

The Global Commons: The Arctic and the Danger of a Sequel in Outer Space

Written by George Sariaak

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GEORGE SARIAK, SEP 1 2015

The Learning Curve of the Commons: The Tragedy of the Arctic, and the Danger of a Sequel in Outer Space

Academics are becoming somewhat increasingly sceptical of how effective future governance of the global commons will be based on the ineffectiveness of its turbulent past. Managing the global commons is a monumental task and failures should not pose as deterrents to those who aim to govern and preserve the commons. Instead past failures experienced managing the commons should be understood as lessons that comprise the learning curve of the commons. These lessons should inform future decision making in the relatively new commons of outer space and cyber space. This essay will explore the unique security challenges that states face when managing the global commons of the Arctic and outer space, presenting specific problems in each of the commons and expressing proposed solutions and some of their critiques.

The Global Commons in a Globalised World

"We have experienced races for arms in land, the sea and the air. Outer space must not be another arena for an arms race." [1]

This essay has already alluded to a number of the commons that comprise the global commons. Albeit, it is a prerequisite for this essay to determine an explicit understanding of what constitutes a global commons and its importance in a globalised world. The United National Environment Programme defines the Global Commons as "resource domains or areas that lie outside of the political reach of any one nation State." [2] As previously mentioned these commons are generally accepted to be the "sea, air, space, and cyberspace." [3] With an exception to the latter, these commons have existed as long as time itself however it is only through the phenomenon of globalisation that the question of governing the Global Commons has grown in complexity and urgency. Whether you agree or not with the scholars who express that globalisation is a phenomenon of the 21st century, globalisation itself has played a pivotal role in establishing gaps in the governance of the Global Commons by its greater usage.

The World Health Organization understands that globalisation is "the increased interconnectedness and interdependence of peoples and countries" and is comprised of "two interrelated elements." [4] The first is "the opening of borders to increasingly fast flows of goods, services, finance, people and ideas across international borders" and the second is "the changes in institutional and policy regimes at the international and national levels that facilitate or promote such flows." [5] The symbiotic relationship of the global commons and globalization is all too evident as the commons act have acted as a foundation for globalisation. Therefore, we can interpret that the "Global Commons are first and foremost resources for interchange" and additionally "infrastructure for interconnectedness in an ever more globalized world." [6]

State Security Issues and the Management of the Arctic

Global warming has been the key factor in reshaping the Arctic into a region of new strategic and commercial interest

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that poses opportunities and risks to state security. The “melting Arctic ice transforms the region from one of primarily scientific interest into a maelstrom of competing commercial, national security and environmental concerns.”[7] One issue is the unresolved territorial claims largely heightened with the opening of new Arctic shipping routes and the new found accessibility of previously unreachable oil reserves. “Eight countries have territory in the Arctic circle”, which are “the United States, Canada, Russia, Norway, and Denmark, through Greenland, which are coastal states, plus Finland, Sweden, and Iceland.”[8] [9]

“Due to climate change, the region’s ice is melting, opening new shipping lanes and offering access to undiscovered oil, gas, and other mineral deposits.”[10] This means there are actors outside of the Arctic Eight, including non-state actors with a growing interest in the future of the Arctic.[11]

There are two main areas of contention threatening state security. The first being “territorial issues” over the “areas geographically beyond each state’s legally recognized exclusive economic zone” and the second is “Transshipment disputes”.[12] An exclusive economic zone (EEZ) is expressed in the “1982 UN Convention on the Law of the Sea (UNCLOS)” as “territorial zones that extend up to 200 nautical miles from a country’s coastline.”[13] States can achieve “limited extensions of their EEZ if they can prove their continental shelf extends past the original boundaries.”[14] Arctic states are claiming “additional territory beyond its EEZ in order to secure additional energy resources”, however “because these boundary claims overlap, this creates potential for conflict.”[15] One example are the “conflicting claims by Russia, Denmark and Canada over the Lomonosov and Mendeleev Ridges.”[16] “In August 2007 Russian explorers planted a titanium flag on the Lomonosov seabed” with intent to “send a message about their perceptions of sovereignty to the other Arctic states”.[17] Even if this move appears aggressive, other actions such as when “Vladimir Putin declared 3.7 million acres in the Russian Arctic as a national park” seem to present that Arctic states will gain more for cooperation than asserting sovereign rights.[18] However the U.S Geological Survey contends that the “undiscovered conventional oil and gas resources of the Arctic are estimated to be approximately 90 billion barrels of oil, 1,669 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquids.”[19] This means that approximately “30% of the world’s undiscovered gas and 13% of the world’s undiscovered oil lies hidden in the Arctic.”[20] According to a report by Chatam House in May 2014 at our “current consumption levels there are sufficient resources for 50 years or more.”[21]13. However “new technology, especially that which allows drilling in deep water, also potentially opens vast areas of the Arctic to oil and gas exploration.”[22] This affirms the argument that as resources continue to become scarce the resource rich offshore areas of the Arctic region will increasingly present itself as a valuable assets to states for ensuring their own energy security.

