

Arctic: A Paradox and Antithesis

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Introduction

In an interconnected world with interlinked issues, observing the geophysical changes is critical. The Arctic is witnessing the convergence and interplay of the geophysical, the geoeconomics and the geopolitical in dramatic ways making it a paradox and an antithesis [1]. The changing Arctic landscape owing to global warming is keeping both the littoral and non-littoral countries busy and simultaneously alert through competition and cooperation as well as strategic positioning and posturing.

Three important reasons for enhanced attention in the Arctic region can be explained. First, the Arctic undisputedly remains a large geostrategic tract defined by new resource finds and the emerging transport routes [2]. Second, since the Arctic is a ‘semi-enclosed ocean surrounded by land, and like all high seas, governed by the laws of the sea (UNCLOS)’ [3], consequently understanding and interpreting the legal regimes governing navigation and the demarcation of the continental shelf is important. The third reason is over the question of potential resource discoveries. This will directly concern states’ economic interest. The Arctic holds vast untapped gas reserves and mineral wealth, making it the final frontier for economic and energy development. Resource development and commercial activities in the Arctic region will require massive infrastructural investment but becomes problematic owing to the region’s sensitive ecology—a paradox to contend with.

The three reasons for Arctic attention, as highlighted, suggests that as the Arctic becomes less inaccessible or, in other words, opens up with reduced sea ice, a number of different actors with varied, and not mutually beneficial, interest will simultaneously compete and cooperate in the region. The Arctic region has

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remained largely peaceful and stable. But peace does not mean the absence of conflict and it has to be seen how the world will navigate through the changing geopolitical dynamics and move towards a global knowledge commons that includes scientific understanding and learning, ecological protection and sustainable use of resources—what can be described as an ‘Arctic governance web’.

Science of Climate Change

In March and April 2013, the Intergovernmental Panel on Climate Change (IPCC) released the Working Group 2 and 3. These are described as summary for policy-makers. The WG 2, in no uncertain terms, warned of the increases in frequency of extreme weather events from the impact of climate change [4]. WG3, on the other hand, focused on solutions to curb carbon emissions by assessing mitigation options in different economic sectors [5]. Without additional mitigation efforts, the report says that the world may be headed to a 3.7–4.8 °C temperature increase by the end of the century [6]. Worrying was the fact that in spite of great attention to climate change mitigation policies worldwide, the annual greenhouse gas (GHG) emissions grew on average 1.0 billion tonne of GHG per year from 2000 to 2010 [7].

Some of these impacts captured in the Summary for Policy Makers (SPM) are [8]:

Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased.

Each of the last three decades has been successively warmer at the Earth’s surface than any preceding decade since 1850. In the Northern Hemisphere, 1983–2012 was likely the warmest 30-year period of the last 1400 years.

Ocean warming dominates the increase in energy stored in the climate system, accounting for more than 90 % of the energy accumulated between 1971 and 2010.

Over the last two decades, the Greenland and Antarctic ice sheets have been losing mass, glaciers have continued to shrink almost worldwide, and Arctic sea ice and Northern Hemisphere spring snow cover have continued to decrease in extent.

The rate of sea level rise since the mid-nineteenth century has been larger than the mean rate during the previous two millennia (high confidence). Over the period 1901–2010, global mean sea level rose by 0.19 [0.17–0.21] m.

Examining the Arctic Arena

The observed geophysical changes in the Arctic have made the region a destination for scientific research expeditions, monitoring and observation—that can be referred to as an ‘ecosystem’ perspective. Another lens to look at the Arctic—

another paradox—is that because of the meltdown, the Arctic has given way to an extremely active commercial and business space. Global economic trend towards high industrial growth will push demand on raw materials, in particular hydrocarbons. In other words, geoeconomics is quickly aligning with the opportunities that the geophysical changes in the Arctic present. Can this then be interpreted as redrawing the geo-economic map of growth and development in the Arctic? Or is a balanced ecological appreciation required that considers climate risks and vulnerability?

Geopolitical considerations, as observed earlier, are an important lens to examine the Arctic. Regions are fundamentally geographical concept but become dynamic and changeable with the influence of political factors. This is evident in the Arctic. In fact in certain sense it is unique as geographical features and values determine states' position, goal and response. Likewise, states' strategy impacts the Arctic. One of the reasons why the Arctic has remained stable is because issues have either been settled multilaterally or resolved bilaterally.

