

# China's Polar Silk Road: Overview, Challenges & Opportunities

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*China's Belt & Road Initiative has taken on a global perspective. Not only is there a "Space Silk Road" now, but in 2018 China unveiled its aspirations in relation to the Arctic region in what has been termed the "Polar Silk Road".*

*The Arctic Region is rich with natural resources and, with the effects of global warming, will allow sea traffic movements for a larger part of the year. China has spelled out its strategic ambitions, which are matched by potential investment for both projects and countries within the Arctic corridor.*

*The Belt & Road Initiative is a powerful tool by which China is stimulating economies and projects. A greater influence in Arctic affairs is a logical next step, bringing with it opportunities for both Chinese and international organisations.*

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## 1. CHINA'S ARCTIC AMBITIONS

**A further** "dimension" of President Xi Jinping's vision is to expand the Belt & Road Initiative ("BRI") to include activity, influence and investment across the Arctic region. In January 2018 China's State Council Information Office ("SCIO") released a whitepaper titled "China's Arctic Policy"<sup>i</sup> (referred in this paper as "CAP").

This next stepping stone initiative reinforces that the BRI has quickly unfolded as a global strategy, which includes a growing

presence across the Pacific<sup>ii</sup> and even stretches to potential in Latin America<sup>iii</sup>.

China has a number of potential advantages where the Arctic is concerned. The Arctic areas suffer from many of the "urban drift" phenomena that are observable in less challenging climates<sup>iv</sup>. Additionally, the Northern Sea Route<sup>v</sup> is a formidable navigational exercise, with vessels requiring specific "ice class" construction and requiring either "ice breaker" capacities, or alternatively independent ice breaker pilot boats for much of the year. Incidents can result in considerable difficulties, and endanger

crew members on vessels that ignore safety and operational protocols<sup>vi</sup>.

The Arctic's harsh climate has therefore served as an informal "barrier to entry" for both activity and investment. In contrast to the position of many nations, China appears ready willing and able to dedicate both capital and expertise to the development of the Arctic region. In time that capital will undoubtedly bring geopolitical influence to one of the planets last frontiers.

## 2. GLOBAL WARMING BITES

**An unfortunate** byproduct of global warming has been the impact on the extreme regions<sup>vii</sup> at both ends of planet earth<sup>viii</sup>. As the Arctic Cap has thinned, heated<sup>ix</sup> and receded, marine transport has been able to navigate its waters for longer periods of the year. With the passage of time, and the ongoing effects of global warming, access to northern sea channels will only increase.

Sovereign nations are not the only ones considering the commercial implications of global warming on marine transport. Commercial operators such as Maersk also considering the feasibility of expanding activities in this region<sup>x</sup>.

The initial sentence of the Forward section of the CAP notes:

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*Global warming in recent years has accelerated the melting of ice and snow in the Arctic region. As economic globalization and regional integration further develops and deepens, the Arctic is gaining global significance for its rising strategic, economic values and*

*those relating to scientific research, environmental protection, sea passages, and natural resources*

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Pursuit of various activities has multiple purposes for China. There are the obvious benefits from shortened trade routes and access to large and untapped mineral reserves, but there are also more subtle benefits including a greater understanding of the environment given areas of China's seaboard being exposed to changes resulting from rising sea levels.

What can be assured is that with capital will come ambition for both political and business influence across the Arctic corridor. As the writer often quotes from the *Wizard of Id*: "Remember the golden rule – whoever has the gold makes the rules"<sup>xi</sup>.

In the Arctic, Russia and China are leading the vision for deployment of capital, with other nations, in particular those from the West, currently a long way behind. And the alliance between China and Russia to develop Arctic resources will likely also only grow stronger.

## 3. SHIFTING GEOPOLITICS IN THE ARCTIC CIRCLE

**The Arctic** is administered and overseen by an intergovernmental forum titled the Arctic Council<sup>xii</sup>. Finland is currently the Chair<sup>xiii</sup>. The member states of the Arctic Council are Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the USA.

China is not currently a member state, but became an accredited Observer in 2013. It is also often referred to as a "near Arctic State", and from the CAP, China clearly has

ambitions of upgrading this classification to becoming a “stakeholder” in the near future. There is no single treaty that oversees the affairs of the Arctic region, and this is an important element to consider – including that much of the region is defined as being in International Waters.

