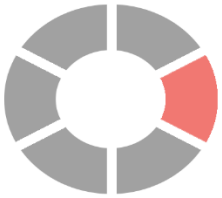
THE HIGH NORTH V

Version 5.0
(Tech add-on)
A Matrix Game
of Arctic Crises
by Tim Price

On Thin Ice:
The Arctic & The Environment

Climate change poses a huge threat to the Arctic and the people that live there.

The Arctic has:



1/6
of the world's landmass

10%
of the world's fresh water

4 million people

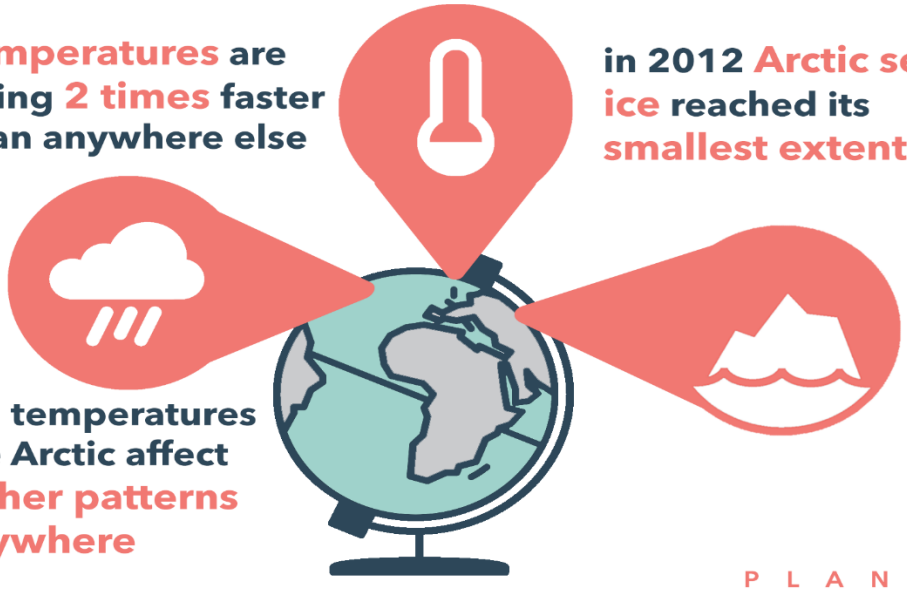
1 in 10
is indigenous

5 in 10
live in Russia

Climate change is already changing the Arctic:

temperatures are rising **2 times** faster than anywhere else

in 2012 **Arctic sea ice** reached its **smallest extent ever**



rising temperatures in the Arctic affect **weather patterns everywhere**

SOURCES:
Data provided by Arctic PIRE;
Graphics from the Noun Project

PLANET FORWARD AT GW

Background[1]

Climate change is the principal driver of change in the Arctic, with increasing temperatures and precipitation. As Arctic and Antarctic sea ice retreats, many areas that are currently inaccessible could become open to commercial exploitation, particularly of oil and gas. It is possible that some countries – depending on their internal politics – may seek to project power in the Arctic if they consider their interests in the region to be under threat.

Climate change

Alterations in the climate are the drivers behind many of the changes expected to take place in the Arctic over the coming decades. In the Arctic, significant warming will almost certainly occur throughout the region, and is likely to be greater than the anywhere else in the world.

Sea levels will probably continue to rise and precipitation is likely to increase, particularly in winter. Sea ice is likely to reduce, increasing access for shipping. Due to rising temperatures, the permafrost is likely to melt. This could cause subsidence, infrastructure damage and release methane – all adding to global greenhouse gas emissions and exacerbating global warming and its effects possibly to catastrophic levels. The incidence of severe storms is also likely to increase.

Transit routes

Over the next few decades there is likely to be a sustained reduction in both the extent and thickness of summer sea ice, and regular ice-free summers may occur by 2045. The Arctic navigation season could be extended and new shipping routes have the potential to be opened up. This could save significant time when transporting goods from the Far East to Europe and Northern America. If countries are to fully exploit hydrocarbon reserves and shipping routes in the Arctic, they will need to invest substantially in icebreaking capacity. As the volume of maritime traffic increases, there is likely to be an associated growth in the environmental risks faced by the Arctic region – and regulating the passage of vessels is likely to pose a significant challenge. The number and magnitude of human disasters requiring search and rescue services is also likely to rise (see random event cards below).

Resources

Global demand for energy is expected to more than double by 2045, with coal and hydrocarbons likely to continue to play a major role in the global energy mix. The Arctic currently produces around 10% of the world's oil and 25% of its gas, with approximately 80% of these resources coming from Russian territory. It has been estimated that the Arctic contains up to 13% of the world's undiscovered oil and 30% of its gas reserves, which are likely to become increasingly attractive as existing reserves are depleted.

Oil and gas exploration is likely to be concentrated in Russia and northern Norway, with other new reserves possible off the seaboards of Greenland, Alaska and the Canadian north. Developing both existing and new oil and gas fields will almost certainly be complex, requiring advances in technology and demanding high standards of engineering and quality control. The Arctic will probably remain particularly vulnerable to oil spills – as a consequence of both the slow recovery of cold ecosystems and the difficulties facing clean-up processes in remote and cold areas where ice is present. It is possible that a major environmental disaster may halt economic exploitation of the region until expensive safeguards have been implemented.

Mining of minerals in the Arctic is likely to continue to be a major source of economic development and may expand significantly as sea routes to deep water ports are opened up for bulk carrier access. Deposits of coal, diamonds, ickel, copper, gold, silver, manganese, chromium and titanium are particularly likely to be exploited at an increased level, bringing both money and people into several parts of the region. Although Russia and Canada are likely to possess the largest reserves of these resources, mineral wealth is widely distributed through the Arctic, and there are many areas, including Greenland, with great potential for new discoveries and further exploitation.

[1] Source: https://www.gov.uk/government/publications/global-strategic-trends-out-to-2045

However, although exploration and extraction conditions are likely to improve in some areas as the ice retreats, these changing conditions are likely to add new challenges. Melting permafrost, in particular, could impede developing sustainable infrastructure on land. New technology is likely to be needed to exploit mineral extraction potential in many areas affected by melting permafrost, particularly in Russia.

Agri- and aqua-culture, and forestry

Fishing is already an important source of employment in the region, with several countries, notably Iceland, Russia and Norway, investing in large fishing fleets. Major commercial fish stocks such as cod, herring and pollock are likely to be exploited increasingly easily as sea ice cover reduces, and the areas populated by these fish stocks are likely to increase further in size as the seas warm. For other species of fish, such as salmon and trout, the outlook is less positive, and climate change may significantly reduce these fish stocks. The opening up of the Arctic Ocean, and the possible northwards migration of fish stocks, may – when combined with growing demand for protein in world food markets – encourage large numbers of EU and Asian fishing fleets to move into the region, especially in areas not within countries' exclusive economic zones. By 2045, it is likely that fish stocks in the Arctic will be under severe pressure, potentially causing tensions between Arctic Rim countries, the EU and other fishing countries.

Climate change is already stimulating significant changes to Arctic ecosystems and, as a result, to Arctic agriculture and forestry. The warmer climate is highly likely to extend the growing season and may encourage crop diversification at higher latitudes. Timber productivity is likely to improve, with planted forests in the Arctic likely to expand to the north, despite a likely increase in forest fires and tree-killing pests. Numbers of caribou and reindeer in the region could also rise, although they may be more affected by insect infestations. Diminishing cattle and sheep habitats in southern Europe may create markets for reindeer and caribou products, improving the economic situation of Nordic farmers.

Governance

The Arctic region, comprising four million people, eight countries and over 30 indigenous groups, is largely under-populated and is characterised by sparse communication and infrastructure links. Out to 2045, there are likely to be significant increases in using, and extracting, the region's resources and developing its transport links. This is already beginning to render its governance arrangements of deep significance and could lead to increased tensions within the countries and peoples of the region. International governance, regional groupings and non-state actors are all likely to play important roles within the Arctic.

By 2045, it is unlikely that there will be any appetite for a formal UN agreement setting a legally binding governance framework for the Arctic region (as exists in Antarctica). The delineation of countries' exclusive economic zones and continental shelf boundaries under the UN Convention on the Law of the Sea (UNCLOS) process will probably establish the ownership of economic rights in the vast majority of the Arctic Ocean, and it is unlikely that Arctic countries would attempt to overturn these decisions by force.

The influence of the indigenous peoples is also likely to be limited and dispersed, focussed on exerting pressure on multinational corporations and authorities within their countries to secure better economic conditions. Indigenous people are also likely to continue to exert influence through their position at the decision-making table of the Arctic Council. The EU is, however, likely to become more involved in the Arctic as it is likely to expand to incorporate Arctic countries and as larger non-Arctic EU members, such as Germany and the UK, become more dependent on the region's energy resources and fish stocks.

Russia

Russia will almost certainly be a dominant – but unpredictable – state actor in the Arctic by virtue of its economic, political and military strength in the region, as well as its location and size, whatever the outcome in the Ukraine war. Russia is likely to have sovereignty over the region's major fossil fuel reserves, fish stocks and mineral deposits, and climate change could afford it the possibility of expanding its agricultural sector in the region. Russia is also likely to have significant influence over the Northern Sea Route as it becomes more viable to commercial traffic as summer ice retreats. Russia's Arctic region is currently the source of 20% of its GDP, 60% of its oil and 90% of its gas, and the country's leadership will probably continue to view it as a strategic interest. Russia is likely to continue to

maintain significant military capabilities in the Arctic to protect its nuclear forces and secure its economic assets, as well as providing a basis for its search and rescue responsibilities. There may be more frequent demonstrations of military strength in the air and at sea, possibly to distract from domestic socio-political issues.

The United States of America

The US, while seeking to ensure that its economic and security interests are protected, is unlikely to see the Arctic as a primary theatre of American activity. However, it is likely there will be tensions with Russia over disputed areas of the Chukchi Sea, and US control of fishing within the Bering Sea may be challenged by Russian, Chinese, Korean and Japanese interests if the region continues to be a significant source of fish and sea mammals.

Other Arctic countries and populations

Norway will almost certainly continue to rely on NATO as the guarantor of its security, though it is likely to seek further bilateral agreements with EU countries to reinforce its position. More advanced than the other countries in setting out a vision for the region, it is likely to retain the lead in Arctic regional development. A newly independent Greenland may seek to join the EU and NATO, and could become the subject of intense interest from countries such as China. Out to 2045, Iceland may also seek EU membership as well as more substantive engagement with other NATO members.

The indigenous populations of the Arctic are likely to see their lifestyles threatened, their numbers declining, and their influence waning. Their unique lifestyle and patterns of subsistence are likely to have disappeared by 2045, and the need to assimilate and to gain new skills to compete with skilled migrants from the south is likely to be both an opportunity and a risk. The indigenous population within the Arctic is likely to decline slowly, and may undergo some degree of urbanisation as its members move in search of healthcare and employment opportunities for their young people. It is unlikely that the regional peoples will be able to counteract the power and influence of their largely sub-Arctic based governments and their influence will probably remain largely peripheral (except Greenland's large Inuit population). Tension and low-level violence between migrants and indigenous people is possible.

Multinational corporations

Many of the inhabited areas of the Arctic will probably continue, in practice, to be managed by multinational corporations and populated solely or predominantly by their workers. Russian-based conglomerates are likely to remain semi-state controlled. They are unlikely to operate to levels of corporate governance expected in the West and are likely to be less inclined to comply with international regulations. Environmental pressure groups and non-governmental organisations, such as the World Wildlife Fund and Greenpeace, could play an increasing role in influencing the activity of western countries and corporations in the Arctic region.

The High North matrix Game

It is against these strategic trends that "The High North" Matrix game is set.

The facilitator has some choice as to exactly when the game takes place, and as to what elements of social, political and military developments outlined above have come about. It could be "next year", "next decade" or "2045", depending on what you want to get out of the game. In many cases, it can be instructive to have an initial round of Matrix Arguments in which to establish those; for example, China may wish to have Greenland declare independence from Denmark and free to negotiate advantageous trade agreements and basing facilities.

My personal preference is to set the game within the next 18 years, assuming a post-Ukraine geo-political context (see below), and finishing the game when the Arctic ocean is ice free during the summer months (2040 or sooner).