But the Arctic region is opening to many fronts. The possibilities of conflict of interest and the struggle for the control of values cannot be discarded. Despite the fact that tensions have remained historically low, a new set of political disagreement suggesting control and influence can create considerable disharmony. The race for resources inevitably leads to shove and push, making the Arctic potentially vulnerable to competition [9]. On the other hand, opening of shipping routes are likely to foster new cooperation and stimulate regimes and mechanisms. The region is likely to witness patterns of convergence and divergence among the local, regional and global players.

The Arctic's political temperature may escalate due to various factors. 'The immediate reasons could be the discussion on 'who' shall extract the oil when the ice thins and possibly disappears? 'How' will the new marine delimitation lines be drawn? 'Who' will control the new sea passage? And maybe at some stage a bigger question on 'who' owns the Arctic will be raised?' [10]

Legal consideration draws immediate attention to the Arctic. The Arctic Ocean is a semi-enclosed ocean surrounded by land and like all high seas is governed by the United Nations Convention on the Law of the Sea (UNCLOS) [11]. The Antarctica, a geographical contrast, is a landmass surrounded by an ocean. UNCLOS which was adopted in 1982 and came into force in 1994, did not envisage a special regime for the Arctic—the Arctic Ocean was no different from any other oceans [12]. However, under Article 234 it gave the Arctic coastal states special regulatory and enforcement rights to reduce and control vessel source marine pollution within the limits of the exclusive economic zone (EEZ) [13]. While a wide range of norms and regulations govern the Arctic, differences over the interpretation of the existing regulations can easily dampen the spirit of cooperation and goodwill because of the geophysical changes.

UNCLOS provides universal regime for all matters relating to ocean affairs and the law of the sea. It serves as the basis for the development of regional and national ocean policies, as well as the development of related regional and international instruments [14]. At the AsiArctic meeting at IDSA, New Delhi experts agreed that

to be 'actively involved in the Arctic it is vital to understand what exactly is the legal regime under the Convention and what issues are indeed critical and whether the Convention provides an adequate framework for dealing with those critical issues especially the legal regime that applies for navigation in new shipping routes and those that governs the exploitation of the vast oil and gas resources' [15].

It is interesting to note the US' legal position vis-a-vis the Arctic. Unlike all the Arctic states, the US is not a party to UNCLOS. But like all the Arctic states agrees that the legal regime contained in the UNCLOS applies to the Arctic as well. However, international laws and conventions invariably clash with sovereignty. According to UNCLOS, all coastal states have continental shelf that extends up to 200 nautical miles. This is well settled and has little contestation. But UNCLOS also defines the continental shelf beyond 200 nautical miles as 'extended or outer continental shelf'. Claims and counterclaims towards the 'extended shelf' will occur in the Arctic Region. For example, Canada's effort towards the recognition and acceptance of its extended continental shelf is a foreign policy objective.

Resource finds occupy commercial and economic attention in the Arctic. The Arctic is home to the world's largest remaining untapped gas and oil reserves. Equally important is the vast estimates of strategic minerals particularly the Arctic region of Russia which has deposits of nickel, copper, coal, gold, uranium, tungsten and diamonds. The Arctic is regularly dubbed as the 'final frontier for energy development' [16] and an answer to the world's energy thirst. Much of these potential reserves lie offshore, in the Arctic's shallow shelf. However, these are not easy to extract because of inclement weather conditions and extremely low temperatures. There is also an environmental economics and ecological cost to the oil and gas development.

It goes without saying that oil and gas extraction in the Arctic is inherently dependent on commercial profitability [17]. There are location challenges, weather hazards and unresolved maritime boundary disputes in the Arctic which adds to not only technical difficulties but also to the cost of oil production. Gas field exploration and extraction is comparatively viable than oil, particularly in Russia's Arctic. However, like oil it remains vulnerable to the difficulties of extraction particularly in terms of cost. Recent development in the US domestic energy market with the boom in shale gas production and the resultant low prices have made the natural gas from the High North commercially unfeasible.

Environmental concerns and public response vis-à-vis the development of Arctic resources influence policy decision. The 1989 Exxon Valdez oil spill in Alaska which aroused global concern and the Deepwater Horizon accident in the Gulf of Mexico in 2010 are reminders of the potential hazards and ecological consequences of drilling activities [18]. A number of oil companies have recently abandoned offshore drilling rights in the US part of the Arctic Ocean especially the Chukchi Sea. Royal Dutch Shell took a call to abandon all but one lease saying that it was not worth the costs of drilling in the remote area. Likewise, Cairn Energy's high investments in exploratory wells in Greenland's coast have made no commercial headway [19].

The much hyped Arctic tagline as the ‘new energy province’ is now questionable. Profit is a prime driver for oil and gas companies and clearly the initial euphoria over the hydrocarbons has evaporated because of unsustainable cost of extraction and low profit margin for the companies. Striking a balance between economic interests and lowering environmental risks will be crucial to resource management and governance in the Arctic. Given the current situation it is unlikely that Arctic will emerge as a major contributor to global energy resources.

