enhanced cooperation with the stakeholders. By doing this, China is primarily offsetting its limited Arctic access and rights through increased cooperation and investment in the region and is encouraging, as is the practice with the One Belt One Road (OBOR), the Chinese companies to take the lead in government's policies.[41]

Figure 6: China's Polar Extension to Silk Road



Source: *Straits Times*, at https://www.straitstimes.com/asia/east-asia/chinas-polar-ambitions-cause-anxiety

This is visible in the way China is increasing its presence through its engagement with the other Arctic Circle members. With the Nordic countries—Denmark Finland, Iceland, Norway, and Sweden—China has scientific cooperation and governmental dialogue. It has established the China-Nordic Arctic Research Centre (CNARC). During the period from 2005 to 2017, China invested over US$1.4 trillion in Arctic nations such as Finland and Sweden, this included US$89.2 billion invested in infrastructure, assets, cooperative agreements, financing agreements,or other projects. Major investments also were made in the energy and minerals sectors.[42] Chinese investments in Greenland (US$2 billion) and Iceland (US$1.2 billion) represent a significant percentage of each country's annual gross domestic product.[43]

Similarly, China has also been conducting dialogues with Arctic nations, in 2012, China and Iceland signed the Framework Agreement on Arctic Cooperation, which was the first intergovernmental agreement on Arctic issues between China and the Arctic State. Since 2013, China and Russia have been conducting dialogues on Arctic issues; in 2016, China, Japan and the Republic of

Korea launched "high-level trilateral dialogues on the Arctic issues to promote exchanges on policies, practices, and experience regarding Arctic international cooperation, scientific research, and commercial cooperation."[44]

Though Arctic has not yet featured in the Chinese defence white papers, nonetheless, in an essay published in People's Liberation Army Navy's (PLAN) official newspaper in 2018, it was mentioned that PLAN should focus on "…near seas defence, far seas protection, oceanic presence, and expansion into the two poles."[45] Its first ever freedom of navigation operation was conducted near Alaska in 2015. It has participated in the largest military exercise with Russia, The Vostok (2018), and has also sent its destroyer, frigate, and a supply ship on goodwill visits to Denmark, Finland and Sweden.[46] China, which is assumed to be a late entrant in the region, has through its initiatives and enhanced cooperation with the stakeholders projected its clear and strategic interest in the Arctic, while emerging as a credible player in the changing geopolitics of the region.

The strategic impact on the military domain is also dominated by the scope and rapidity of Chinese military expansion. Apart from land and air power, the maritime domain also comes to play an important role in the Indian Ocean and Indo-Pacific region. China's dependence on sea lanes across the Indian Ocean to carry energy and container shipments represents a vulnerability that could be exploited in a conflict-like situation. India needs to study if the opening of the Arctic routes would reduce this leverage and if this would make China more assertive with countries of the region, impacting broad regional security and geopolitics. As has been pointed out, before India shares close relations with all the Arctic nations and other Observer States of the Arctic Council, it needs to be studied if India could leverage these relations to its strategic advantage in the future.

Soft Security

Apart from these "hard" security interests that need to be understood in the context of India's engagements with the Arctic, there are links between the Arctic and "soft" social security issues such as environmental decay and impact on food and nutritional security needs of the country. An ice-free Arctic not only represents environmental decay of the region; rather its implication will

be felt across the globe. It is an aspect that has not found mention in India's policy. The policy makes no mention of environmental threat that will arise with the rise of activities in the Arctic. Following are some of the issues that would require India to formulate a comprehensive approach towards the region and cooperate with the littoral states to mitigate their impact:

First, migration is a multidimensional issue, be it at regional, national or global level. The interconnected nature of migration with issues related to human rights, geopolitics and development not only has an impact at regional or national level, its ramifications are also felt at the international level. What is being observed today is the weaponisation of migration which is being used as a political tool by tapping into the fear of the communities which has stemmed from the rapid societal change and rising uncertainty.