Random events cards are included. Each turn will represent about 3 years, so 2 cards are allocated at the start of each turn to adjacent Actors, starting with a random Actor, but then in succession (so each Actor will get a card every 3rd turn). The Actor simply makes an additional argument about the event at the start of the turn.

The Effects of the Russia-Ukraine War[2]

Russian President Vladimir Putin's war of choice in Ukraine is a world-historical event, marking the final act of the post-Cold War period and the start of a new era, yet unwritten. The spectrum of possible outcomes ranges from a volatile new cold or hot war involving the United States, Russia, and China; to a frozen conflict in Ukraine; to a post-Putin settlement in which Russia becomes part of a revised European security architecture. With the West levelling unprecedented sanctions against Russia in record time and the real potential for a descent into nuclear war, we are in uncharted territory. It is difficult to see how Putin "wins." But he cannot accept defeat.

Here are possible five scenarios for how this war could conclude over the course of the next few years. For the purposes of this game, it is necessary to choose one - or alternatively develop one of your own - the only certainty about the war over Ukraine is that all existing certainties have been shattered.

A frozen conflict

- Russia's war effort in Ukraine drags on for years.
- Global recession and divisive politics in the USA prevent meaningful progress.
- A coup attempt in Russia is thwarted - senior Generals and Siloviki purged.
- Partial withdrawal of Russian Troops and isolationism from within Russia.
- Putin dies and partial lifting of sanctions on oil and gas.

A new cold war

- Russia's war effort in Ukraine grinds to a halt.
- International effort for a peace treaty generates nonaligned neutrality and limits on Ukrainian Military.
- Withdrawal of Russian Troops but Donetsk and Luhansk remain unresolved and controlled by Russia.
- Putin dies and partial lifting of sanctions on oil and gas.
- New Cold War emerges as USA opposes Arms Control.

Strategic defeat, but "systema" prevails

- Russia's war effort in Ukraine grinds to a halt.
- Putin dies and his successors withdraw claiming victory after Ukraine signs a neutrality treaty.
- Donetsk and Luhansk remain unresolved and controlled by Russia, but has UN Peacekeepers.
- Sanctions are lifted on oil and gas sales in the face of a global recession.
- The Russian "systema" prevails and the ambitions of Putin's successors are reduced, but not materially different.

Russian Victory

- Global recession and Russian mobilisation, generate painfully slow but relentless advances in Ukraine.
- Western supplied weapons reduce in quantity as nations reduce their commitments in the face of rising costs.
- Ukrainian morale collapses after Zelenskyy is assassinated and Russian installs a puppet regime in Kiev.
- Finland and Sweden join NATO, but do not agree to US bases or nuclear weapons.
- Putin "retires" and is replaced by someone similar. The Russian "systema" prevails.

Nuclear War

- Ukraine, massively supplied by Western arms and intelligence support, continue to win back territory.
- Western sanctions are crippling Russia, and there is unrest as professional workers leave the country.
- Putin authorises use of a tactical nuclear weapon on Ukrainian supply routes to the West.
- NATO responds with conventional cruise missile strikes on Russian command centres in Ukraine.
- Putin retaliates on NATO supply centres in Poland using nuclear weapons and uncontrolled escalation follows.

[2] Source: Author.

How the Russia-Ukraine War Challenges Arctic Governance[3]

On March 3, 2022, less than two months after the Arctic Council was nominated for the Nobel Peace Prize, the seven other permanent members of the council took an unprecedented step in declaring they would be "pausing participation in all meetings of the Arctic Council and its subsidiary bodies." The forum previously navigated diplomatic disagreements among member states, including over the Iraq War in 2003, Georgian War in 2008, and annexation of Crimea in 2014, but disagreement over the invasion of Ukraine was irreconcilable. Not only does this change the future of Arctic relations, but it also (temporarily) ends Russia's participation in one of its few remaining soft power venues capable of meaningful international coordination.

Following the boycott there has been speculation that the West will form a new international body without Russia, known as "Nordic Plus." Theoretically, this forum would include the seven protesting states and Arctic indigenous peoples (including those from Russia). While Nordic Plus would have shared values and government norms, it would forfeit the institutional legitimacy and progress that the Arctic Council has fostered.

Russia accounts for nearly half of the Arctic's population, over half of the Arctic's coastline, and the majority of Arctic industry. It also dominates Arctic energy production, fishing, and shipping. Moreover, the Russian Arctic remains critical to addressing global environmental issues such as permafrost thawing and wildfire prevention. Without Russia in the Arctic Council, scientists will not be able to share data between weather observatories or monitor Siberian permafrost melt. Given Russia's Arctic assets, any organization governing the region without Moscow would be attempting to oversee an area mostly outside its control. Even if a forum like Nordic Plus attempted to include indigenous representatives, it is hard to imagine that Moscow would permit such representatives to attend.

In all likelihood, the Arctic Council will resume operations when Russia turns over its chairmanship to Norway in spring 2023, or when a resolution is reached to end the war in Ukraine. But the Arctic Council will lose legitimacy and goodwill. Its agenda will shrink in both scope and size as future Russian statements on Arctic cooperation will likely be met with more scepticism from the other seven members than ever before. The war in Ukraine has led to all seven Arctic states implementing unprecedented sanctions against Russia and boycotting the Arctic Council.

Many have seen the Arctic region as a zone of peace, insulated from external political disputes. The war in Ukraine and subsequent boycott has proved devastating to this theory of Arctic exceptionalism. High tensions among members of the council will likely mean that only the least controversial Arctic issues will be addressed when the council reconvenes. The least contentious issues are not coincidentally the three binding treaties passed by the Arctic Council: The Agreement on Search and Rescue in the Arctic (2011), Agreement on Marine Oil Pollution in the Arctic (2013), and Agreement on Enhancing Arctic Scientific Cooperation (2017).

Rising tensions will transition the Arctic Council from a high-level diplomatic facilitator to a low-level tactically-oriented talk shop. Arctic Council representatives will likely eschew ministerial-level discussions. Foreign Minister Lavrov is personally sanctioned by the United States, Canada, European Union, and the United Kingdom and he is unlikely to ever step foot in an Arctic Council meeting again. This incidentally means that the ad hoc Arctic Five group, which includes the five Arctic littoral states of the United States, Canada, Denmark, Norway, and Russia and almost exclusively works at the ministerial level, will become defunct. By contrast, the Arctic Council's six working groups and scientific research operations are politically insulated because they work at a technical level and are one layer removed from political leadership.

Although the role of the Arctic Council may adapt to changing geopolitical currents, it is vital for Arctic governance that the council preserves all eight of its permanent members and fulfils its commitments to its core missions of sustainable development and environmental stewardship. There remains a need for a forum to address transborder regional issues that cannot be effectively undertaken by individual states, yet are too localized to be addressed by a global forum. If there is an institution that can cooperate in the darkest of times, it is the Arctic Council. But if the seven members of the council do not re-join when Norway assumes the chairmanship in May 2023, it is likely that the much-touted race for the Arctic will accelerate in a dangerous governance vacuum.

[3] Source: The Council on Foreign Relations

The Matrix Game Construction Kit

The ultimate matrix game design kit

In a "matrix game" there are few pre-set rules limiting what players can do. Instead, each is free to undertake any plausible action during their turn. The chances of success or failure, as well as the effects of the action, are largely determined through structured argument and discussion. This process allows for imaginative game dynamics that are lively and open-ended, and yet also grounded in reality.

Matrix games are particularly well-suited for complex conflicts and issues involving multiple actors and stake-holders, varying interests and agendas, and a broad range of (diplomatic/political, military, social, and economic) dimensions. The game system crowdsources ideas and insight from participants, thereby fostering greater analytical insight.

First developed by Chris Engle, matrix games have been played by hobbyists for years. They have also been used as serious games for training at the US Army War College, National Defense University, the Central Intelligence Agency, and elsewhere; for defence planning, capability assessment, and acquisitions in Australia, Canada, the UK, and US; for security planning for the Vancouver Olympics; as a research and analytical support tool at the UK Foreign Office; and as an educational method in various universities. They are particularly well-suited for multi-sided conflicts or other issues that involve a broad range of capabilities and interaction.

MaGCK contains everything that is required to play two different matrix games, or to design your own matrix games addressing almost any aspect of modern conflict:

- A core set of matrix game rules.
- Player briefings and supplementary rules for ISIS CRISIS, a matrix game that explores the rise and decline of the so-called “Islamic State” insurgency in Iraq. Two scenarios are included: "The Caliphate Reborn?" (set in September 2014) and "Road to Mosul” (starting January 2016).
- Player briefings, map tiles, and supplementary rules for A RECKONING OF VULTURES, a game that explores coup plotting and political skullduggery in a fictional dictatorship.
- 255 large blank game tokens in eight colours, together with over 700 stickers depicting various unit types, other assets, capabilities, and effects. The stickers are used to customize the game tokens, offering enormous flexibility for matrix game designers.
- 80 smaller discs in the same colours as above, which can be used to indicate damage, supplies and resources, political influence, or other characteristics.
- 10 two-sided tracking mats, with various scales (+/-3, 1-3, 1-10, days, months, and so forth)
- Assorted dice.

In addition, purchasers of MaGCK gain access to templates so they can print additional stickers using readily-available sticker sheets and any laser printer—thus making it possible to produce an unlimited number of games and scenarios. See: https://www.thegamecrafter.com/games/magck-matrix-game-construction-kit

Abbreviated Matrix Game Rules

How to Play a Matrix Game

In a Matrix Game, actions are resolved by a structured sequence of logical "arguments". Each player takes turns to make an argument, with successful arguments advancing the game, and the player's position. There are a number of ways you can do this, depending on the size of the game and the purpose (each has their own strengths and weaknesses), but the one recommended for this game is:

The "Pros and Cons" System

In this system, each argument is broken down into:

- The active Players states: Something That Happens and a Number of Reasons Why it Might Happen (Pros).
- The other Players state: A Number of Reasons Why it Might NOT Happen (if they can think of any) (Cons).

The game needs a Facilitator to adjudicate on the arguments, but if you have a limited number of players, you can take it in turns to be the Facilitator – this works out much better than you might imagine and helps reinforce the idea that your role in the game might be in conflict with others, but you are all working together to generate a credible narrative.

The advantage of this system is that you formalise the Pros and Cons of an argument and the role of the Facilitator becomes that of ensuring that the Pros and Cons carry equal weight - perhaps making compelling reasons worth two Pros and two or three weaker reasons against only worth one Con. You need to ensure you don't end up with a laundry list of trivial reasons, or the player re-stating a reason already accepted in a slightly different way in a desperate attempt to gain points.

One very useful benefit of the "Pros and Cons" system is that it provides reasons for failure should the dice roll not succeed. You can also more easily run the game with very knowledgeable players.

Notes about arguments

The important thing to remember in a Matrix game is that arguments can be made about anything that is relevant to the scenario. You can argue about your own troops or about the enemy, the existence of people, places, things or events, the weather, plague, disease or public opinion. The actions and consequences of arguments are reflected in the placement of the generic counters on a map (examples are enclosed below), forming narrative markers for the game; or by writing the results on a whiteboard or flipchart so the players can keep track of what is going on.

Some things can seem a little odd to new players – "how can he argue about my troops?" – It is true, he can't give them orders, but he could argue that their morale and motivation are low because they haven't been paid in months. The only criteria for judgement is the likelihood of the event taking place. With a bit of imagination, common sense and rational thinking, it is possible to present persuasive arguments as to what should happen in any scenario - from traditional military campaigns to the strange world of defence procurement.

A common error in Matrix games is for a player to argue about another player being influenced by something or them agreeing to a course of action. The player is present and can simply be asked – so that a little time between turns to allow the players to negotiate with each other (in secret if necessary) makes for a better game. It might be that a player wants to argue that all parties come to negotiations – in which case let them state their case, then ask the other players if they want to come along. If they agree then the argument is an automatic success. Arguments are for measurable actions – if the players want to negotiate with each other, they can do that in between turns.

Sometimes players get carried away with their arguments and try to do several different things. This isn't allowed in a Matrix game – you only get to do one action a turn because part of the insight comes from deciding what the highest priority is. The action itself could be large (like a general mobilisation of the Militia), but it must be a single action, so mobilising the Militia and providing the Police with heavy weapons would be two separate actions – which one do you want to do first?