The second area of dispute is again a by-product of climate change as the melting of ice has meant the possibility of new Arctic shipping routes that will be of great commercial and economic advantage to states in a globalised world. The phenomenal rate of Arctic melt has meant scientists have “projected that the region will become similar to the Baltic Sea and will therefore become fully navigable on a year round basis.”[23] The first new route is “the Northwest Passage, previously thought to be too treacherous to traverse.”[24] It is of great strategic interest as the “use of the North-West Passage over North America could shorten shipping routes between Asia and the US east coast by 5,000 miles.”[25] Similarly “the Northern Sea Route over Eurasia is also important since it shortens shipping routes between northern Europe and north-east Asia by 40 per cent compared with the existing routes through the Suez or Panama canals.”[26] [27]

One area of disagreement is exhibited by allies Canada and the U.S as to “whether the Northwest Passage constitutes an international strait or forms part of Canada’s internal waterways.”[28] Many interpret Canada’s claim over the Northwest Passage not as a power play but as a way to ensure security as “ships must respect Canadian regulations and controls relating to safety, security, environment and Inuit issues.”[29] Howbeit academics see that the “Canadian claim of internal waters to the Northwest Passage will set a worldwide precedent and encourage other states to assert sovereignty over waters that are currently considered to be international by law.”[30] A “specific country of concern is Iran, which would be likely to assert greater national control over the Strait of Hormuz”.[31]

State Security Issues and the Management of Outer Space

Outer space is an exorbitantly different global commons to that of the Arctic high seas. Our reliance on the Arctic

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region for shipping routes and resources is comparable only to the use of outer space for its capabilities of diffusion of information, in that sense it is closer to the global commons of cyberspace. However the Arctic and outer space unlike cyberspace occupy a physical space and therefore experience similarities in terms of how they're governed. To a greater extent than the Arctic the accepted location of outer space by scientists is still heavily contested. The Fédération Aéronautique Internationale established the conventional understanding of the beginning of space at 100 kilometres above sea level. This separation between the atmosphere and space has come to be known as the "Kármán line after the person who calculated that aerodynamic lift was impossible at higher levels without attaining orbital velocity." [32] In the Digital Era there has been an "increasing reliance on the peaceful uses of outer space" [33] However intertwined with this has been the "increased understanding of the risks posed by unmitigated space traffic and the dangers of weaponizing this theater." [34] The issues surrounding the management of outer space can be concisely understood as the three C's "an abbreviation for congested, competitive, and contested space." [35] Greater competition among states vying to join the ranks of other space nations should be interpreted as positive developments in world progress. However due to the congested nature of space from the alarmingly increasing rates of space debris an increasing number of satellites could mean a contested commons. There's a worry that the necessity of outer space as a resource will mean states battle it out for space supremacy.

Governance of the Arctic and Outer Space

It has already been made explicit how the two global commons in question are entirely different in terms of their usage, their accessibility and also many of the problems they face in terms of management. Although there may be incalculable differences between certain global commons, they can still "overlap in terms of governance systems." [36]

There are many ideas of how to manage the global commons, one of the first is privatisation and state ownership. Theories on implementing this strategy as expressed in Wijkman's article *Managing the Global Commons* exhibit numerous pitfalls that discredit its effectiveness. [37] Justifiably for many this management technique seems logical, as "the shift from *res nullius* to common heritage of mankind is dramatic" as "it entails overcoming the classic Westphalian system of national sovereignties in the name of a commonly owned domain." [38] Principally due to globalization, global governance has presented itself as the most viable option to managing the commons. In essence simply through this change in ethos state security is being challenged through reductions in state power and sovereignty as global actors prohibit certain actions of states. Although this perspective is largely Realist and Liberals would see collective governance as "a more promising strategy for safeguarding free access to the Global Commons". [39]

In this area we see how the two commons in question are actually very similar in how they try to manage their very unique problems with shared notions of commons governance. Currently "the debate on the future of Arctic governance centres on whether to create new or use existing multinational frameworks." [40] The Arctic Council is the most renowned organization to manage the Arctic since its founding in 1996. It is regarded largely as a unique "intergovernmental forum" [41] or a "cooperative, innovative and inclusive governance structure" for the unique situation in the Arctic region. [42] At the time of its formation "the US was adamant that the Arctic Council should not, as part of its mandate, discuss national security issues", therefore the Arctic council is involved in ensuring the environmental security and continued sustainability of the Arctic. [43] One example is with the increased shipping in the Arctic region "the Arctic Council conducted an Arctic Marine Shipping Assessment in 2009, calling for mandatory regulations on ship construction standards, which are currently voluntary and vary greatly among countries." [44]