The Arctic Council’s purpose is encapsulated in the following introduction, from the Council’s website:

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*The Arctic Council is the leading intergovernmental forum promoting cooperation, coordination and interaction among the Arctic States, Arctic indigenous communities and other Arctic inhabitants on common Arctic issues, in particular on issues of sustainable development and environmental protection in the Arctic.*

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The potential for the extraction of mineral resources, in particular large reserves of Oil & Gas, will in all likelihood introduce more complex politics to the region. Numerous concerns have been raised on China’s overall intent, including potential militarization. The CAP makes no mention of any potential military buildup, but does specifically identify promoting peace & stability in the Arctic<sup>xiv</sup>.

China anticipated a certain level of resistance to the CAP, as Vice Foreign Minister Kong Xuanyou noted at a briefing coinciding with the release of the CAP<sup>xv</sup> :

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*Some people may have misgivings over our participation in the development of the Arctic, worried we may have other intentions, or that we may plunder resources or damage the environment. I believe*

*these kinds of concerns are absolutely unnecessary*

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China is not alone in its vision for the Arctic. Russia has also been vocal in its ambitions and support for the rejuvenation of the Northern Sea Route, and has been more active with naval activities in Arctic waters of late<sup>xvi</sup>. In March President Vladimir Putin noted<sup>xvii</sup> :

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*Our goal is to make it a truly global and competitive transport route*

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Russia has hoped for revenue to be derived from numerous services and projects across its northern coastline. From servicing the maritime transport vessels, to the development of infrastructure and resources projects in remote locations. It will be interesting to observe, however, how technology will impact Russia’s vision of being able to capitalize on the region as both a “marine toll road” and a key infrastructure styled corridor that Russia is in the box seat to service.

In the writer’s opinion China and Russia are economically aligned in the development of the Arctic region and as they are both super powers the potential for political shifts is real. China is energy hungry, concerned about historic limitations to import energy and looking to export skills and technology. Russia is ambitious to attract both external capital and partners to develop vast untapped reserves, which will boost its economic output from assets that might not otherwise be developed. Projects such as the Yamal LNG facility in Siberia will lower China’s vulnerability to the long discussed “Malacca Dilemma”<sup>xviii</sup> given the sea route to bring Product to South East Asia.

The USA does not presently have the naval technology to bring influence and relevance to the Arctic as it does to the Indian, Pacific and Atlantic Oceans. Mobile assets, such as ice breakers, are indispensable. It is unclear how many the USA currently have – but it is one or two only.

Additionally, the USA does not presently have the ship building technology to build “ice class” vessels (*and particularly not naval ones as Russia is doing*)<sup>xi</sup>. As a result, the ability of the USA to project an in-region presence is limited, for the near term at least.

With both China and Russia lobbying other Arctic Council countries, and additionally other Nordic countries, the potential for political change – in part driven by a willingness to commit investment dollars, is real.

#### 4. KEY BENEFITS THE ARCTIC CAN DELIVER CHINA

**Despite** the extreme isolation of the Arctic, China will derive a number of strategically specific and important benefits from an opening up of the region. These will arguably include:

1. ***Straits of Malacca & South China Seas.*** Any new initiative that can lower the reliance on the Straits of Malacca as a trade route is a significant positive for China. The “Malacca Dilemma” referred to elsewhere in this paper highlights the potential vulnerability of China to a naval blockade of that “choke point” waterway. Any such action would in a short time materially impact China’s energy supply. Needless to say, any move would

also likely elicit a strong response from the Chinese. Therefore, accessing Oil & Gas from the Arctic adds to China’s energy security. Territorial disputes in the South China Sea, including militarisation of various Atolls<sup>xx</sup>, in the writer’s opinion also in part stem from the imperative of protecting the Straits of Malacca.