While in some cases climate change has emerged to be the single most important cause for migration, it is nonetheless recognised as a contributing factor in larger migration trends. Taking the example of South Asia, the changing climatic conditions and weather patterns have resulted in increasing temperatures, rise of sea levels, increasing frequency of cyclones, flooding of river systems fed by melting glaciers, etc. This has resulted in internal and international migration. In addition to these are issues related to increasing demand for energy to cater to growing economies and rapidly expanding urban areas, which are being developed on low-lying coastal areas or reclaimed land from the sea. "The confluence of these factors led the World Bank to predict that the collective South Asian economy (Bangladesh, Bhutan, India, the Maldives, Nepal, and Sri Lanka) will lose 1.8 percent of its annual GDP due to climate change by 2050. Scientific evidence suggests that the river runoff and the receding polar ice caps will lead to a rise in sea levels, significantly impact the world's ocean current circulation systems. Variation in ocean levels possesses a potential of impacting India's densely populated coastal cities and islands in the Indian Ocean and Bay of Bengal."[47]

According to the World Migration Report 2020, people of South Asia remain particularly vulnerable to disasters related to natural hazards and climate change. "There were an estimated 3.3 million new displacements in Southern Asia due to sudden-onset hazards in 2018, with most of those affected in India, Afghanistan, Sri Lanka and Bangladesh…India bore most of the brunt of the

disasters in the sub-region, with more than 2.7 million displacements as a result of tropical storms and floods…The scale of disaster-related destruction and displacement in Southern Asia in recent years has in part been attributed to poor planning and lack of preparedness in the subregion."[48]

As migration becomes an important coping strategy to address environmental changes including sea-level rise, other issues such as coastal erosion, flooding and groundwater depletion, pose considerable security challenges. In this context, India needs to build a policy to address external migration due to climate change vulnerabilities.

Second, exploration of oil, growing shipping-containers and tourists all increase the dangers of an oil spill. Oil spills in cold waters in the Polar Regions would prove to be severely detrimental to the biodiversity and ecology of the region. Countries are worried about this aspect as transport and exploration activities become priority areas of economic activities of the Arctic of the future. It would be necessary for India to engage with the Arctic Council and the littorals on these issues and it is hoped that as India engages more with the Arctic it will expand its policy directives in this direction too.

Third, the link between the Arctic and the weather patterns in India has been repeatedly pointed out in this paper. The changing Arctic is changing ecological systems in the maritime and the land domain. The acidification of seawater, the melting of glaciers, unexpected tropical storms, monsoon and drought, along with human activity, have caused damage to the immediate environment. A normal monsoon is critical for the Indian economy. "Nearly 60 percent of India's net arable land lacks irrigation. The monsoon delivers about 70 percent of India's annual rainfall and determines the yield of several grains and pulses, including rice, wheat, and sugarcane. The sector employs millions of people. More importantly, higher agriculture yield would mean lower pressure on food prices and the overall retail inflation."[49] It would also mean that India remains self-sufficient in food grains negating the need to secure food supplies from outside the country. The monsoons are also crucial to keep up the rural demand for consumer goods and automobiles; a good harvest provides rural households with liquid finance that could be spent on consumer goods. The rains also replenish nearly 100 large reservoirs which are essential for supply of drinking water and energy generation across country.

In the event of limited rains, cities such as Chennai, Mumbai, and Hyderabad, already facing water storages, will be forced to further cut water supplies. In villages across India, it would mean women and the girl child would spend considerable time collecting water for household work and drinking.

All of the above point to the fact that the impact of rapid changes in the Arctic region goes beyond the littoral states and India would need to build credible and sustainable mechanism to respond to these challenges.

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4. Conclusion

The year 2020 marked the 100th year of India's engagements with the Arctic—it has signed the Spitsbergen Treaty in 1920. Today, as the Arctic is transforming at an extraordinary rate, it is paving the way for emergence of various environmental as well as geopolitical challenges. In order to fulfil its political and strategic ambitions, India has increased its engagements in the region. India's traditional approaches of respect for sovereignty and cooperation represents India's roadmap to its Arctic strategy as outlined in its first draft Arctic Policy.

The Arctic is geologically complex, largely uncharted, and rife with overlapping sovereignty claims. Global climate change has brought the region to the centre of geopolitics, as melting Arctic ice transforms the region from one of primarily scientific interest into competing national security claims, commercial interests and environmental concerns, with profound implications for, both, the international legal and political system. The effect will have a long-lasting impact on the people and their way of life in the Arctic region. As the Arctic Council States build their national policies to deal with the changing Arctic, it must be understood that a collective action is also required to protect the Arctic.

The Arctic environment is undoubtedly an area of common concern which requires collective behaviour by all. The strategies discussed above have laid significant stress on the relevance of economic development of the Arctic region, which is expected to increase with the ease of the movement as a result of the changing physical environment. The emphasis has also been on the inclusion of the Arctic indigenous communities in this development.