If two arguments are in direct opposition ("This happens" - "No it doesn't") they represent a Logical Inconsistency since they cannot both be true. The earlier argument has already happened, so it is impossible for it not to have happened. The later player may argue that the event is reversed, but this tends to make for a poor narrative in the game and should be discouraged.

Reasonable Assumptions and Established Facts

It is important that the Facilitator understands the difference between "reasonable assumptions" in the game, such as the proposition that well trained and equipped Special Forces soldiers are going to be much more effective in combat than untrained protestors; and "established facts" which are facts that have been specifically mentioned in the game briefings or have become established during play as the result of successful arguments.

The former can be deployed as supporting reasons (Pros and Cons), but the latter need to have been argued successfully in order for them to be included. Many inexperienced players will make vast all-encompassing arguments full of assumptions that are not reasonable. For example: It is not a reasonable assumption that an unarmed Protestor counter could fight off trained Police. It is reasonable to assume that the Police are trained, armed, equipped and quite capable of dealing with a group of protestors (after all, that is their job). It would be necessary to argue for large number of Protestors, argue that they had weapons of some sort or argue that they were especially devoted or fanatical about their cause, for them to have a reasonable chance of beating the Police.

Of course, you might argue that your Protesters undergo special training, get access to firearms, or are simply fired up with enthusiasm by the powerful and impassioned speech from their leader, so they get a bonus. In this case, you should mark the counter with a +1 or something similar (depending on the strength of the argument) to show their improved status.

Game Length and Turn Length

The game should last a minimum of 6 turns as it is essential that sufficient turns are allowed to develop the narrative and force the players to have to live with the consequences of their actions from earlier in the game. Each turn represents a deliberately vague period defined by the game Facilitator and the arguments are the "headline events" that took place in the period.

End of Turn "Consequence Management"

At the end of each game turn (a cycle of player arguments) the Facilitator should go over those successful and failed arguments that have generate new "established facts" in the game. They should also review situations that are on-going, such as the generation of refugees from fighting or the arrival of new recruits to a popular cause. If these have not been countered during the turn by a successful argument, the Facilitator should make them continue until someone does make an argument to stop them.

It might also be that some of the arguments, when considered as a whole, will have additional or even unintended consequences that are reasonable to expect to arise. It is therefore worth taking time to consider the consequences of the players' arguments beyond their immediate results. Invite the players to consider the events of the turn, suggest possible consequences and then agree on the most likely that should be taken forward to the next turn.

In some games, it is worthwhile having an individual (if you have one to spare) who is particularly experienced about the sort of subject that the Matrix Game is focussed on, make "the law of unintended consequences" arguments at the end of a turn. This can help to formalise the process and provide good examples to widen the players' understanding of the consequences of their actions.

Inter-Turn Negotiations

As we have already said, the actual "arguments" of the Matrix Game are about actions that take place in the course of the game. In most cases, the actors represented by the players may well want to engage in face to face negotiation with each other in an effort to strike a deal. Players attempting to make Arguments saying that they want to "influence the Prime Minister" are essentially pointless if the Prime Minister is represented by another player. If they want to strike a deal, then they had better head off to a quiet corner of the room and try a little influence in real life. Of course, if a player wants to make an argument about a position or group not represented by another player, they are welcome to do so in the normal way.

In analytical games, it is important to record the essential elements of these discussions. What was suggested? Was agreement reached and why? If no agreement was reached what were the private and public reasons why the negotiations were unsuccessful? Analysis of these "off-table" negotiations and the reasons the players felt why they were successful or failures can provide important insights.

Secret arguments

There will be some cases where you want to hide from the other players the thing you want to argue about. It could be that you have booby trapped a piece of equipment you think your opponent will use, or that you have swapped the vital blueprints for a set of fake ones in case the safe is broken into. In this case, you simply write down your argument on a piece of paper and present it to the Facilitator announcing to the other players that you are making a secret argument. The Facilitator will make a judgment and you will roll the dice normally, but the other players have no idea what it is about.

You should be careful, however, that the players don't make too many secret arguments. This can ruin the game's atmosphere and reduce the focus, so that the game drags on unnecessarily. They also depend on the judgement of the Facilitator as to their success of failure, rather than being decided on a consensual basis from the participants. They must only be permitted when they refer to quite specific things or events. An argument about gathering information from a spy, in most games, will be quite a generic argument and should be argued openly. Similarly Arguing about the placement of an IED to catch forces moving down a route should be made openly as the results will take effect the same turn. It is only really for secret things you need to establish several turns in advance.

Measures of Success

In many arguments success or failure may not be a simple "Yes" or "No" proposition. There might well be a sliding scale of success or failure in terms of numbers or the quality of the outcome, which is usually represented by the score on the dice. If you needed a 7+ to succeed and rolled a double-six (12), this can indicate an especially notable success. Conversely, a roll of a double-one, it could represent a disastrous failure.

Conduct of the Game:

The players should be formed into teams around the Actors in the game. They should be provided with the introductory background (above) and their Actor brief; and provided with a short period in which to study the brief. They should then write down a few (3 or 4) short, pithy, objectives they would wish to achieve in the game in accordance with their briefs. One of these should be a longer-term objective, with a reach of at least 10 years in order to ensure that the players address something other than short-term goals and reactions to other player's actions in the game. Play should then commence in the normal way. The final turn should be followed by a discussion of the objectives, and comparison made with the Actor's achievements during the game.

Game Turn Length:

My preference is to set the game 3 years in the future, with the first turn as that period, then with 3-year turns, with the option to modify the turn length to deal with the actions and reactions to the changes proposed as the game progresses.

Actors in the Game and Order of Play:

- Russia
- Norway
- USA
- China and the Spirit of Capitalism
- Canada
- Denmark or The United Kingdom (if played in the UK)

Cover Image: Midjourney AI. Prompt: A special forces soldier in the arctic --ar 23:31 --v 5.1. Dated 04 Jun 2023.

Russia[4]

The Western narrative of the crisis in Ukraine is that it was caused by 'Russian aggression.' This is false. The crisis was caused by the US' and its allies' attempt to pave the way for the further expansion of NATO east, using Ukraine as a cat's paw. The same objective had previously been tried in 2008, using the former Soviet republic of Georgia, led at the time by the hapless Mikheil Saakashvili, like a cat's paw. It led to a brief military conflict, yet clearly, the lessons were not learned; or at least the right lessons were not learned.

Since the demise of the Soviet Union in 1991, ten former Warsaw Pact countries have joined NATO. And just to illustrate that this is no benign peace-loving organization we're describing, since 1991 NATO has spearheaded the break-up and destruction of Yugoslavia, the destruction of Libya, and has been the vanguard of Western imperial power in Afghanistan. Meanwhile, and most recently, NATO troops have engaged in regular military exercises in proximity to Russia's western border, in what can only be considered an unconscionable provocation and barrier to the normalization of relations.

The Russian Federation claims a large extended continental shelf as far as the North Pole based on the Lomonosov Ridge within their Arctic sector. Moscow believes the eastern Lomonosov Ridge is an extension of the Siberian continental shelf. This claim does not cross the Russia-US Arctic sector demarcation line, nor does it extend into the Arctic sector of any other Arctic coastal state.

The Arctic policy of Russia is the domestic and foreign policy of the Russian Federation with respect to the Russian region of the Arctic. The Russian region of the Arctic is defined in the "Russian Arctic Policy" as all Russian possessions located north of the Arctic Circle. (About one-fifth of Russia's landmass is north of the Arctic Circle.) Russia is one of five countries bordering the Arctic Ocean. In 2011, out of 4 million inhabitants of the Arctic, roughly 2 million lived in arctic Russia, making it the largest arctic country by population. However, in recent years Russia's Arctic population has been declining.

The main goals of Russia in its Arctic policy are to utilize its natural resources, protect its ecosystems, use the seas as a transportation system in Russia's interests, and ensure that it remains a zone of peace and cooperation. Russia currently maintains a military presence in the Arctic and has plans to improve it, as well as strengthen the Border Guard/Coast Guard presence there. Using the Arctic for economic gain has been done by Russia for centuries for shipping and fishing. Russia has plans to exploit the large offshore resource deposits in the Arctic. The Northern Sea Route is of particular importance to Russia for transportation, and the Russian Security Council is considering projects for its development. The Security Council also stated a need for increasing investment in Arctic infrastructure.

Russia conducts extensive research in the Arctic region, notably the manned drifting ice stations and the Arktika 2007 expedition, which was the first to reach the seabed at the North Pole. The research is partly aimed to back up Russia's territorial claims, in particular those related to Russia's extended continental shelf in the Arctic Ocean.

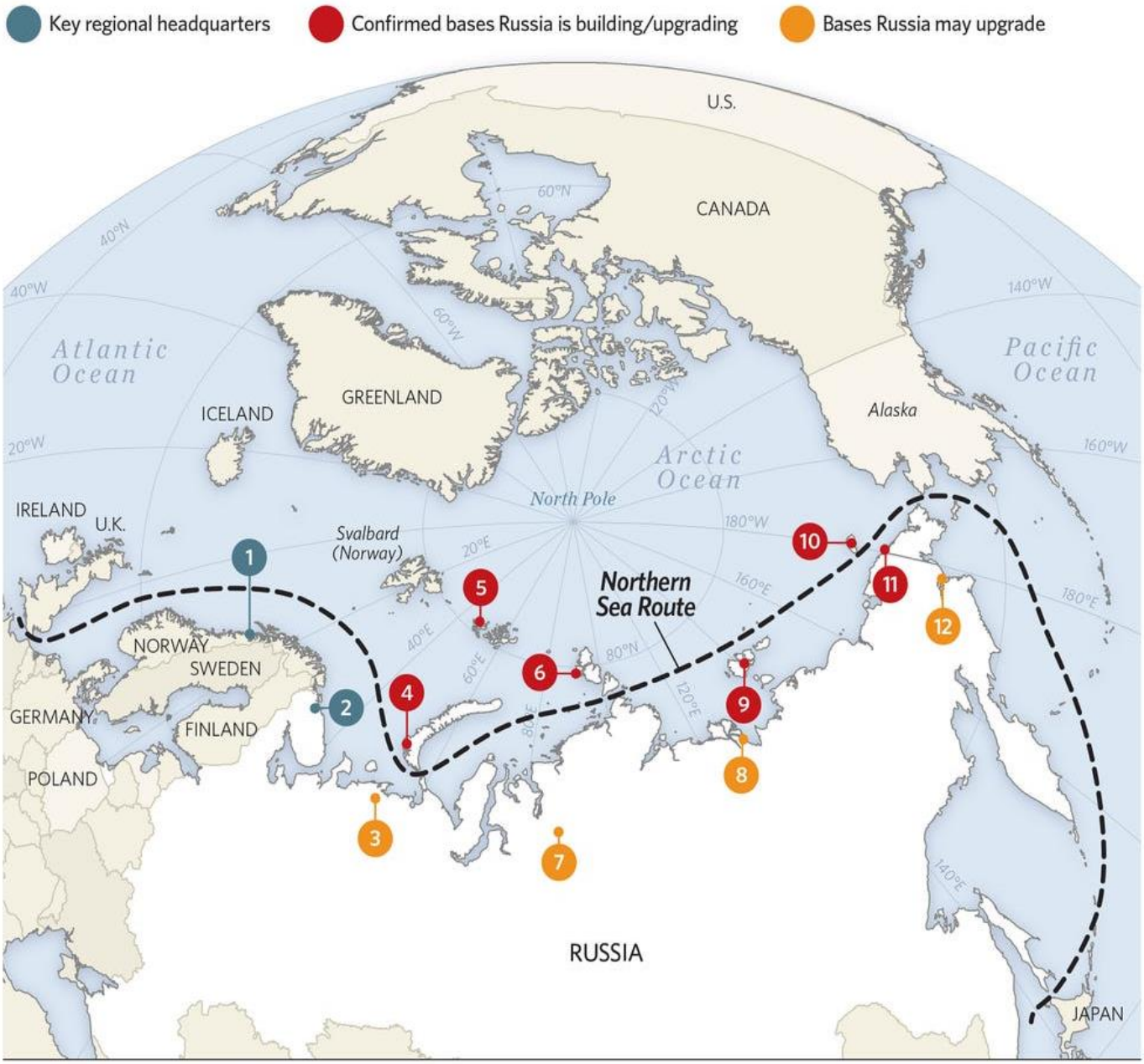
- Russia is building 3 nuclear icebreakers, including the world’s largest, to bolster its fleet of around 40 breakers, 6 of which are nuclear. No other country has a nuclear breaker fleet, used to clear channels for military and civilian ships.