2. ***Distance To Europe.*** It is anticipated that up to 15 days can be cut off current sea routes to Europe from China via the Northern Sea Route. Not only does this result in lower direct cost as a function of fuel and other overhead to make the journey<sup>xxi</sup>, but there are indirect benefits seen including lower greenhouse gas emissions due to reduced emissions.
3. ***Speed For Development.*** The ability to improve and expand on existing Arctic infrastructure means the speed to develop the Polar Silk Road may be shorter than railways and roads stretching through the middle of Eurasia. Old sea ports can be retro fitted and put into operation more efficiently than construction anew. Russia is encouraging such thinking which also represents a positive for communities in these remote regions, in terms of potential trade routes opening up and inbound tourism.
4. ***Domestic Industry.*** The north-eastern seaports & ship building yards of China will benefit from the construction of specialist marine vessels as well as the engineering & construction of associated hardware for deployment into planned Resources and Infrastructure

projects. China is already constructing specialist ice breakers, such as *Snow Dragon 2*, which will have direct relevance for the Polar Silk Road<sup>xxii</sup>.

5. **Boosting “Shoulder” Industries.** Industries such as tourism will also benefit, with China commencing to build specialized cruise liners specifically equipped to traverse the Arctic regions<sup>xxiii</sup>. This is an area that has been actively discussed since the release of the CAP, although not all countries are welcoming of high tourism traffic in pristine regions, nor accommodating to some of the more unorthodox tourism plans – such as an Arctic golf course in Iceland<sup>xxiv</sup>.
6. **Influence & Citizenship.** Working collaboratively with other nations is a core part of the Belt & Road Initiative’s vision. China has the potential to fill the “capital vacuum” for major infrastructure projects that currently exists in much of the Arctic region. The language of the CAP stresses that China’s ambitions are not purely commercial – including protecting endangered flora and fauna. This is of course a positive acknowledgement from a *global citizenship* perspective. But the Polar Silk Road would be another area where Chinese technology and excess human resources can be put to work to generate returns. There are often comparisons drawn between the BRI and the *Marshall Plan* which was implemented following World War 2<sup>xxv</sup>. There is some logic in such a comparison, and overtime any such initiative will

naturally result in increased influence.

7. **Technology Development.** China is arguably the global leader in the rapid “fast follower” development of technologies. In order to open up the Arctic region numerous technology angles are going to be required – from deep sea drilling in frigid waters to the fresh thinking and design of “ice class” vessels. Encouraging innovation in combination with dedicating resources to tomorrow’s Arctic compliments the overall collaborative and *future facing* strategy of BRI.

The ability to leverage the Northern Sea Route also brings additional direct benefits<sup>xxvi</sup> for the world as a whole. These include the reduction in greenhouse emissions that are associated with marine transportation. In time with the introduction of “hybrid” power sources, including LNG, it is hopeful that such technology can be introduced to other forms of marine and land transport.

An additional added benefit is the reduced levels of piracy associated with the traditional routes via the Cape of Good Hope or the Suez Canal. This assists in reducing cost – both from loss of cargo and insurance premia.

## 5. AREAS FOR INVESTMENT & DEVELOPMENT

**China’s** willingness to develop an investment programme for the Arctic area is a strategic advantage – and is being embraced enthusiastically by many nations within the Arctic corridor.

The reality is that there has been little appetite to consider sponsoring major infrastructure projects, and against this backdrop China's ambitions will be well received. The CAP refers to a number of areas where China has identified advancement being of advantage to all nations, which reinforces the core ambition of peaceful collaboration under the BRI. Some of these areas for investment & development include:

1. Marine transport including the development of associated land based infrastructure to support such enterprise
2. Associated marine technology, including for navigation and survey
3. Tourism, including that to benefit indigenous people. Adventure tourism in time will also be a likely lucrative area for development
4. Associated services and products to promote tourism, including specialist vessels (*which it has already commenced building*), emergency rescue services, associated infrastructure and the training of people to service tourism as a whole
5. Fisheries, where China has called for greater regulation of fishing activities in the international waters of the Arctic. This is relevant given the apparent movement of fish colonies further north as a result of global warming
6. Scientific evaluation & study, including for ecology and environmental matters<sup>xxvii</sup>. China, as with many parts of the world, is exposed to rising sea levels<sup>xxviii</sup>. China has had a scientific point of presence, named the Arctic Yellow River Station, in Svalbard, Norway's

demilitarized Arctic Archipelago since 2003<sup>xxix</sup>

7. The promotion of alternate energy technologies for the Arctic area, including via geothermal and wind technologies
8. The development of oil & gas reserves, and associated infrastructure. The Arctic is believed to have over 10% of the world's oil reserves and in the region of 30% of natural gas – but these commodities have been trapped below the arctic ice sheets<sup>xxx</sup>.