While the Arctic States have developed and adopted policies to mitigate the effects of climate change, as ice-free summers extend in the Arctic it will potentially open the region for hundreds of billions of dollars in investment, including energy production, shipping, and fishing along with infrastructure development.

Economic development in the Arctic has three aspects. *The first is the economic potential of the Arctic for the Arctic nations and its impact on the region*. The possibility of large reserves of energy resources in the Arctic has led to a quest to develop technology and infrastructure that would allow extraction of said resources. The climate of the region would be a primary challenge for all. It will determine the development plan for the region; nonetheless, nations are preparing policies that would take advantage of the opportunities that a melting Arctic would present. Within the United States, the Trump Administration was keen to extract oil and gas from the Arctic Ocean and the North Atlantic; its executive order to that effect was rejected by the federal court as unlawful, but other options are being explored. The Biden Administration's stress on climate change and environment has meant that a number of projects in the American Arctic have been halted for the moment. Canada's policy for the economic development is largely focused on the people of the region. Within this context it would be investing in energy, transportation and communication infrastructure. The Nordic nations also have developed policies that look at the opportunities that would arise in the area of shipping, energy and mining. The focus is on sustainable development that would have a positive impact on the overall development of the communities that inhabit the Arctic. India is interested in the possibility of importing energy from the region. This will allow it to diversify its energy basket. Indian companies such as ONGC are partnering with their Russian counterparts and investing in exploration of oil and gas in the Russian waters of the Arctic. The Indian policy, very much like that of the Arctic eight nations, has also stressed on the need to protect the environment and work with the local communities.

Apart from energy resources, the policies also outline the need to demarcate the exclusive economic zones of the respective nations and to develop related industries such as shipping and fisheries. This is a prominent feature of the policies of the Nordic nations. Fishery is a key industry across the Arctic nations and several communities are entirely reliant on it for subsistence. However, it needs to be noted that the impact of large-scale commercial fishing may not be sustainable due to the variety and limited stock of fish available. Scientists are also still studying changing water temperature and weather patterns and the impact on fish life cycles.

Shipping traffic is likely to increase as the Arctic experiences more ice-free summers. While this would mean more commercial ships in the Arctic waters, it would also mean the shipping industries in the countries surrounding the Arctic are looking at the possibility of building more specialised ships for travel across the Arctic. The other aspect would be the cost saved by the shipping and related industries in sending more goods via the Arctic. Environmentalists and scientists have expressed a word of caution in increasing shipping traffic in the region. The use of Heavy Fuel Oil (HFO) by vessels poses risk to the marine environment as, in the event of accident, the oil spill will be toxic and would take a longer time to get cleared, thereby affecting the marine life and habitat. This will also impact many indigenous residents of the region who depend on marine resources for their primary food source and livelihood. As can be noted from the policies discussed in this paper, the Arctic suffers from lack of infrastructure in oil-spill response, rail, road and air connectivity, power supply and limited ice-breaking and ice-capable vessels. All nations have made significant investments; nonetheless, at the present moment, most projects are in initial stages with the financial viability still a question mark.

The second aspect is the economic development and the people of the region. Indigenous communities are being included in the development plans for the Arctic. Canada's Arctic policy is focused on the inclusion of the Arctic communities in the economic development of the region. One finds a similar focus on the policies as espoused by Denmark, Greenland, Finland, Norway, Russia and Sweden too. Traditional knowledge is a valuable resource that can and should be used in the development of the Arctic. "Communities in the Arctic could also lead the way in renewable energy as nations move towards low carbon economies. The Arctic communities are working with partners to address energy needs while mitigating as well as benefiting from the impacts of climate change. Communities in Greenland are harnessing the energy of the glacial melt and 70 percent of its energy now comes from hydropower. Inuit villages recently participated in a regional energy strategy that identifies and prioritises the region's energy needs and issues and includes developing wind, biomass, and solar energy generation."