- Russia has established in 2014 a new military district – Arctic Joint Strategic Command – to coordinate all of its activities in the Arctic, and it has made considerable investments and dramatically improved the capabilities of its forces in the three military districts that border the region (Far Eastern, Leningrad and Siberian).

- In addition, it has created new Arctic brigades; commissioned a new icebreaker fleet, which will join the Northern Fleet; re-opened Soviet-era military bases in the Arctic; and, deployed a missile early-warning radar in the Arctic.

[4] Source: Wikipedia and Sputnik

Russia Fortifying Bases in Arctic Region



Key Locations

1. Bodø, Norway's National Joint Headquarters
2. Severomorsk, home of Russia's Northern Fleet
3. Naryan-Mar
4. Rogachevo
5. Nagurskoye
6. Sredny Ostrov
7. Alykel
8. Tiksi
9. Temp
10. Zvyozdny
11. Mys Shmidta
12. Ugolny

There is division inside NATO as to the role of the alliance in the Arctic. Norway is a leader in promoting NATO's role in the Arctic.

Most of the national interests of Arctic states are not military in nature, but rather economic concerns involving shipping routes, fishing, and mineral rights. Even so, Russia has taken steps to militarize the Arctic. Russia's Northern Fleet, based at **Severomorsk**, accounts for two-thirds of the Russian Navy. A new Arctic command called the Northern Fleet–Joint Strategic Command will be established by 2015 to coordinate all Russian military activities in the region.

Over the next few years, two new brigades will be permanently based in the Arctic region, and Russian Special Forces have been training in the region. Old Soviet-era facilities have been reopened and modernized above the Arctic Circle. These will provide a string of military fortresses along the important Northern Sea Route. In light of Russia's recent behavior in Ukraine, the U.S. and NATO should continue to monitor Russian activity in the Arctic.

Source: Heritage Foundation research.

Norway[5]

Norway shares a 195km land border with Russia and a lengthy maritime boundary that stretches north, dissecting the Barents Sea. Oslo claims that close bilateral relations with Moscow have been and continue to be "vital". But recent Norwegian government activity fuelled, in part, by Moscow's aggressive actions, suggests it is asserting itself in its relations with its much larger neighbour.

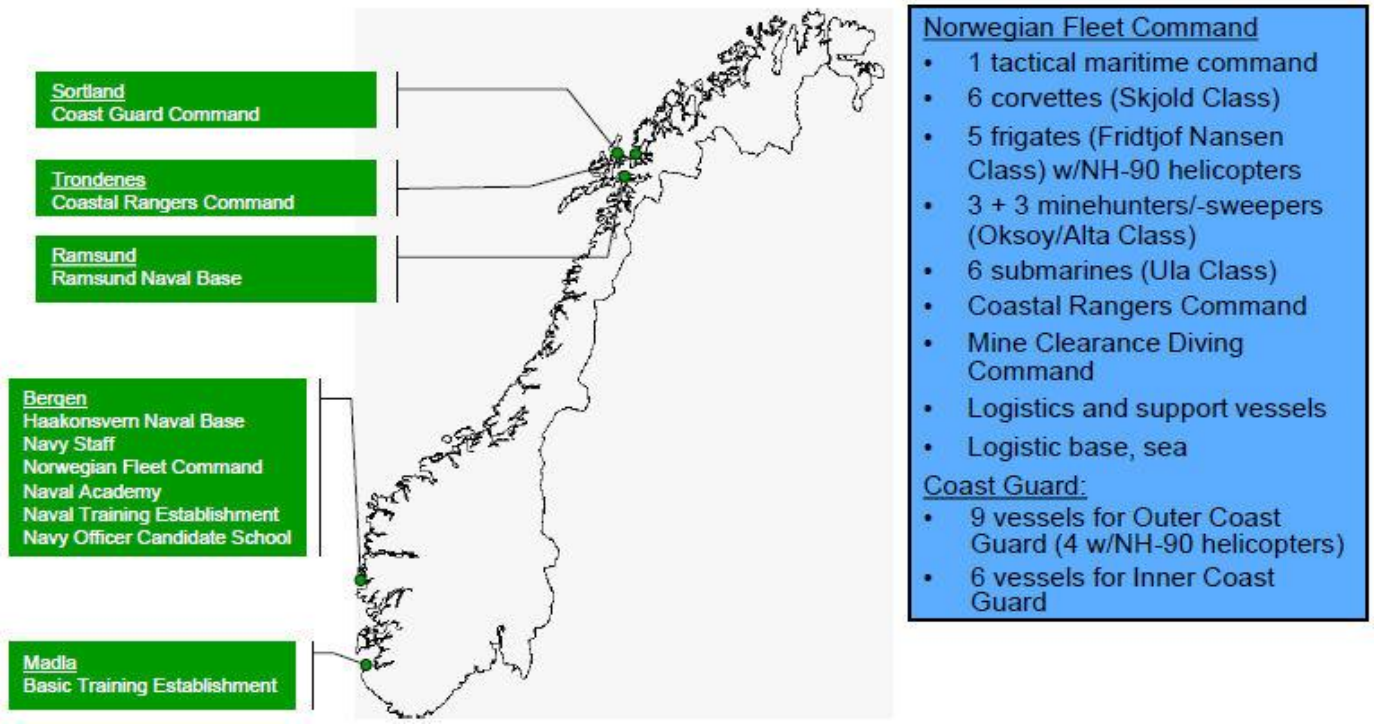
Norway bought five Poseidon surveillance aircraft at a cost of €1.1 billion in late 2021 to be deployed in regions of the Arctic Sea where Russian submarines have become increasingly active. In October, its outgoing defence minister, Ine Eriksen Soreide, announced a €320 million increase in military spending, much of which is to be focused on the north. "This shows will and ability to defend ourselves in the north, and it is a deterrent," Soreide said.

Much of Norway's posturing is a response to a series of Russian power plays. Moscow is in the midst of its biggest push for Arctic dominance since the collapse of the Soviet Union and is an increasingly visible presence in the Barents and Arctic Seas. In the last 10 years, it has tripled the amount of time its warships spend in Arctic waters. Russian authorities host major naval exercises, and extensive nuclear war games in the Arctic.

The recent invasion of the Ukraine, Russian threats to Sweden and Finland, and a big-budget Norwegian TV show that depicts Russia as occupying Norway (which drew the ire of the Russian embassy in Oslo), make it not difficult to see why tensions are high.

But Oslo's attempts to position itself as a dominant force in the Arctic region is not centred on curbing Russia alone. Massive undersea reserves of oil and gas are a major motivation. Occupying the mass of water between Russia, northern Norway and the Arctic Ocean, the Barents Sea is set to become a new ground zero for energy exploration. Norway doubled its oil reserves estimate there to 17.6 billion barrels in 2016. Less than two months later, it opened 93 blocks for exploration in the Barents Sea.

And with the state-owned energy giant Statoil more active in the Arctic last summer than ever before, climate activists tried and failed to take out a lawsuit against the Norwegian government for violating the constitution by, they say, "endangering citizens' rights to a healthy environment", and potentially breaching the Paris climate accord.



[5] Source: The Irish Times

USA[6]

In March 2021, three Russian submarines simultaneously broke through the ice near the North Pole. Each boat could carry 16 ballistic missiles, and each missile could field multiple nuclear warheads. The submarines were soon joined by two MiG-31 aircraft and ground troops participating in Umka-2021, a Russian military exercise.

The exercise in March highlighted increased Russian military activity in the Arctic, but that was not the sole Russian signal. U.S. Alaska Command, under U.S. Northern Command, reported that they had intercepted more Russian military aircraft near the Alaska Air Defense Identification Zone in 2020 than at any other time since the end of the Cold War. In April, Secretary of State Antony Blinken stated that Russia is trying "to exert control over new spaces. It is modernizing its bases in the Arctic and building new ones." Russian Foreign Minister Sergei Lavrov responded by saying, "We hear whining about Russia expanding its military activities in the Arctic. But everyone knows that it's our territory, our land."

The key threats to U.S. interests in the Arctic region are from Russian military forces in the Arctic and from Chinese influence attempts. Russian military activity in the Barents and Greenland Seas (the northern part of the Greenland-Iceland-United Kingdom gap) poses the most direct threat to U.S. security interests. Russian forces there could attack the U.S. homeland, ships and data links crossing the North Atlantic, and threaten NATO allies in northern Europe. Russian forces in the Bering and Chukchi Seas off the Alaskan coast are equally concerning. Russian capabilities could also be used to flout international law through unilateral assertions of control along the Northern Sea Route or the undersea Lomonosov Ridge, should the Commission on the Limits of the Continental Shelf rule against Russia's recent expansive claims to the Arctic seabed.

China's regional actions are troubling, particularly its use of government-linked investments, loans, and trade deals to influence Arctic states or populations. Threats could also arise from the military potential in China's bathymetric mapping or its polar research stations across Scandinavia. Any U.S. security strategy in the Arctic should alleviate these threats.

The most obvious opportunities for the United States in the Arctic are in private-sector infrastructure development and security coordination with allies. Poor infrastructure and communications plague Alaska. A hard-security strategy that prioritized infrastructure development in the name of national security, a green-energy transformation, or broadband connectivity initiatives could improve infrastructure and resilience in Alaska. Internationally, security coordination among U.S. allies and partners could generate momentum on nonsecurity behavioural norms for resource extraction, investments, and economic cooperation across the Arctic.

To deter Russia and China from threatening U.S. interests in the Arctic, the U.S. military needs to demonstrate presence in the region beyond submarines. Submarines can deter large-scale attacks but are less useful against coercion and intimidation. Deterring Russia will require Navy surface assets (manned and unmanned) and a more robust air and ground presence in the European and North Atlantic Arctic. It is difficult to police fisheries, monitor potentially hostile surface ships, or target airborne intruders without capabilities in the region. As Adm. James Foggo said of the Arctic when commanding Allied Joint Forces Command in Italy, "In order to deter, you have to be present. You've got to be there and you've got to be there quickly." Gen. Glen VanHerck, commander of U.S. Northern Command and the North American Aerospace Defense Command, made similar remarks in late April 2021.

Budget constraints, however, will prevent large-scale acquisition of military equipment designed for the Arctic. There are just too many competing demands on the defense budget. A handful of modern icebreakers and limited numbers of the Army's new cold-weather vehicle may be the extent of new, manned Arctic capabilities funded for the foreseeable future. That said, the United States could shift cold-weather-capable equipment to the region, especially unmanned intelligence, surveillance, and reconnaissance platforms. Unmanned capabilities need not have been developed for the Arctic per se but could be adapted for use in the region.

- The U.S. Air Base at Thule, Greenland is one of our most strategic airbases. Greenland independence could threaten American interests in the region with a potential negation of the Thule agreement.

[6] Source: War on the Rocks

China and the Spirit of Capitalism[7]

China is focussing its Arctic attention in four areas:

- China will participate in the development of Arctic shipping routes. Noting that the Arctic shipping routes are likely to become important transport routes for international trade as a result of global warming, China plans to build a Polar Silk Road. To that end, China will encourage its enterprises to participate in the infrastructure construction for these routes and conduct commercial trial voyages.
- China aims to participate in the exploration for and exploitation of oil, gas, mineral and other non-living resources in the Arctic. The Arctic region boasts an abundance of geothermal, wind, and other clean energy resources and China will work with the Arctic States to strengthen clean energy cooperation.
- China will start to utilize fisheries and other living resources and participate in conservation, since the Arctic has the potential to become a new fishing ground in the future.
- China will develop Arctic tourism as an emerging industry. China will support and encourage its enterprises to cooperate with Arctic States in developing tourism in the region.

However, China is also turning its attention to Greenland. As the massive ice sheet on the island continues to erode, along with surrounding sea ice, Greenland's emerging economic potential has caught the attention of many countries, but China has been distinct with its economic diplomacy in Greenland, which has not only included emerging mining opportunities, but also in the areas of infrastructure planning, tourism, and scientific cooperation.