As Murphy states, "space and cyberspace have notably less mature governance regimes" than the other global commons. [45] Therefore there are not as many differing governing bodies in outer space than in the Arctic high seas as the need to govern space only became apparent in 1957 with the launch of Sputnik I. [46]

Due to the uniqueness of the domain, there are no territorial, or indigenous territorial claims to the region as in the Arctic. Therefore the role of United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) fulfills the equivalent roles of the Arctic council as a platform for communication and cooperation in the region and the role of the United Nations Convention of the Law of the Sea (UNCLOS) as the largely accepted legal framework for

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formulating treaties and international laws. After UNCOPUOS headed discussions there was the formulation of the “1967 Outer Space Treaty, the 1968 Rescue Agreement, 1972 Space Liability Convention, 1976 Registration Convention and 1979 Moon Treaty.”[47] Although the Outer Space Treaty of 1967 is “the primary regulatory structure that establishes space as a global commons and defines states’ right to access and use space for peaceful purposes.”[48] Similarly to UNCOPUOS and the treaties that followed, the UNCLOS “governs activities on, over, and under the world’s oceans, including territorial seas, international straits and exclusive economic zones, while also dealing with continental shelf delineations and protection of the marine environment.”[49]

The Global Commons as a Finite Resource: State Security Concerns on the Environmental Issues of Arctic Melt and Space Debris

Access to the commons has been open to all, as the intention of the commons is to benefit humankind as a whole. However unregulated access to the commons has some fatal flaws as argued by Garrett Hardin in 1968 article with his theory of the *tragedy of the commons*. Hardin’s conceptualization is that those who have the opportunity to “over-exploit shared environmental resources” will do so to serve their own self-interest even though they are “aware that it is against their long-term interests.”[50] Therefore intervention is imperative to ensure the commons are not abused, thus the management of the commons despite some challenges to state security is a necessity, in order to “benefit humanity as a whole for generations.”[51]

In a globalized world, state security can be argued to be comprised of global environmental security as states have more to lose now than ever from increasing environmental concerns.[52]

Levy contends that “for any environmental threat to be a security threat, there must be some demonstrable connection to some vital national interest”.[53] This is typically true in the case of the Arctic and outer space, with the issues of Arctic melt and even more so with space debris. Due to global warming the Arctic will experience “increased human activity such as traffic from commercial shipping, tourism, and oil and gas exploration” which will mean a greater amount of “soot emitted by maritime vessels and operations will land on the ice.”[54] This leads to “greying of the icecap, as black carbon from incomplete hydrocarbon combustion lodges itself in snow and ice, causes what was once a reflective surface to absorb more sunlight, melt, and warm the water.”[55] The White House states that Arctic melt is “altering the climate of lower latitudes, risking the stability of Greenland’s ice sheet, and accelerating the thawing of the Arctic permafrost in which large quantities of methane – a potent driver of climate change – as well as pollutants such as mercury are stored.”[56] “The most obvious of the political and social effects that might pose national security issues are those driven by water scarcity.”[57] Already “saltwater intrusion from rising sea levels is already contaminating underground water sources in Israel; Thailand; small island states in the Pacific Ocean, Indian Ocean, and Caribbean Sea; and in some of the world’s most productive river deltas, such as the Yangtze and Mekong.”[58] One of the greatest threats to states’ security is “avoiding water contamination becomes increasingly important as water scarcity intensifies.”[59] In accordance with Article 76 of the UNCLOS, states such as Russia, Norway, Canada and Denmark have already made claims to the Commission on the Limits of Continental Shelf (CLCS) to have an extension on their EEZ. If extensions are granted due to irrefutable scientific data, there could be repercussions for state security due to off-shore drilling as there would be greater levels of water contamination.[60]

Space debris is the best example of an environmental concern in a commons posing as a great challenge to states’ security interests. “Space debris is an umbrella term taken to mean any human-made object that is up in orbit which does not serve a useful purpose” these are things such as “unused satellites, spent rocket stages, detached explosive couplings, a runaway toolkit, flecks of paint.”[61] The nature of space debris is more immediate and direct as a threat than global warming as it “increases the chances of damage and destruction to space assets and hinders the use of outer space for all.”[62] Much like Arctic melt, space debris is self-inflicted and is escalating as further “impact events increase the amount of debris in orbit.”[63] However the immediate ceasing of any space activity is not a solution as the “Kessler Syndrome declares space debris will increase, even in the absence of placing new objects on orbit”.[64] “This is possible due to an oversaturation of a particular orbital belt and the eventual random collisions between existing space debris and objects, resulting in collision cascading”.[65] The orbital belt in question is the lower earth orbit (LEO) which has disastrous implications as in the future there could be disruptions to “the