The fourth attention in the Arctic relates to navigation and the sea routes. With the prevailing physical conditions in the Arctic and the global mitigation efforts to reduce carbon emissions with heavy investment towards renewable, extraction of oil and gas is low key. The Arctic is being seen as an active shipping route rather than an oil and gas production zone. With the Arctic meltdown, new shipping routes will open up. The legal frameworks for various types of passage (innocent, transit, archipelagic or free passage) are already enshrined in UNCLOS [20]. In the light of the sea route development, the Polar Code will need to be updated. The Antarctic Treaty System could serve as a model for the Arctic, particularly on how cooperation and coordination can be effectively put in practice, both for scientific work and logistics of expeditions [21].

Arctic: New Ways of Thinking

Multi-lateral Development Bank

As explained, the Arctic has an array of complex problems. To overcome challenges states have always responded through innovative ways and ingenious solutions. To recall, the Multi-lateral Development Bank (MBD) model was conceived to deal with the daunting task of reconstructing Europe and Asia in the post WWII. Similarly, such institutional approach can be considered to help fund international development in the Arctic. Increasingly, the Arctic will demand a governance structure that would embrace the interest of all developed countries, while respecting the economic sovereignty and environmental regulations and the interests of their northern inhabitants [22]. There are, of course, many unsettled questions regarding the role of MBD in the Arctic but it does merit a dialogue between multilateral financial experts and Arctic specialists regarding the advantages of MDBs and whether it can help meet the Arctic region massive requirement for new public infrastructure and private investment.

With the continued thaw, new polar shipping routes such as the Northern Sea Route and the Northwest Passage are receiving greater attention. Among the most important challenges are the needs for ‘responsible resource development, safe Arctic shipping and sustainable circumpolar communities’ [23]. All these specific areas will require new investments in critical infrastructure like improves road and rail networks, deep water ports, airports and runways. The lack of this infrastructure

inhibits resource development the lack of which has also slowed the growth of sustainable Northern communities.

The MDB are now far more experienced than the days of operation in the post-WWII and have through the decades gained wide experience in working with governments and the private sector, especially in the extractive industries. While, of course resource development in the North is dominated by mining activity but there is great scope in areas such as stronger governance structures and improved monitoring of environmental and social performance.

Developing Sustainable Development Goals in the Arctic

Sustainable development is a priority area for the Arctic Council, which follows closely the 1987 Brundtland Commission definition ‘as development which meets the needs of the present without compromising the ability of future generations to meet their needs’ [24]. Interestingly, Canada, in its role as first chair of the Arctic Council in 1996, defined sustainable development as ‘development which seeks human well-being through an equitable and democratic utilisation of society’s resources, while preserving cultural distinctiveness and the natural environment for future generations’ [25].

There is a tendency to view environmental protection and sustainable development as mutually exclusive. In fact, sustainable development includes strong environmental goals. One of the main outcomes of the Rio + 20 Conference was the agreement by member States to develop a set of Sustainable Development Goals (SDGs) that was practical, achievable and lasting. The idea was to build on the achievements of the Millennium Development Goals (MDG) that was to end in 2015. The agreement stated: ‘inclusive and transparent intergovernmental process open to all stakeholders, with a view to developing global sustainable development goals to be agreed by the General Assembly’ [26].

The Open Working Group (OWG) of the General Assembly, established in January 2013, was tasked to prepare the SDG and integrate it with the UN development agenda beyond 2015 [27]. According to the OWG, the SGD should be:

- (a) Not in conflict with international law but aligned to it
- (b) Incorporating the three dimensions of sustainable development: social, economic and environmental
- (c) Involving all relevant stakeholders.

It must equally be:

- (a) Focused on sustainable development but with coherent action
- (b) Catalyst for mainstreaming of sustainable development in the UN system
- (c) Focused on priority areas for the achieving sustainable development.

Based on the above framework for sustainable development goals, the next step forward for the stakeholder countries in the Arctic Region would be to develop and link the robust environmental protection policies governing the Arctic to the sustainable development goals of the UN. This is not something which the Arctic Council is unfamiliar with. In fact, the Council inherited the 1991 Arctic Environmental Protection Strategy (AEPS) to protect and promote sustainable development in the region. In 1996 when the Council was established it subsumed the five AEPS programmes: Arctic Monitoring and Assessment Programme (AMAP); Conservation of Arctic Flora and Fauna Programme (CAFF); Protection of the Arctic Marine and Environment Working Group (PAME); Emergency Prevention, Preparedness and Response working group (EPPR) and Sustainable Development and Utilization.