Greenland is part of the Kingdom of Denmark, and the centrepiece for Danish interests in the Arctic. In 2009 the island achieved "self-rule," meaning that most governmental portfolios are under Greenlandic jurisdiction save for defence and foreign affairs. China's Greenlandic engagement has sparked concerns in Copenhagen and may factor into the looming question of whether Greenland opts for full independence in the coming years.

Chinese firms have sought to invest in Greenland's emerging mineral wealth, which is becoming more readily accessible due to climate change. The most visible example is the rare earth elements, uranium, and zinc mining under development at Kvanefjeld by Australian firm Greenland Minerals and Energy, in cooperation with China's Shenghe Resources. In Greenland's far north, a zinc mine is planned at Citronen Fjord which would be overseen by Perth-based Ironbark, which signed a memorandum of understanding with China Nonferrous Metal to assist with that project's development. As well, General Nice, a Hong Kong-based company, currently holds the rights to a potential iron mine at Isua in western Greenland. The same company ran afoul of the Danish government when it attempted to purchase an abandoned U.S.-built naval facility at Grønnedal, only to be blocked by Copenhagen.

Since May 2013, China has been an accredited observer to the Arctic Council and by participating, the Chinese Government is signalling that it has an Arctic interest and seeks to be a part of regional governance.

The Spirit of Capitalism.

The Arctic is a vast, largely untapped, region of energy and mineral resources. Global demand for energy and rare minerals is still increasing, despite the temporary glut caused by shale extraction. By 2040 at the latest, possibly much earlier, the Arctic ocean could be ice-free in summer. This could lead to the opening up of a Central Arctic shipping route, which would drastically shorten transport times between Europe and Asia and North America, as well as opportunities to economically mine and drill in the region.

Special Rules for this Actor.

Each turn you **must** make an argument for Arctic Development (cards for sample companies interested in Arctic Development are included). If the argument is unsuccessful, the other players may suggest an alternative Arctic Development, in turn, until a development is agreed by a simple majority of the players present. **In all cases, there must be an Arctic industrial development each turn, of some description**.

Then you may make a Matrix Argument as China. This argument could be for an additional Arctic Development.

[7] Source: thediplomat.com

Canada[8]

The Arctic policy of Canada includes both the foreign policy of Canada in regard to the Arctic region and Canada's domestic policy towards its Arctic territories. This includes the devolution of powers to the territories. Canada's Arctic policy includes the plans and provisions of these regional governments. It encompasses the exercise of sovereignty, social and economic development, the protection of the environment, and the improving and devolving of governance.

Canada, along with the 7 other Arctic nations, is a member of the Arctic Council. Along with its mainland in the upper regions of North America, Canada claims sovereignty over the related continental shelf and the Arctic Archipelago. It considers the waters between the islands of the Archipelago to be Canadian Internal Waters. The United States among others considers those to be international waters.

Canada has had historic difficulty supporting its Arctic claims of sovereignty due to the sparsity of population, remoteness, and difficulty in effectively demonstrating administrative capacity. Most challenges to Canada's arctic sovereignty has historically come from the United States. As claims of sovereignty in the Arctic solidified with the end of territorial disputes around the Alaska panhandles, Canada's efforts at demonstrating sovereignty have shifted from the mainland of the north, to the Arctic Archipelago. Most recently, Canada's claims that the marine passageways within the Archipelago are Canadian internal waters have been actively challenged by the United States, who claims instead that these are international waters.

In 1969, the SS Manhattan and, in 1985, the Polar Sea, both United States ships, sparked controversy in Canada by traveling through the waters of the Arctic Archipelago without the permission of Canada. Due to the remoteness of the area and a lack of capacity, Canada did not learn of the voyages until after they had occurred, a clear challenge to Canada's arctic claims. In the aftermath of both incidents, Canada strengthened its legislation covering such voyages and devoted additional attention to developing its capacity (both military and otherwise) for operating in the Arctic in support of its sovereignty claims.

Canada has more Arctic land mass than any other country but one of the smallest Arctic populations. Canada's Arctic land is included within the administrative regions of the Northwest Territories, Nunavut, and Yukon, although geographically and in some cases legally, parts of Newfoundland and Labrador and Northern Quebec are included as well. As of 2011, approximately 107,265 Canadians live in the Arctic.

Ottawa has committed to work with the U.S. on replacing the North Warning System with technology that includes next-generation over-the-horizon radar systems that can detect targets at long ranges. Anand also said Ottawa is buying new military equipment, including two new polar ice breakers, and is expected to award a contract for 88 new fighter jets this year.

Canada’s Coast Guard currently has 18 icebreakers of varying sizes and capability, which is the second largest icebreaking fleet in the world. The largest is the CCGS Louis S. St-Laurent, which will continue to operate through the next decade.

Russia has been flexing its military presence in the Arctic like never before using nuclear submarines and nuclear-powered icebreakers, even laying claims to a bigger chunk of a region within 200 nautical miles from Canada's coastline. Conservative MP Bob Zimmer, critic for northern affairs and Arctic sovereignty. Zimmer said Canada's response to Russia's military build-up is overdue and he doesn't think Canada is ready for an offensive encounter in the Arctic. Meanwhile, the critics are calling on Ottawa to spend more on northern communities. "This is about investing in the infrastructure they've ignored for quite some time," she said.

- Canada has large deposits of natural resources in the high north, including uranium, iron ore, and natural gas
- China has expressed significant interest in Canadian natural resources, and Chinese investment in the Canadian Arctic is increasing despite a recent moratorium on oil and gas development. Since 2012, Chinese investments in Canada account for more than 2.4% of Canada’s GDP.

[8] Source: http://polarconnection.org, CBC Canada and Wikipedia.

The United Kingdom[9]

The UK has strong relationships with almost all Arctic states and has a responsibility to support our Allies and partners to preserve the stability and security of the region; we have been operating there for many years. We will continue to support the existing legal framework and constructive international cooperation in the region. We will protect and, where appropriate, assert our rights against those who wish to challenge the rules-based international system and freedom of navigation or threaten the stability of the region in other ways. As a leading European NATO Ally, the UK is prepared to defend our Arctic Allies and respond to aggression. We will contest malign and destabilising behaviours and activity in the region which threaten our interests, the safety of the inhabitants of the Arctic, and the stability of the region. Within the Alliance, UK Defence plays a particular role in protecting underwater critical national infrastructure and ensuring freedom to operate in the North Atlantic, especially in the Greenland-IcelandUK (GIUK) Gap.

As the 2021 Defence Command Paper made clear, "the High North and maintaining security in the defence of the North Atlantic remains of great importance". The MOD will ensure that it remains capable of protecting the UK's interests as the region opens up in the coming years.

In support of the UK Government aim to preserve the stability and security of the Arctic region, the MOD will pursue the following objectives for the High North:

- Protect our Critical National Infrastructure and our other national interests, and those of our Allies.
- Ensure our freedom to navigate and operate across the wider region.
- Reinforce the rules-based international system, particularly UNCLOS.
- Contest malign and destabilising behaviours.

To deliver these objectives, we will work in the following ways:

- Improve our understanding of the region, how it is changing, and the activities of state and non-state actors within it.
- Work with regional Allies and partners, including through NATO, the Northern Group, and the Joint Expeditionary Force, aligning policy, activity, and capability where possible and across all domains.
- Maintain a coherent Defence posture, presence, and profile in the region, including training, partnering, and operating from and in the Arctic.
- Develop sustainable, modernised, and proportionate Defence capability for the region, including through investment in Research and Development.

HMS Protector

HMS Protector is a Royal Navy ice patrol ship built in Norway in mid-2000. As MV Polarbjørn (Norwegian: polar bear) she operated under charter as a polar research icebreaker and a subsea support vessel. In 2011, she was chartered as a temporary replacement for the ice patrol ship HMS Endurance and was purchased by the British Ministry of Defence in early September 2013. As DNV Ice Class 05 the vessel can handle first year ice up to 0.5 metres (20 in).

[9] The UK's Defence Contribution to the High North (www.gov.uk) and Wikipedia

Denmark[10]

Danish presence in Greenland dates back to the Middle Ages but it's not until WW2, after the German occupation of Denmark, that the first Agreement for the Defence of Greenland was signed (April 1941). This was followed by the construction of American military bases across the island, and the strategically critical air base at Thule (1951).

Regarding the indigenous population of the island, colonial education and housing practices led to lingering resentments among the islanders. In 1979, Greenlanders voted for greater autonomy from Denmark, voted to leave EU in 1985, and in 2009, another referendum granted Greenland home rule, which gave them greater autonomy over their subsurface mineral rights, internal governance but not in foreign affairs and defence matters. Broadly, Denmark remains aligned with U.S. interests as a result of their membership in NATO, and the two nations have worked together to thwart Chinese ambitions in the Arctic.

In October 2012, the Greenland and Faroe Islands commands were merged into a new joint military Arctic Command headquartered in Nuuk, Greenland (small units and several patrol ships and aircraft more or less permanently assigned to it, but can be quickly reinforced with other Danish military assets).

Defence Agreements include the establishment of a modular Arctic Response Force or Joint Arctic Preparedness Force, composed of different parts of the Danish armed forces for operation on Greenland and in other Arctic areas. However, budgets provided insufficient funds over the last decade, and equipment for the Danish forces to fulfil their Arctic tasks, in particular search and rescue and environmental protection, are inadequate.

In the Air, Denmark operates 3 unarmed maritime patrol aircraft over the Baltic Sea and off Greenland.

On Land, in Greenland, the small Frogman Corps special forces unit based in Greenland has a partly Arctic role as well as the Jaeger special forces (in Denmark). Both units are being doubled to 200-300 troops each. They also maintain the Sirius Dog Sled Patrol, which is an elite Danish naval unit. It conducts long-range reconnaissance patrolling, and enforces Danish sovereignty in northern and eastern Greenland. Patrolling is usually done in pairs and using dog sleds with about a dozen dogs, sometimes for four months and often without additional human contact.

The Sirius Dog Sled Patrol has the ability to engage militarily, and has done so historically. Its purpose is to maintain Danish sovereignty and police its area of responsibility. The physical and psychological demands for acceptance into the unit are exceptional.

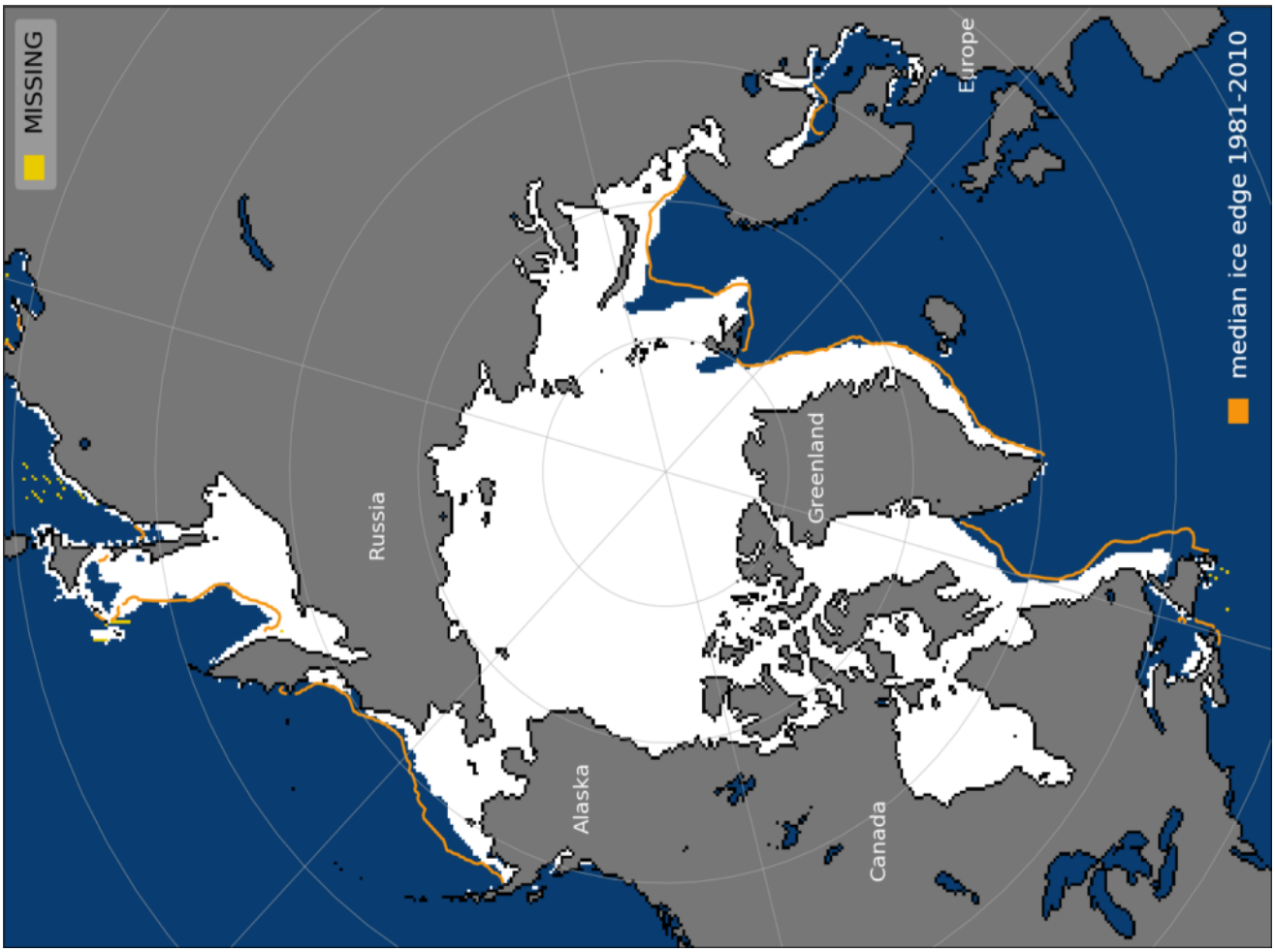
At Sea, Denmark operates:

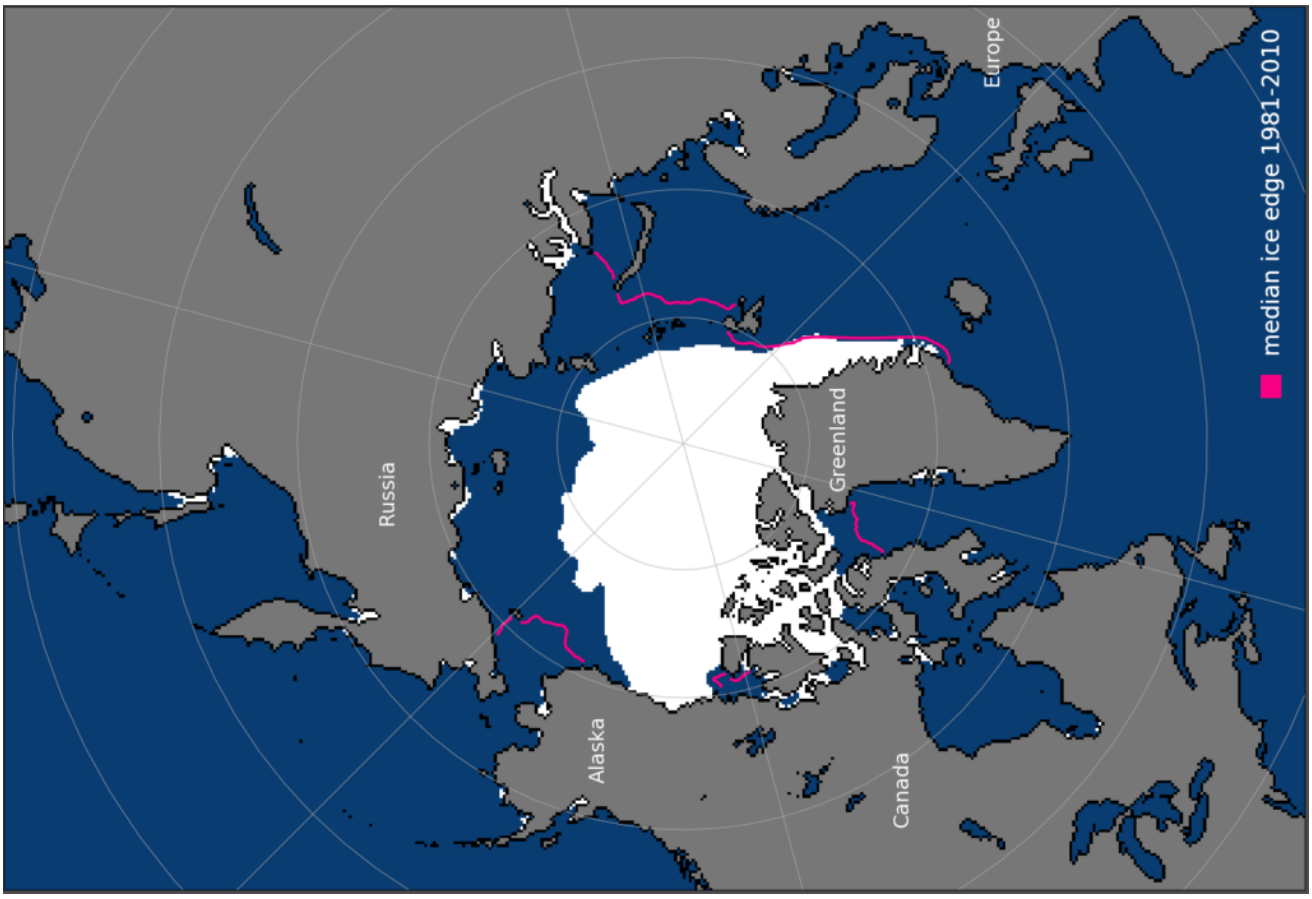
- 3 large frigates and 2 frigate/support ships able to operate in Arctic waters, but are not ice-strengthened.
- 4 Thetis OPV (Offshore Patrol Vessel)/frigates are capable of breaking ice up to 1 meter thick.
- 3 smaller ice-strengthened Rasmussen OPV/light corvettes, dedicated for patrols off Greenland.
- 1 ice-strengthened Tulugaq large patrol craft which also operate from Greenland.
- 9 larger MH-60R helicopters. The Danish Navy has a base at Kangilinnguit in south Greenland.

[10] Source: Wikipedia

The High North Game Map:

Sea Ice[11]:





[11] Source: National Snow and Ice Data Centre, University of Colorado

The Arctic Council[12].

The Arctic Council is a high-level intergovernmental forum which addresses issues faced by the Arctic governments and people living in the Arctic region.

The first step towards the formation of the Council occurred in 1991 when eight Arctic countries signed the Arctic Environmental Protection Strategy (AEPS). The Ottawa Declaration of 1996 formally established the Arctic Council as a high level intergovernmental forum to provide a means for promoting cooperation, coordination and interaction among the Arctic states, with the involvement of the Arctic Indigenous communities and other Arctic inhabitants on common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic. The Ottawa Declaration named the following member states: Canada, Denmark; representing Greenland and the Faroe Islands, Finland, Iceland, Norway, Russia, Sweden, United States.

Six Arctic indigenous communities have the status of Permanent Participants on the Council. These groups are represented by the Aleut International Association, Arctic Athabaskan Council, Gwich'in Council International, Inuit Circumpolar Council, Russian Association of Indigenous Peoples of the North, and the Saami Council. They are assisted by the Arctic Council Indigenous Peoples Secretariat.

The Arctic Council convenes approximately every six months at a site within the host Chair's nation for a Senior Arctic Officials (SAO) meeting. SAO's are high level representatives of each of the eight member nations - sometimes Ambassadors, often just senior foreign ministry officials entrusted with staff-level coordination. Representatives of the six Permanent Participants and the official Observers also are in attendance.

Since May 2013, China has been an accredited observer to the Arctic Council and by participating, the Chinese Government is signalling that it has an Arctic interest and seeks to be a part of regional governance.

At the end of the two-year cycle, the Chair hosts a Ministerial-level meeting, which is the culmination of the Council's work for that period. Most of the eight member nations are represented by a Minister from their Foreign Affairs, Northern Affairs or Environment Ministry.

A formal, though non-binding, "Declaration", named for the town in which the Ministerial meeting is held, is announced, which generally sums up the past accomplishments and the future work of the Council. These Declarations cover the main topical areas that the Council is concerned with, including climate change, sustainable development, Arctic monitoring and assessment, persistent organic pollutants (POPs) and other contaminants in the Arctic, and the work of the five Working Groups of the Council. The last Ministerial meeting took place May 11, 2017 in Fairbanks, Alaska, United States.

Working Groups:

- Arctic Monitoring & Assessment Programme (AMAP)
- Conservation of Arctic Flora & Fauna (CAFF)
- Emergency Prevention, Preparedness & Response (EPPR)
- Protection of the Arctic Marine Environment (PAME)
- Sustainable Development Working Group (SDWG)

Programs and Action Plans:

- Arctic Climate Impact Assessment
- Arctic Human Development Report
- Arctic Contaminants Action Program

[12] Source: Wikipedia

The Ilulissat Declaration[13]

The Ilulissat Declaration was brought into force on May 28, 2008 by the five coastal states of the Arctic Ocean (the United States, the Russian Federation, Canada, Norway and Denmark - also known as the Arctic five, aka the A5), following the Arctic Ocean Conference in Ilulissat, Greenland to discuss the Arctic Ocean, climate change, the protection of the marine environment, maritime safety, and division of emergency responsibilities if new shipping routes are opened.

The Ilulissat Declaration is a document signifying necessary joint regional efforts and responsibilities in response to the potentially adverse effects of climate change with regard to the melting Arctic ice pack.

The declaration addresses the areas of "vulnerable ecosystems, the livelihoods of local inhabitants and indigenous communities, and the potential exploitation of natural resources", invoking a jurisdictional and sovereign-based approach to convey the responsibilities of the Arctic five. As the A5 only make up five of the eight members of the Arctic Council, this meant that the Arctic Council, as a complete forum, was not included – missing Sweden, Iceland, and Finland. Indigenous organisations were also excluded – notably the Inuit Circumpolar Council (ICC), one of the permanent participants of the Arctic Council.

The 2008 conference was hosted by Per Stig Møller, Danish Minister of Foreign Affairs at the time, and Hans Enoksen, Greenlandic Premier at the time. The key ministerial level attendees included Sergey Lavrov, Russian Minister for Foreign Affairs, Jonas Gahr Støre, Norwegian Minister for Foreign Affairs, Gary Lunn, Canadian Minister for Natural Resources, and John Negroponte, American Deputy Secretary of State.

Critique of the Ilulissat Declaration

Initial critics of the Arctic Five claimed that the A5's exclusive cooperation in certain areas had the capacity to undermine other cooperation efforts that have overlapping aims – such as the Arctic Council (consisting of Canada, Denmark, Finland, Iceland, Norway, Sweden, Russia and the United States, in addition to the six Permanent Participants). Iceland, Finland, and Sweden's exclusion (the remaining states of the Arctic Council – the forum which was not invited to the Arctic Ocean Conference in 2008), in addition to the exclusion of the Arctic Peoples, added fuel to the fire and was seen as a form of exclusionary politics that collided with existing institutional provisions.

This critique was echoed particularly by the indigenous peoples of the Arctic, who were excluded. The state-driven nature of the Ilulissat Declaration was seen as questionable, and the signatory states' exclusive power to delineate the Arctic was especially contested.

However, this potential ground for tension has contracted since due to a refinement in the way that the Arctic Five is actually used – now primarily being seen as a supplementary forum to the Arctic Council and covering niche areas and topics not within the Arctic Council's confinement or capacities. This has supposedly diminished a competitive interpretation of the A5 with regard to the Arctic Council. The tension was also alleviated through the inclusion of the other Arctic Council members and indigenous people in the 2018 meeting.

In addition, initiatives taken since have included more actors – non-coastal actors – as conveyed by negotiations pertaining to fisheries in the central Arctic Ocean (Schatz, Proelss, Liu). Initiatives like this have reduced the initial competitive perceptions of the A5 by demonstrating the necessity of broader cooperation in the Arctic region.

[13] Source: Wikipedia.

Svalbard[14]

Svalbard lies under the sovereignty of Norway, but the Svalbard Treaty places several restrictions. Norway cannot use the archipelago for warlike purposes, cannot discriminate economic activity based on nationality and is required to conserve the natural environment. Uniquely, Svalbard is an entirely visa-free zone. Everybody may live and work in Svalbard indefinitely regardless of country of citizenship. Svalbard Treaty grants treaty nationals equal right of abode as Norwegian nationals. Non-treaty nationals may live and work indefinitely visa-free as well. "Regulations concerning rejection and expulsion from Svalbard" is in force on non-discriminatory basis.