In addition to multiple references to the Belt & Road Initiative one of the key summary passages from the CAP is<sup>xxxi</sup>:

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*The availability of technical equipment is essential to understanding, utilizing and protecting the Arctic. China encourages the development of environment-friendly polar technical equipment, actively participates in the building of infrastructure for Arctic development, pushes for the upgrade of equipment in the fields of deep sea exploration, ice zone prospecting, and atmosphere and biology observation, and promotes technology innovation in Arctic oil and gas drilling and exploitation, renewable energy development, navigation and monitoring in ice zones, and construction of new-type icebreakers.*

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And on China's encouragement of its companies to pursue commercial opportunity this passage<sup>xxxii</sup>:

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*It encourages its enterprises to participate in the infrastructure*

*construction for these routes and conduct commercial trial voyages in accordance with the law to pave the way for their commercial and regularized operation*

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## 6. TARGETED INVESTMENT GIVEN PHYSICAL CONDITIONS

**The** Northern Sea Route has challenges when compared with traditional shipping routes, and those challenges bring cost.

The speed by which ships can travel through these waters is slower<sup>xxxiii</sup>, the coastline at places shallow when compared to other sea routes and the actual size of ships needs to be more compact due to the conditions. It would be difficult to imagine an Ultra Large Container Vessel ever traversing the Northern Sea Route<sup>xxxiv</sup>. Then there are issues including increased insurance premiums and the safety of vessel crew given the remoteness of these regions for any search & rescue response.

In contrast, specialist vessels will bring significant advantage. As an example, in order to service the Yamal LNG project in Siberia, and transport product to South Korea, the South Korean ship building company Daewoo Shipbuilding Marine & Engineering is building a series of 15 icebreaking LNG tankers at a total cost of circa US\$4.8 billion<sup>xxxv</sup>. These vessels can break ice from both the bow and stern if necessary, but can only travel at around 5.5 knots in sea conditions with a 1.5m ice sheet<sup>xxxvi</sup>. Considering the distances to be covered from Yamal, that is very slow going. They are, however, strategic asset in their own right, allowing Russia's oil and gas reserves from its northern regions to

make it to the global markets. Importantly, China has a significant stake in the Yamal project – 20% through CNPC and a further 9.9% interest through China's Silk Road Fund<sup>xxxvii</sup>.

The involvement of the Silk Road Fund<sup>xxxviii</sup> is a strategic “flag”. Early investment by China in Arctic belt projects through this fund allow China to build experience and technology in the operational development of infrastructure. Perhaps competitors to the high ice class Arc7 LNG tankers will be built in China in the future, which would serve as another area of in country economic stimulation, and given these vessels are “hybrid fuel” (*Diesel and LNG capabilities*) would also reinforce China's ambition to build more “green” transportation solutions<sup>xxxix</sup>.

## 7. GREENLAND: AN INTERESTING CASE STUDY IN POTENTIAL “CONFLICTS”

**Greenland** is a useful example of where capital and skills from China would be welcomed by locals, but have concerns being expressed by Denmark<sup>xl</sup>. A small nation of less than 60,000 inhabitants, it is strategically a priority for the USA, potentially rich in mineral investments, but also struggling for investment capital.

Minerals within Greenland's territory are likely to include uranium and rare earths. Its energy reserves off both its east and west coasts are also believed to be immense with potential tenders of blocks for exploration slated for 2018.<sup>xli</sup>

Greenland also, however, hosts the US Thule Air Base, which is America's

northernmost air base (*within 1,000 miles of the North Pole*), and a part of the 21<sup>st</sup> Space Wing<sup>xlii</sup>, a key strategic asset in the US ballistic early warning system. Described as “a desolate wonder”<sup>xliii</sup> landing at Thule necessitates a flight path approach over a region known as Baffin Bay. This body of water divides Greenland and Canada<sup>xliv</sup>.