Tourism is being viewed as a primary sector that would benefit the people of the region. With increasing interests in the Arctic, the region has witnessed

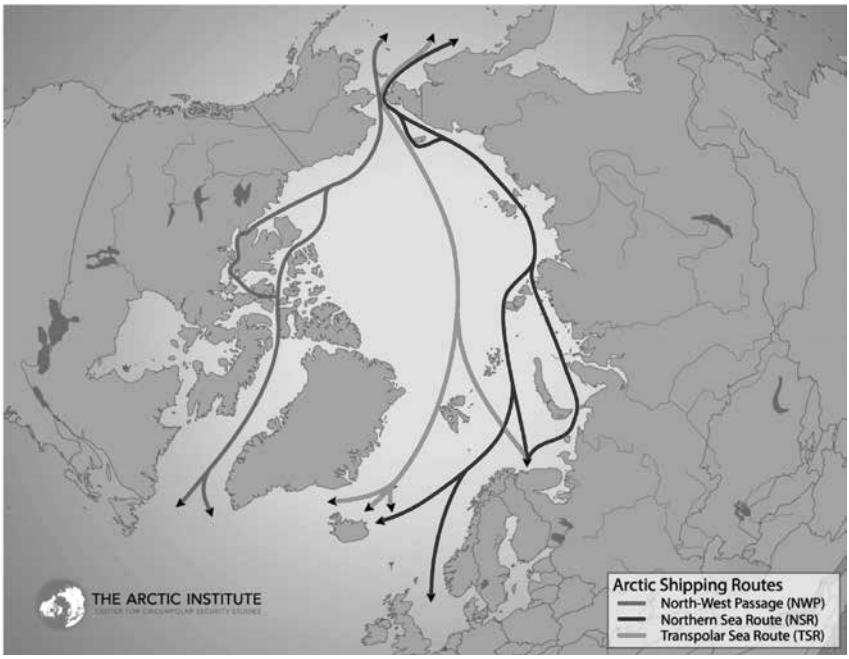
an increase in tourist inflow. However, this increased flow has to be regulated such that it does not overwhelm the small communities and the already fragile environment of the region. Most policy announcements have been cautious and stated that the Arctic communities would be included in the decision making to ensure that the economic development plans would be beneficial to them and sustainable for the environment.

The third aspect is the development of international trade transport corridor that will have an impact on the global movement of trade and commerce. Currently three trans-Arctic routes have been identified: (i) The Northwest Passage (NWP), crossing Canada's Arctic Ocean: the corridor is being explored for regular use, nonetheless it would require expert navigation due to thick winter ice formation and complex straits and pingos (underwater ice formations protruding from the seabed). The corridor is already in use. (ii) The Northern Sea Route (NSR) runs along the Arctic coast of Russia. While mainly limited to summer navigation, it would be easier to navigate than the other two routes due to its limited ice formation and the open water of the Barents Sea. It is the maritime route that is more likely to be used to connect East Asia and Western Europe. (iii) The Transpolar Sea Route, traversing the North Pole, encounters thick and persistent ice. For the moment this corridor is the least viable as it continues to have extensive sea-ice cover throughout the year.

"Routing shipping traffic through the Arctic allows for shorter sailing distances resulting in shorter trips. Shipping operators can achieve cost savings through a reduction of number of days at sea, energy efficiency improvements due to slower sailing speeds, or a combination of both." The main reason for the limited enthusiasm for Arctic shipping lanes is the lack of predictability of year-round operations due to weather conditions prevalent here. This unpredictability will impact punctuality of delivery along with economy of scale, which are necessary to earn profit. As and when these issues are resolved, the Arctic shipping lanes will become popular.

Another issue that nations of the region are addressing is port infrastructure. At the moment, there are limited numbers of ports of call along any of these routes. Russia, with the largest coastline of all the Arctic nations, is paying attention to the development of new ports and upgrading the facilities in its existing ports. Apart from Russia, ports in Norway and Iceland are also being

Figure 7: International Trade Transport Corridor in Arctic



Source: https://www.thearcticinstitute.org/future-northern-sea-route-golden-waterway-niche/

developed due to their locations for entry and exit from the Arctic Ocean. Denmark's policy identifies its role in the future of the Arctic shipping as a priority area of focus. Canada has also stated that it would develop both its port and airport facilities in the region along with building reliable railway network. Over the past few years, China has also increased its investments in the development of ice-breakers and container ships that would be able to travel through the Arctic waters. Chinese officials and government officials are also visiting the permanent members of the Arctic Council to increase economic cooperation and investments in such projects.

The strategies while highlighting the socio-economic developmental needs of the Arctic, also caution about the increased militarisation in the region. As the largest state in terms of territory, Russia dominates the Arctic geography and correspondingly dominates the security and infrastructure development. It also

has needs to have an enhanced presence to ensure that it can guide other ships in the region through radar coverage and emergency services. However, the question for the other members of the Arctic Council is whether Russia would be willing to use this power to coerce other nations with an aim to expanding Russian influence in the region.