Public administration of the archipelago is the responsibility of the Governor of Svalbard, who acts as county governor and chief of police. The institution was established by and is regulated by the Svalbard Act, which also limits which Norwegian laws apply to the islands. Longyearbyen Community Council is the only elected local government and is organized similar to a mainland municipality. Other Norwegian government agencies with a presence are the Directorate of Mining and the Tax Administration. The only diplomatic mission is the Consulate of Russia in Barentsburg.

Article 9 of the Svalbard Treaty specifies that no fortifications and naval bases may be built on Svalbard, nor can the archipelago be used for "warlike purposes". The preparatory work of the treaty and later state practice has been to enforce that no military activity is carried out on the archipelago; however, the treaty as such does not ban, for instance, the construction of air stations or military installations not regarded as defence works. There is scholarly consensus that Article 9 is unclear, but that a military presence should only be established when there is an attack or threat of attack on Svalbard. Norway can clearly not use Svalbard to make a threat of war, but retains the right to self-defence against an attack on Svalbard. However, the right does not allow Norway to bring Svalbard into war as part of self-defence of other parts of the country.

The waters around Svalbard are of strategic significance for Russia as the Northern Fleet must pass through the area to reach the Atlantic Ocean. The concern of the Soviet Union and Russia was therefore to ensure that listening stations and anti-submarine warfare installations were not placed on the archipelago. Except during the Second World War, Norway has never stationed any military troops on Svalbard. However, the Norwegian Coast Guard carries out surveillance. There were many protests during the Cold War from the Soviet Union against Norwegian activity on the island, including purely civil arrangements. The Soviet Union issued many memorandums protesting such installations as satellite ground stations and airports, and even the filming of the movie “Orion's Belt”, on the grounds that it could be a cover for or had the potential for being used for military activities.

[14] Source Wikipedia

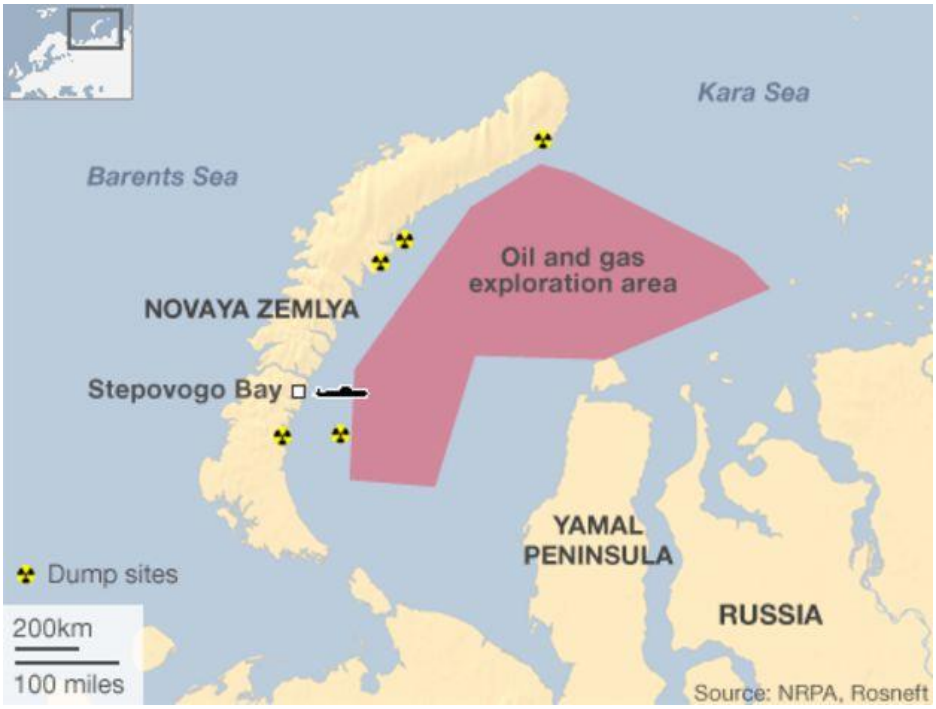
Russian Nuclear Dumping in the Arctic[15].

The toxic legacy of the Cold War lives on in Russia's Arctic, where the Soviet military dumped many tonnes of radioactive hardware at sea. For more than a decade, Western governments have been helping Russia to remove nuclear fuel from decommissioned submarines docked in the Kola Peninsula - the region closest to Scandinavia.

But further east lies an intact nuclear submarine at the bottom of the Kara Sea, and its highly enriched uranium fuel is a potential time bomb. This year the Russian authorities want to see if the K-27 sub can be safely raised, so that the uranium - sealed inside the reactors - can be removed. They also plan to survey numerous other nuclear dumps in the Kara Sea, where Russia's energy giant Rosneft and its US partner Exxon Mobil are now exploring for oil and gas.

Seismic tests have been done and drilling of exploratory wells is likely to begin next year, so Russia does not want any radiation hazard to overshadow that.

Rosneft estimates the offshore fossil fuel reserves to be about 21.5bn tonnes. Exxon Mobil said that before drilling offshore "it is standard industry practice to conduct extensive studies at and below the seabed" to check for hazards, using tools including remote sonar and a magnetometer. The two companies "are confident that we can safely drill in the Kara Sea and avoid hazards from radioactive materials on the seabed", Exxon Mobil said.



On the western flank is a closed military zone - the Novaya Zemlya archipelago. It was where the USSR tested hydrogen bombs - above ground in the early days.

Official figures show that the Soviet military dumped a huge quantity of nuclear waste in the Kara Sea: 17,000 containers and 19 vessels with radioactive waste, as well as 14 nuclear reactors, five of which contain hazardous spent fuel. Low-level liquid waste was simply poured into the sea.

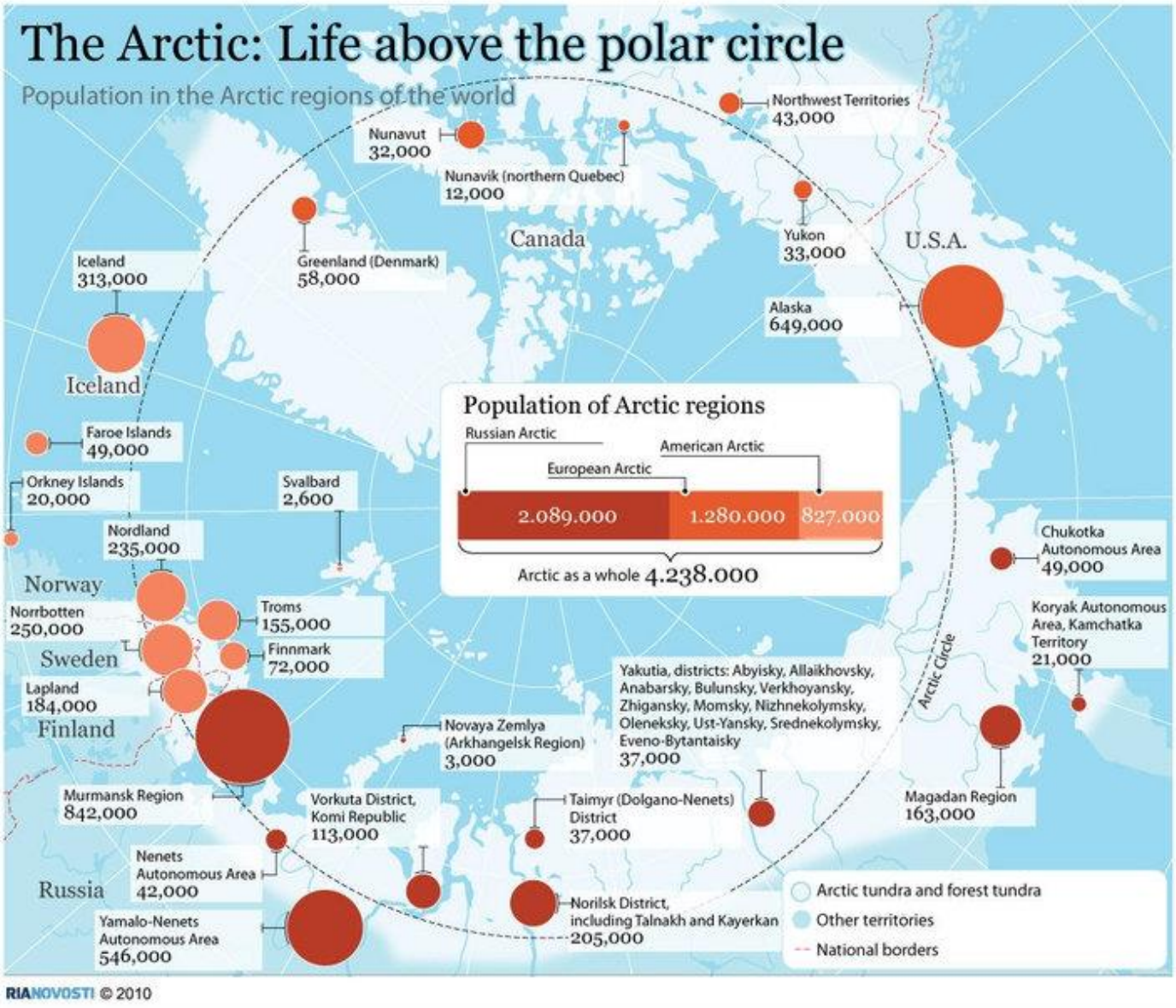
Igor Kudrik of the Norwegian environmental group Bellona says there is even a risk that corrosion could trigger a nuclear chain reaction, in the worst-case scenario.

With international help Russia did manage to lift the wreck of the Kursk submarine after it sank in the Barents Sea. But another ill-fated Russian nuclear-powered sub - the K-159 - remains at the bottom of the Barents Sea, in international waters. And in the Norwegian Sea lies the K-278 Komsomolets, reckoned to be too deep to be salvaged.

K-27 was an experimental submarine - the first in the Soviet navy to be powered by two reactors cooled by lead-bismuth liquid metal. Disaster struck in 1968, when radioactive gases escaped from one reactor, poisoning crew members who tried to repair it at sea. Nine sailors died of radiation sickness, but the Soviet military kept it secret for decades. The navy gave up trying to repair K-27 and scuttled it illegally in 1981 off Novaya Zemlya. It lies just 30m (99ft) beneath the surface of Stepovogo fjord - though international guidelines say decommissioned vessels should be buried at least 3,000m down.

[15] Source: BBC

Arctic Peoples[16].



Indigenous peoples have inhabited the Arctic for thousands of years. The proportion of indigenous people is estimated to be about 10 percent of the total population living in arctic areas. There are over 40 different ethnic groups living in the Arctic. Recently, political organization of indigenous peoples has led to international recognition and clarification of human and political rights concerning indigenous populations. Rights to land and natural resources are an important part of the culture and survival of indigenous peoples in the Arctic.

Regardless of underlying causes, the Arctic is undergoing a period of significant change that is likely to continue well into the next century, if not longer, and affect all sectors of the circumpolar North. People in the Arctic are worried about contaminants, land use, climate, security and access in the form of rights to land and sea. As a result, the livelihoods connected with hunting, fishing and herding are under threat. Indigenous peoples have an especially strong bond with nature and the changes in harvesting activities may have implications on the economy, society, culture and health.

[16] Source: Wikipedia and University of Lapland.

Arctic Viruses[17].

In 2017 anthrax killed a 12-year-old boy in a remote part of Siberia. At least 20 other people, also from the Yamal Peninsula, were diagnosed with the potentially deadly disease after approximately 100 suspected cases were hospitalized. Additionally, more than 2,300 reindeer in the area died from the infection. The likely cause? Thawing permafrost. According to Russian officials, thawed permafrost—a permanently frozen layer of soil—released previously immobile spores of Bacillus anthracis into nearby water and soil and then into the food supply. The outbreak was the region's first in 75 years.

Researchers have predicted for years that one of the effects of global warming could be that whatever is frozen in permafrost—such as ancient bacteria—might be released as temperatures climb. This could include infectious agents that humans might not be prepared for, or have immunity to, the scientists said. Now they are witnessing the theoretical turning into reality: infectious microorganisms emerging from a deep freeze.