Offshore blocks for energy exploration are proposed to include areas within the Baffin Bay region. Given the prospect down the track of Chinese investment to stimulate sectors such as energy exploration and eventually production, it is understandable that the US & certain other countries will have sensitivities.

Chinese capital is potentially available for more than energy projects, however. Greenland is seeking capital for the upgrading of roads and airports – areas which are within the core focus of President Xi Jinping’s vision for the BRI. Upgrading such core infrastructure will of course bring additional potential benefits to sectors including tourism – something the Greenlanders are keen to explore.

The USA & other nations have had decades to make investments in Greenland, but they have not. Within this “vacuum” they will either need to step forward and meet capital requirements or alternatively yield to others that will. And then anticipate *the Golden Rule* in time to rise to the surface.

## 8. WHAT MIGHT THE NEAR TERM HOLD?

**The** USA has voiced concerns on Russia’s more focused vision for the Arctic

and at the same time noted the USA’s current inability to actively respond<sup>xlv</sup>. Against a backdrop showing much higher use of the Arctic area as a seaway corridor<sup>xlvi</sup>. The USA has also recently acknowledged that they will need to reprioritize their Naval strategies as a direct result of accelerating global warming and China’s expansionary ambitions<sup>xlvii</sup>. That being said, with the current “*America First*” approach aimed at continuing to stimulate the domestic economy, it is unclear how long it would actually take to implement any revised strategy<sup>xlviii</sup>.

The USA is short on Icebreakers, and they are a critical tool to facilitate influence. Currently the USA has only 2 icebreakers<sup>xlix</sup> whereas Russia (*for example*) has 41 with additional craft on the way<sup>l</sup>. The US vulnerability to ice centric navigation was highlighted with one of their newest naval vessels, the *USS Little Rock*, ice bound in Montreal for 3 months from December 2017 due to a lack of ice breaker availability<sup>li</sup>.

With its immense resources and experience in sectors that will require near term investment in the Arctic region (*in particular Energy, Energy Services and Land and Offshore Drilling Services*) the opportunity is there for US Players, potentially in combination with investment funds, to carve out a commercial future in the Arctic Circle. Similarly, for other Arctic Belt countries that have immense experience, China is not the only destination point for capital, and as more attention turns to this region the appetite to invest will likely in time grow.

## 9. CONCLUDING THOUGHTS

**Just** as has been the case with the Space Silk Road<sup>lii</sup>, China's ambitions for the Arctic area are patient, highly strategic and will deliver great benefit to both Chinese companies and collaborating countries. China's gaze is decades into the future, and as such contrasts the current short-term view of many other major nations<sup>liii</sup>. The Polar Silk Road is another dimension of China's overarching Belt & Road Initiative, which has quickly evolved to a near global strategy, and certainly far beyond the initial undertones of "March West"<sup>liiv</sup>.

For entrepreneurial organisations there is immense opportunity in this wilderness frontier – in particular around the Energy, Mining Services, Tourism, Engineering & Transportation Sectors. Not without risk of course, but with such large ambitions from key global players for the region, also not without the potential for reward.

At the forefront today are Chinese capital and commercial resources appear willing and able to commit to development of the Arctic. China has a vision for expanding its involvement and influence in line with its overarching Belt & Road Initiative, and unless others step forward in a positive and meaningful fashion there appear currently few alternatives to accelerating the development of one of earth's last frontiers.

## About the author:

**Nicholas Assef** is the Founder & Principal of LCC Asia Pacific, a boutique investment banking firm and strategic advisory practice, based in Sydney Australia and working across the Australasian and EMEA regions.