Mary Simon, Canada's former Ambassador for Circumpolar Affairs, had remarked that the 'Arctic Council must not make the mistake of seeing environmental protection and sustainable development as distinct, as the AEPS had done, but that sustainable development must have strong environmental goals' [28].

Most of the goals of sustainable development are important for the Arctic region. Oran Young, for example has emphasised that 'sustainable development should be the overarching framework for the Arctic Council as it sets out to chart new developments in international Arctic cooperation. Young has further recommended that subsistence preference, co-management, and the development of environmentally appropriate technologies and practices should be some of the guiding principles for the Council's work' 29.

Arctic and Asia: A Scientific Enterprise

The scientific evidences pointing towards global warming and the accompanying climate risks bring the Arctic and the Himalaya-Tibet in Asia under one lens of investigation in terms of competition for resources and managing the fragile ecosystem. Both the Arctic and the Himalaya-Tibet in terms of geophysical changes and geostrategic significance can be described as the most environmentally strategic locations of the world. In terms of resource use, sustainability and governance, the Arctic and the Himalaya-Tibet converge in remarkable ways. The Arctic is one of the original poles, while Himalaya/Tibet has come to be regarded as the 'Third Pole'. In both these regions, safeguarding the increasingly fragile ecosystem is drawing regional attention. The ecological footprint in the Arctic is heavy, with emissions accounting for up to 45 % of black carbon and 25 % of all mercury [30]. The glaciers of the Himalaya-Tibetan Plateau contain one of the largest reservoirs of snow, water, ice and the permafrost outside the Polar Regions and provide the source for the major Asian rivers including the Mekong and the Brahmaputra. Growing evidences indicating changing profile of the glaciers, reduced permafrost and monsoon variability are a source of livelihood concern for the vast population that is dependent on water for agricultural activities. Long-term estimates point to

reduced run-off from glaciers while short-term calculations suggest that water run-off from glaciers when combined with seasonal rains can result in flood conditions [31].

The Arctic and the Himalaya-Tibet share similar risks and vulnerability over global warming and climate change. The changing dynamics of the Himalaya-Tibetan Plateau glaciers are a combination of earth system changes at the local and regional scale. On the other hand, the melting Arctic ice is likely to result in sea level rise and alter the stable patterns of ocean currents resulting in unpredictable weather cycles. Scientists reason that the Himalaya-Tibetan Plateau is not only a key component of Asian monsoon evolution but that the fluctuations on the Tibetan glaciers have a significant impact on the climate system in the Northern Hemisphere and on the entire earth on various temporal and spatial scales [32]. Studies have also shown a significant co-relationship between the Arctic Oscillation (AO) and the autumn–winter snow depth on the Tibetan Plateau [33].

Scientists believe that the AO is causally related to weather patterns in areas thousands of miles away, including many of the major population centres of Europe and North America. NASA climatologist James Hansen explains the mechanism by which the AO affects weather at points so distant from the Arctic: ‘When the AO index is positive, surface pressure is low in the polar region. This helps the middle latitude jet stream to blow strongly and consistently from west to east, thus keeping cold Arctic air locked in the polar region. When the AO index is negative, there tends to be high pressure in the polar region, and greater movement of frigid polar air into middle latitudes’ [34].

Before the late 1970s when the AO was in its interdecadal negative phase, the snow depth over the Tibetan Plateau increased in autumn and then decreased in the following winter. Now the AO has been in a positive phase since the early 1980s, and consequently snow depth has decreased. Furthermore, sediments taken from the bottom of Kiang Lake on the Tibetan Plateau suggest that changes in wind patterns, which are clearly caused by global warming, are making the area dustier [35]. According to the American Geophysical Union, this trend could accelerate the melting of crucial glaciers in the Himalayas and affect already imperilled water supplies.

The increase in dust particles in the Tibetan plateau was at one time attributed to overgrazing and increased activity by local people. Scientific observation has now revealed that dusty periods coincide with the AO being in a ‘positive phase’. As a result of this positive phase, the Tibetan plateau is exposed to stronger winds in the summer. The link between dust levels and the AO, while not exact, does indicate that a dustier atmosphere can accelerate the melting of the glaciers in the Himalayas. Common science tells us that as dusts settle on white ice, it makes it darker thus absorbing radiation and accelerating melting. Dust also warms the air above, enhancing monsoon circulation patterns which could affect rain and alter rainfall patterns.