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communications, which space-based assets provide” in age where they are “vital for the life of digital nations.”[66] Brown vindicates a solution, stating “it is imperative that the capability to remove debris be developed, in addition to continuing with ongoing mitigation of debris.”[67]

There is no clear way of how to deal with the debris issue as some the initiatives proposed to solve this problem require “large amounts of mass to be placed in orbit, some of which, if experience is any guide, will become yet more debris.”[68] In addition to this the “schemes are also expensive, and there is no cost-sharing mechanism to ease the burden, nor is there any international organization empowered to take it on.”[69] States involved in the development of anti-debris systems in the future could either increase or decrease their security depending on your interpretation. There are arguments that states who engage in “the process of removing debris would improve their skills considerably and make them more formidable in the event of a conflict in space”.[70] This is certainly the case as “the practice of removing debris has dual uses with anti-satellite (ASAT) activities” and therefore states would have viable justification for the creation of “prototype space weapons systems” to combat the debris.[71]

Liberals would interpret the attempt to formulate a system to deal with the debris as a great service to humanity for ensuring the future of another finite global commons. However many realists would see the slightly more Machiavellian benefits to the creation of kinetic weapons for uses in outer space. Other than possessing space weapons “if American forces created a protective service to remove debris for allied powers and private entities” they could dominate the commons and generate a profit at the same time for their services.[72] Brown theorizes that a “significant strategic importance would be the deterrent effect that a debris service would have on the activities of other space powers and entities.”[73] Contradictory to this theory, Hebert contends that “knowing an adversary (current or future) possesses space weapons results in increased tensions among state entities, which can lead to destabilization and stressing effects” such as a never ending build-up of their own space security capabilities.[74] Hebert argues that the security dilemma in the medium of space is more dangerous than nuclear weapons in the past as mutually assured destruction is not there to deter states of their actions. Therefore future legislation to prohibit ASAT weapons is imperative to stability in the international system.[75]

“The benefits to national security from space operations and services have increased greatly in the last few years” and even more states are becoming aware of how acquiring space assets can protect their security.[76] Space powers such as the U.S have a “dependence on space systems for its military power”[77] for example in “the U.S.-led invasion of Iraq in March 2003, more than 50 satellites supported land, sea, and air operations in every aspect of the campaign.”[78] U.S technology such as “remote sensing satellites provided data on the disposition and strength of Iraqi forces, provided targeting information, and allowed coalition forces to assess battle damage.”[79] Furthermore “the specialized Defense Support Program (DSP) satellites were able to provide warning, albeit very short warning, of Iraqi Scud missile launches.”[80] Therefore it is a tenable conclusion that “debris is a clear risk to military capabilities, which provides some justification for including debris as a threat to national security.”[81]

The benefits of space are unparalleled for ensuring dominance above non-space nations in terms of state security. “Space services are a force multiplier for conventional forces, as they improve capabilities and performance” also they “can significantly expand intelligence collection and analysis for assessing threats and providing warnings.”[82] There is evidence that “space information increases transparency among nations concerning their weapons programs and military forces, even if the target nation chooses not to cooperate.”[83] Potentially removing the factor of uncertainty by states in the equation of the security dilemma, therefore space assets could lessen the chances of an unnecessary build-ups of arms in the future. This is supported Nanduni Hasintha Goylnage the Assistant Director, in the Ministry of External Affairs of Sri Lanka as he states that “Sri Lanka attaches importance to transparency and confidence-building measures (TCBMs)” which “can promote mutual understanding and reduce misperceptions among States”.[84] Aside from their operation in the military sphere, space assets can ensure state security by providing “critical data for humanitarian assistance and disaster relief missions.”[85] For example “satellite images proved invaluable tools to the responders of the 2008 earthquake in China, 2004 tsunami in Southeast Asia, and countless other relief efforts.”[86]

Conclusion

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This essay has given a brief insight in to the many current and future issues in the global commons of the Arctic and outer space. Furthermore, the essay has attempted to illuminate the complexity of the two commons in question, by their very unique situation and problems in management, and has interpreted the severity of the risks of mismanagement of the commons and the implications upon state security. Although the two commons are distinctive from one another, the essay has illustrated how certain problems reach across more than one global commons and explained the prospective solutions to these problems in the global commons. If anything this essay has compiled evidence of how difficult the situation is in the Arctic and how outer space is at risk of a similar dilemma. If we can take any similarities between the two commons it is that their management should be determined by global governance and cooperation. The Arctic is an equation that has failed to be balanced and thus failed to be solved, however a restructuring of the governing systems already in place for outer space could be a determining factor in a peaceful and prosperous future, including, potentially, in the Arctic.

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*Written by: George Sariak
Written at: Swansea University
Written for: Helen Brocklehurst
Date written: January 2015*