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Nicholas provides strategic counsel in the areas of corporate growth, mergers & acquisitions and joint venture alliances, working with organisations to both design and implement cross border initiatives – including for those seeking to derive commercial benefit from the Belt & Road Initiative

Nicholas is a firm believer that the Belt & Road Initiative will not only be highly successful for China and participating countries, but has the potential to present tremendous commercial opportunities for other international organisations who can develop and implement complimentary strategies

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For a dedicated Twitter feed on developments on the BRI also see : [www.twitter.com/ChinaBeltRoad](https://www.twitter.com/ChinaBeltRoad)

## ENDNOTES

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<sup>i</sup> See :

[http://english.gov.cn/archive/white\\_paper/2018/01/26/content\\_281476026660336.htm](http://english.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm)

<sup>ii</sup>

<https://www.theaustralian.com.au/news/inquirer/china-gains-from-our-neglect/news-story/3650dcddbe7c2a79674f5f57922a617f>

<sup>iii</sup> <https://www.reuters.com/article/us-chile-china/china-invites-latin-america-to-take-part-in-one-belt-one-road-idUSKBN1FB2CN>

<sup>iv</sup> See on population & education :

<http://www.highnorthnews.com/business-index-north-declining-population-and-low-education-levels/>

<sup>v</sup> The term “Northern Sea Route” actually is comprised of 3 distinct passages for sea voyage, the North East Route, the North West Route and the even shorter Transpolar Sea Route which traverses the very top of the Arctic. This final one is not likely to be achievable for several decades

<sup>vi</sup> See for a recent incident:

<http://www.highnorthnews.com/yamal-lng-carrier-boris-vilkitsky-in-gross-violation-of-safety-rules-on-nsr/>

<sup>vii</sup> See as example :

<http://www.highnorthnews.com/february-2018-sea-ice-extent-lowest-ever-recorded/>

<sup>viii</sup> See for example :

<http://www.highnorthnews.com/annual-arctic-sea-ice-maximum-second-lowest-on-record/>

<sup>ix</sup> See on recent heat recordings :

<https://www.thestar.com/news/world/2018/02/26/the-north-pole-just-surged-above-freezing-in-the-dead-of-winter-stunning-scientists.html>

<sup>x</sup> See : <http://www.highnorthnews.com/maersk-considers-sending-container-ship-through-arctic-but-questions-remain/>

<sup>xixi</sup> This was originally attributed to the Wizard of Id cartoon strip circa 1967. See :

<https://www.quora.com/Who-came-up-with-the-aphorism-The-Golden-Rule-He-who-has-the-gold-makes-the-rules>

<sup>xii</sup> <https://arctic-council.org/index.php/en/>

<sup>xiii</sup> See recent comment by Finnish Minister on Polar Silk Road: <http://www.highnorthnews.com/chinas-polar-silk-road-where-does-it-lead/>

<sup>xiv</sup> CAP at Part III, Section 5

<sup>xv</sup> Reported multiple media sources including:

<https://www.straitstimes.com/asia/east-asia/china-eyes-polar-silk-road-in-white-paper-on-arctic-policy>

<sup>xvi</sup>

<https://www.defensenews.com/naval/2018/05/04/the-us-navys-new-command-puts-russia-in-the-crosshairs/>

<sup>xvii</sup> As reported :

<http://foreignpolicy.com/2018/03/08/putin-and-xi-are-dreaming-of-a-polar-silk-road-arctic-northern-sea-route-yamal/>

<sup>xviii</sup> The term given to China’s vulnerability to energy supplies through this waterway. As an example on thinking and relevance for People’s Liberation Army see : <https://cpianalysis.org/2014/11/21/chinas-malacca-dilemma-and-the-future-of-the-pla/>

<sup>xix</sup> See : <http://www.thedrive.com/the-war-zone/8680/this-is-russias-warship-being-built-specifically-for-fighting-in-the-arctic>

<sup>xx</sup> See : <http://nationalinterest.org/blog/the-buzz/chinas-plan-conquer-the-south-china-sea-now-clear-25771>

<sup>xxi</sup> This can be far reaching, from lower labour costs, maintenance costs for vessels and higher utilization rates. Correspondingly the harsh conditions increase certain risks, will likely be tough on gear and things such as insurance premiums will likely be higher given the conditions and risk.