This fear is compounded by the fact that, apart from the United States, the other members of the Arctic Council do not have the military budget to challenge Russia, despite collectively being part of NATO and having developed security relations with the United States. A reason for this fear is the US Coast Guard and Navy presently are under-equipped whereas Russia continues to improve its ice-breaker fleet, which is already the world's largest, and modernises its naval vessels with the latest defence technology. Russia is also taking steps to rebuild and expand its Arctic infrastructure which includes airbases, weapons systems, domain awareness, troop deployment, search and rescue tools, etc. As a strategic competitor, the United States has taken note of these developments and the potential "dual use" of Russian capabilities. To address the same, the United States is working to build its forces in the region to counter any challenge from outside powers. Despite tensions in the relations, it needs to be pointed that Russia and the United States, as the two most powerful nations of the Arctic, need to maintain some collaboration within a multilateral framework to not only diffuse tensions but also build mutual respect for established international rules and national sovereignty.

Another geostrategic challenge for members of the Arctic Council is the growing interest of China in the Arctic. As pointed out earlier, China, a non-Arctic State, in its strategy has stated that it is a "near Arctic nation", that is, the closest nation to the Arctic from continental Asia. China views the opening of the Arctic as a strategic advantage for its connection to Europe via the northern sea route. It also ensures that China does not remain dependent on the Indian Ocean Sea routes for its trade and commerce, routes that have United States military bases at strategic points. As is evident from its actions in the East and South China Sea, China has consistently challenged international law and this has caused concern for the United States in the Indo-Pacific region. The concern for the Arctic nations as well as other Observer States is that, with the Arctic gaining significance for China, it might gradually disregard international law in

the region which will disrupt established economic and scientific presence in the Arctic.

To sum up, the Arctic is a region with its own unique physical environment and a challenging political future. The melting of the Arctic ice has increased the potential for human activity here and in turn led to concerns about the future of the region. This has resulted in the emergence of the economic opportunities in the Arctic which are of interest not only to the littoral states but also to the non-Arctic nations. As the resources in the Arctic will be available in the future, the concerns over potential of exploitation and geostrategic contestations are already emerging. Within this there is also a need to accommodate the growing interests of non-Arctic nations in the region. The economic exploration of the region coupled with its growing geostrategic relevance will pose a challenge not just to the Arctic Circle nations but also to the international community as established international norms and rules are beginning to be challenged. The contradiction before nations is to take advantage of the economic potential, now available as a result of climate change, but with the caveat that it will likely contribute to accelerate the degradation of the environment, while working towards preserving the Arctic.

Within this changing scenario, India is emerging to be a key player in the region. The paper looks at India and the policy it has adopted to pursue its national interests and ambitions in the polar region. It is evident from its approach that India has realised the potential of the Arctic not only in terms of scientific research but also its strategic relevance. India is interested in the oil and gas resources, potential of shorter shipping routes and the impact of climate change in the Arctic on its own weather patterns. As the Arctic continues to attract attention, India is expected to play a larger role in the region both in terms of research and innovation as well in the governance.

Key Recommendations

1. A much-needed step towards increasing the presence of India in the region is through the *acquiring of a dedicated ice-class Polar Research Vessel, and building indigenous capabilities for construction of such vessels*. This would not only further the independent scientific research but would also be strategically important for the exploration in the region. India also needs to

set up a dedicated institutional funding support for Arctic research at the national level, given the importance of the Arctic for India's socio-economic and security needs. An effective way to achieve this goal would be to create funding channels for international collaborations and private-public sector joint projects.

2. *India needs to encourage scholarship to study the Arctic*, to build internal expertise on the subject. This is crucial because as the Arctic changes there is a need to build domestic expertise in order to contribute effectively in the global understanding of the ever-changing dynamics of the region. In the past few years, the number of researchers and scientists involved in polar studies has increased substantially in the Asian countries, although the numbers are far less for India. India needs to explore collaborations with the Arctic nations to further its research bases by establishing various study centres which act as bases for the furthering of interactions between scholars, academics, scientists and researchers on the issues relating to the Arctic like governance, geopolitics, resource development, sustainable development, etc. Enhanced research collaborations, joint projects would allow Indian scholarship to grow on the Arctic and be useful as it develops its policy for the future.
3. *Scramble for resources and joint collaborations*. The region boasts of the world's largest untapped natural resources. Given the ever-increasing dependence of countries on the import of the natural resources, the Arctic is expected to play a critical role in the near future. The possibility of large reserves of energy resources in the Arctic has led to a quest to develop technology and infrastructure that would allow extraction of said resources. The climate of the region would be a primary challenge for all. It will determine the development plan for the region; nonetheless, nations are preparing policies that would take advantage of the opportunities that a melting Arctic would present. As India along with the other Asian countries explores the possibility of importing energy resources from the region, it not only allows them to diversify their energy basket but also to partner with the Arctic nations in exploration of resources.
4. *India needs to be prepared for the new transport corridors*. The development of international trade transport corridor will also have an impact on the global