As the Arctic melt raises the sea level, the Tibetan glacier melt will increase the flow to many rivers, from the Yangtze, which irrigates more than half of China’s arable land, to the Indus river system, which is critical to the agricultural heartlands

of India and Pakistan [36]. Ongoing studies suggest that 40 % of the plateau's glaciers could disappear by 2050. Studies also indicate that full-scale glacier shrinkage is inevitable and will lead to ecological catastrophe [37].

The impact of warming on the Tibetan glaciers and its direct relation to river flows creates an opportunity for downriver countries in South and Southeast Asia to raise common concerns and draw China into a regional dialogue and joint study on the climate change impact on the glaciers and precipitation patterns. In the Arctic Council, China and India as key observers can exchange knowledge on the snow, water, ice and permafrost of the two regions. The findings of such studies will help both the countries to prepare preventive policies in the region. Downriver countries dependent on the rivers from Tibet should also advocate the establishment of a Himalayan Council on similar lines of the Arctic Council for the protection of the Himalaya-Tibetan ecosystem.

Normative issues like whether the oil and gas resources of the Arctic can be regarded as 'global commons' [38] or as the 'common heritage of mankind' [39] can have resonance to the glacial-fed rivers that originate from Tibet. But one, of course should be cautious of drawing parallels. Many states would contest the principle of 'global commons' or 'common heritage' based on sovereignty and territorial jurisdiction. However, it is an interesting thought process in an age of global governance and preventive policies.

Conclusion

The Arctic today expresses an 'antithetical situation' [40] with economic and commercial interest on one end and a need for mitigating climate risks and resource governance at the other. No longer the far and away region, Arctic's geophysical changes have global impact. The increasingly reduced Arctic Ocean ice has opened up new shipping routes and increased navigation. Warmer Arctic water is changing the migration patterns of fish population. The melting Greenland ice cap is directly influencing the planetary climate system in several ways, among these being rising sea levels. Climate change is influencing the state and society in the Arctic in both positive and negative ways. The evident geophysical changes accompanied by development opportunities have turned the Arctic into an important geostrategic space.

The Arctic affairs are not long distance for some Asian countries. Except for India, and to some extent Singapore, the other Asian countries' like China, Japan and South Korea interests are tied with the immediate economic developments in the Arctic region and in particularly the opening of the Northern Sea Route, which presents shorter and cheaper trade opportunities. Of all the Asian states, China's interest in Arctic makes economic sense. As the world's second largest economy and the biggest trader, China looks positively towards commercial ventures in the Arctic and is keen to partner with Arctic states to develop infrastructure, navigation facilities and services.

While in the short run economic opportunities are attractive, in the long run the rapid melting of the Arctic ice cannot be viewed as a positive development. The

Arctic is a bellwether, reminding that the earth is warming faster and ice melting faster. With this as an instructive backdrop, Asian countries as observers to the Arctic Council should actively participate in the six working groups of the Council and coordinate in mitigating the likely adverse impact of climate change. The Arctic is not just a regional concern for the littoral states but requires a global response.

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38. In the latter part of the twentieth century, the term 'commons' has expanded to include intangible resources such as the internet, open-source software, and many aspects of culture. The term 'global commons' is more recent and has several meanings: those resources that are shared by all of humanity, such as the sky, the oceans, or even the planet itself; the sum of various local and regional commons across the world; and a philosophical position suggesting that humankind has both a right and a responsibility to steward the wise use of the earth for all living species, as well as for future generations. See United Nations Institute of Training and Research, 'Introductory e-Course to the Global Commons', at <http://www.unitar.org/event/introductory-e-course> on global common. Explained in Cited in Uttam Kumar Sinha, 'Interlocking challenges: EU-India convergence on climate change', in Luis Peral and Vijay Sakhuja (Eds.), *The EU-India partnership: time to go strategic?*, Paris: EU-ISS, 2012, p. 158.

39. The concept of the common heritage of mankind was first articulated in 1970, when the UN General Assembly adopted a Declaration of Principles governing the seabed and ocean floor. Now this concept includes outer space, the legal status of lunar minerals, geostationary orbit, radio frequencies used in space communication, solar energy, low earth orbits and Lagrange points, the internet, etc. The Arctic according to non-Arctic Asian countries is rightly called the 'common heritage of mankind'. See, Col PK Gautam, 'The Arctic as a Global Commons', IDSA Issue Brief, 2 September 2011, at http://www.idsa.in/system/files/IB_ArcticasaGlobalCommon.pdf. Cited in Cited in Uttam Kumar Sinha, 'Interlocking challenges: EU-India convergence on climate change', in Luis Peral and Vijay Sakhuja (Eds.), *The EU-India partnership: time to go strategic?*, Paris: EU-ISS, 2012, p. 157.
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