<sup>xxii</sup> See :

<https://www.telegraph.co.uk/news/world/china-watch/technology/chinese-icebreaker/>

<sup>xxiii</sup> See : <https://www.reuters.com/article/us-china-arctic/china-building-arctic-cruise-ship-for-polar-silk-road-idUSKCN1GT08N>

<sup>xxiv</sup>

<https://www.nytimes.com/2013/03/23/world/europe/iceland-baffled-by-chinese-plan-for-golf-resort.html>

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<sup>xxv</sup> <https://thediplomat.com/2014/11/the-new-silk-road-chinas-marshall-plan/>

<sup>xxvi</sup> See : [http://www.arcticbulk.com/articles/forward/186/NORTHERN\\_SEA\\_ROUTE](http://www.arcticbulk.com/articles/forward/186/NORTHERN_SEA_ROUTE)

<sup>xxvii</sup> See CAP at IV, 1: China is actively involved in multi-disciplinary research including Arctic geology, geography, ice and snow, hydrology, meteorology, sea ice, biology, ecology, geophysics and marine chemistry

<sup>xxviii</sup> See : <http://www.scmp.com/news/china/policies-politics/article/2081271/record-high-sea-levels-along-chinas-coast-could-spell>

<sup>xxix</sup> See : <https://www.thearcticinstitute.org/countries/china/>

<sup>xxx</sup> As a reference point : <http://large.stanford.edu/courses/2015/ph240/urban2/>

<sup>xxxi</sup> CAP at Part IV, Section 1

<sup>xxxii</sup> CAP at Part IV, Section 3, Subsection 1 – bold emphasis added

<sup>xxxiii</sup> See for overview of ARC7 Tankers : <http://yamallng.ru/en/project/tankers/>

<sup>xxxiv</sup> See : <https://www.maritime-executive.com/editorials/snapshot-the-world-s-ultra-large-container-ship-fleet#gs.uCVUh4Q>

<sup>xxxv</sup> As reported : <https://www.ship-technology.com/projects/christophe-de-margerie-class-icebreaking-lng-carriers/>

<sup>xxxvi</sup> See : “Specifications of ARC7 Tanker” : <http://yamallng.ru/en/project/tankers/>

<sup>xxxvii</sup> See : <http://yamallng.ru/en/project/about/>

<sup>xxxviii</sup> See : <http://www.silkroadfund.com.cn/enweb/23773/index.html>

<sup>xxxix</sup> CAP at Part III, Section 5

<sup>xi</sup> Denmark is a self ruling part of the Kingdom of Denmark

<sup>xii</sup> See : <https://www.reuters.com/article/greenland-china-oil-gas/update-2-greenland-will-offer-oil-gas-concessions-next-year-minister-idUSL4N1N63TY>

<sup>xiii</sup> [https://en.wikipedia.org/wiki/21st\\_Space\\_Wing](https://en.wikipedia.org/wiki/21st_Space_Wing)

<sup>xiiii</sup> <http://media.stripes.com/i/thule/>

<sup>xlv</sup> [https://en.wikipedia.org/wiki/Baffin\\_Bay](https://en.wikipedia.org/wiki/Baffin_Bay)

<sup>xlv</sup> See : <http://www.highnorthnews.com/u-s-military-warns-against-russian-arctic-expansion/>

<sup>xlvi</sup> See on Canada traffic increases: <http://arctic.journalhosting.ucalgary.ca/arctic/index.php/arctic/article/view/4698>

<sup>xlvii</sup> <https://news.usni.org/2018/04/19/navy-to-release-arctic-strategy-this-summer-will-include-blue-water-arctic-operations>

<sup>xlviii</sup> The USA does conduct various “ICEX” military exercises in the Arctic region, but these are facilitated through submarines. See : [http://www.navy.mil/submit/display.asp?story\\_id=104633](http://www.navy.mil/submit/display.asp?story_id=104633)

<sup>lix</sup> <https://news.usni.org/2017/12/13/report-congress-coast-guard-icebreaker-program>

<sup>i</sup> <https://www.popularmechanics.com/military/navy-ships/a19673250/future-icebreakers/>

<sup>ii</sup> <https://www.military.com/daily-news/2018/04/03/uss-little-rock-finally-leaves-montreal-after-3-ice-bound-months.html>

<sup>iii</sup> See the writers paper : “China’s Control Of The Heavens”

<sup>iiii</sup> Consider USA posturing of “tariff wars” and BREXIT in the United Kingdom as examples

<sup>lv</sup> For discussion on “March West” see : <https://www.brookings.edu/blog/up-front/2013/01/31/march-west-chinas-response-to-the-u-s-rebalancing/>