movement of trade and commerce. As pointed out, there are currently three trans-Arctic routes: (i) The Northwest Passage, (ii) The Northern Sea Route, and (iii) The Transpolar Sea Route. As nations explore these corridors to save time and fuel, India needs to understand the impact on its ports and transport corridors. India needs to also explore the need to enhance its ship-building capabilities to tap into the market for specialised ships for the Arctic along with building the human capacity to guide these ships in the Arctic.

5. *India could explore joint ventures for resource exploration, public-private enterprises*. One of the common features in the strategies of the Asian countries is the fact that they have established themselves in the region primarily through their scientific explorations and experimentations. These states have their own nodal agencies for the polar scientific research, state-of-art research stations in the region and have regularly conducted scientific expeditions in the Arctic Ocean. India also has followed a similar path. As it shares cordial relations with all member States of the Arctic Council and also most Observer States, it needs to leverage these relations to explore economic collaborations and engagements.
6. *India needs to push for reforms within the Arctic Council to give voice to Observer States*. India has, through its participation in various dialogues and deliberations of the Council, gained admission as an Observer State in the Arctic Council in 2013. Being part of the most important Arctic forum provides legitimacy to India in pursuing its interests in the region. Despite being an Observer State, India has a relatively limited role to play in the working of the Council. The most important limitation being that Observer States can only engage in working groups; they cannot initiate any proposal on their own but have to get the permanent member to initiate it; and, third, their financial contribution cannot exceed that of any other financing Arctic State. Keeping in view the long-term perspective and the rising importance of India, it needs to raise the discussion on reforms to the working of the Council. There have been calls for strengthening of the Observer Status by providing decision-making rights to them. India can pursue this aspect by pointing out the active participation of the Observer States during the negotiations of the Agreement on Enhancing Arctic

Scientific Cooperation, which came into force in 2018. Here Observers and the permanent members, along with Arctic States, took active part in the preparation of provisions of this document.

7. *Support the inclusion of Indigenous Arctic Communities in Policy Making*. While India's draft policy acknowledges the inclusion of indigenous Arctic communities in policymaking, this is one step that needs to be pushed effectively. The Arctic policies of all the member States have laid emphasis on socio-economic development of the people of the region. They all call on the inclusion of the views of the indigenous people in the future development of the Arctic. The indigenous communities' "way of life" is at risk as it is intrinsically linked to the natural environment; this includes issues of food security, loss of livelihood in traditional industries such as hunting and fishing. Climate change is a challenge not only in the context of the development of the Arctic but as the permafrost thaws, it could lead to destruction of infrastructure including roads, airports, etc., which could lead to significant economic losses, deterioration in the quality of life and also force migration in the region. Due to the challenges posed by the physical environment of the Arctic, international cooperation is fundamental for building new regulation that addresses new challenges and opportunities.

As contemporary polar research is being relocated at the intersection of three dynamic disciplines—geostrategy, geo-economics and climate change—it has led nations to look at the Arctic region as an asset for future development. While there is a call to address the issue of climate change and preserve the Arctic environment, many littoral and non-littoral States are preparing for a no-ice or less-ice Arctic of the future. The consequences of these changes have impact on various policy fields including environment, economy and international security, thereby becoming a cross-cutting task of international politics. This has resulted in many States publishing Arctic strategies and incorporating them in their foreign and domestic policies. In this regard, India's Draft Arctic Policy (2021) as well as its Arctic Policy, released in 2022, presents the blueprint of India's approach to the region. They list a wide range of activities and initiatives to be taken through Action Plans encompassing scientific, economic and diplomatic fields.

The monograph analyses the strategies adopted by India and its approaches to the region. It is true that, scientifically, India has achieved substantial expertise and has considerable stakes in the Arctic. The monograph seeks to look at how India aims to accommodate itself in the emerging geopolitics of the region and tries to project itself as a relevant player. This monograph is an attempt to understand the importance of the Arctic for India and how it can bring an Asian perspective to the discourse on the future of Arctic.

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