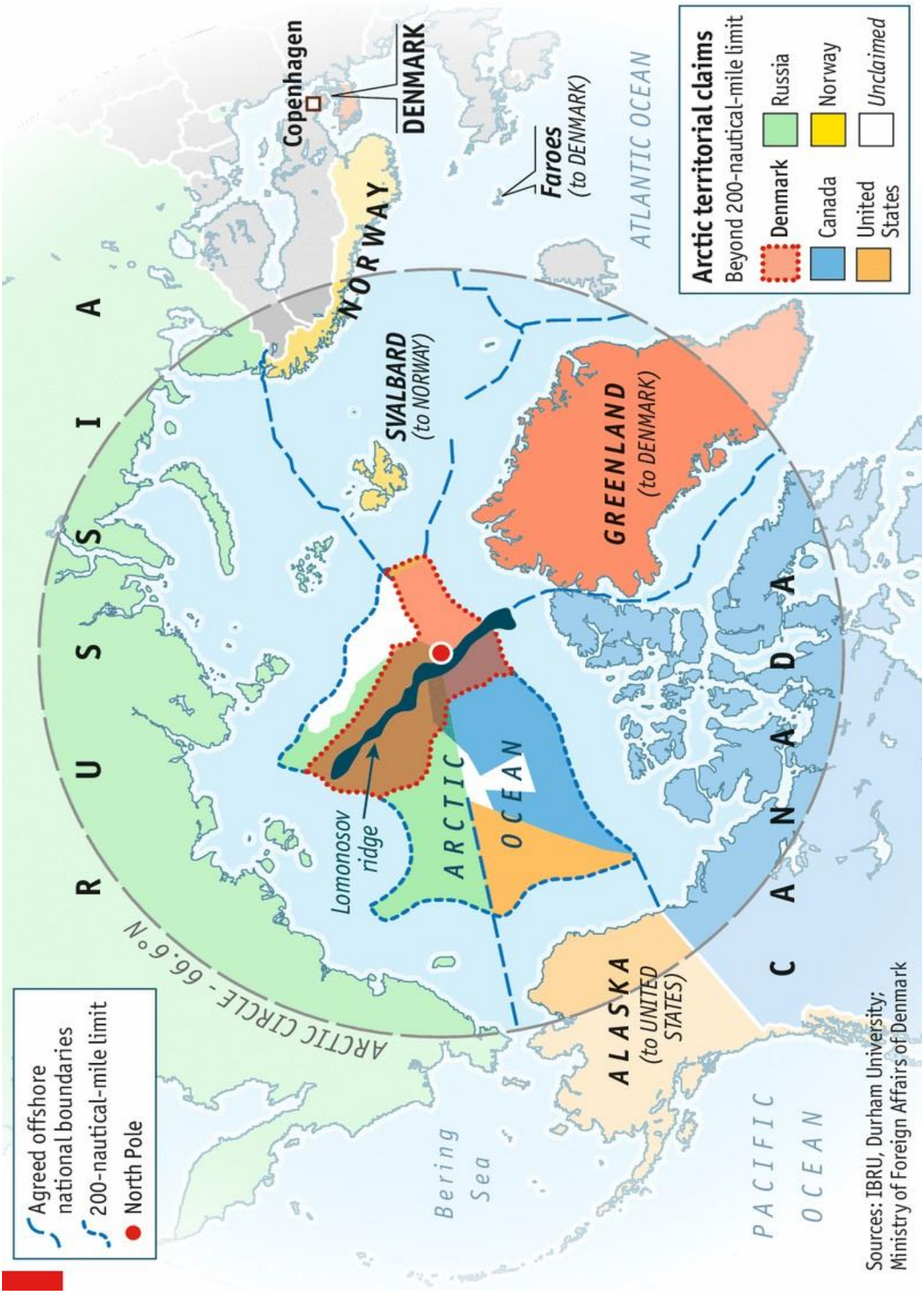
Viruses could also survive for lengthy periods. In 2014 and 2015 Claverie and his colleague Chantal Abergel published their findings on two still infectious viruses from a chunk of 30,000-year-old Siberian permafrost. Although Pithovirus sibericum and Mollivirus sibericum can infect only amoebas, the discovery is an indication that viruses that infect humans—such as smallpox and the Spanish flu—could potentially be preserved in permafrost.

Human viruses from even further back could also make a showing. For instance, the microorganisms living on and within the early humans who populated the Arctic could still be frozen in the soil. “There are hints that Neandertals and Denisovans could have settled in northern Siberia and were plagued by various viral diseases, some of which we know, like smallpox, and some others that might have disappeared,” Claverie says. “The fact that there might be an infection continuity between us and ancient hominins is fascinating—and might be worrying.”

In effect, infectious agents buried in the permafrost are unknowable and unpredictable in their timing and ferocity. Thus, researchers say thawing permafrost is not our biggest worry when it comes to infectious diseases and global warming. The more immediate, and certain, threat to humans is the widening geographical ranges of modern infectious diseases (and their carriers, such as mosquitoes) as the earth warms. “We now have dengue in southern parts of Texas,” says George C. Stewart, McKee Professor of Microbial Pathogenesis and chair of the department of veterinary pathobiology at the University of Missouri. “Malaria is seen at higher elevations and latitudes as temperatures climb. And the cholera agent, Vibrio cholerae, replicates better at higher temperatures.”

[17] Source: Scientific American.

Territorial Claims:



THE WORLD'S ARCTIC ICEBREAKERS*

The Canadian Coast Guard's aging icebreaker fleet, with an average age of over three decades, is in need of replacement. Here is how Canada's icebreaker fleet compares to the rest of the world.

CANADA
Icebreakers: 7 Under construction: 2 Planned: 5

LouisSt.Laurent (1969, refit 1993) | Terry Fox (1983) | Amundsen (1979, refit 2013) | Henry Larsen (1988) | Sir Wilfrid Laurier (1986) | DesGroseilliers (1983) | Pierre Radisson (1978) | Harry Dewolf (2018) | Margaret Brooke (2019) | John G. Diefenbaker (2022) | Max Bernays (2020)

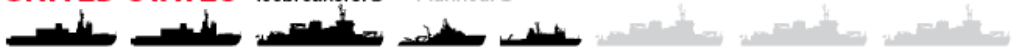
William Hall (2020) | Frederick Rolette (2021) | Robert Hampton Grey (2022)

RUSSIA
Icebreakers: 46 Under construction: 11 Planned: 4

FINLAND
Icebreakers: 10

SWEDEN
Icebreakers: 7 Planned: 3

UNITED STATES
Icebreakers: 5 Planned: 3



DENMARK

CHINA

NORWAY

ESTONIA

AUSTRALIA

GERMANY

CHILE

JAPAN

SOUTH KOREA

SOUTH AFRICA

LATVIA

ARGENTINA

UNITED KINGDOM

*Vessels not considered capable of independent arctic operation were omitted. Vessel outlines reflect relative sizes.

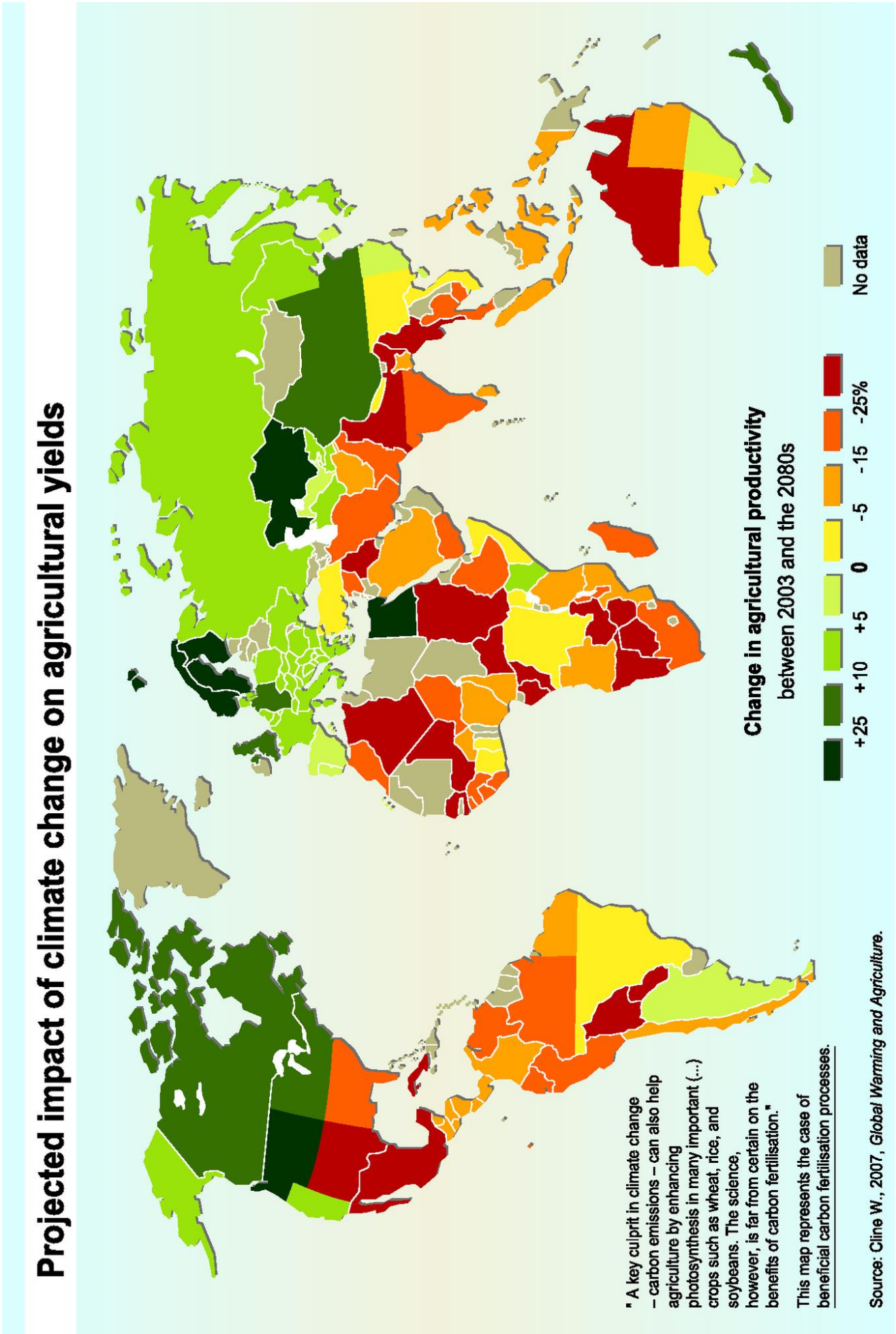
WWW.DCO.USCG.MIL

NATIONAL POST

[18] Source: www.dco.uscg.mil

The World's Arctic Icebreakers[18]:

Effects of Climate Change on Agricultural Yields:



Example Corporations[19].

Australian Investments	Chinese Minerals	Chinese Energy & Minerals	Chinese Minerals
US Energy	Russian Energy	British Nuclear	Ukrainian Nuclear
Canadian Energy & Mining	Canadian Rare Earths	US Energy	Chinese Minerals
Russian Nuclear	Australian/British Mining	US Energy	Russian Transport

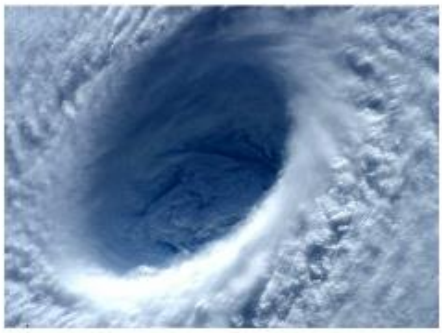
[19] Note: These were taken from the articles accessed in the briefing material and are merely examples. The Matrix game represents real-world actors and organisations, but the logos are the trademarks of their parent organisations and their inclusion in the game is not intended as any commentary of their likely ethical or commercial behaviour.

Random Events[20].

		
Radiation Leak	Eco Terrorism	Economic Downturn
		
Rare Mineral Discovery	Toxic Spill	Extreme Weather
		
High Level Corruption Scandal	Shipping Disaster	Economic Upturn

[20] Note: Each turn 2 x random events are chosen at the start of a turn, and allocated to adjacent Actors, in order (so every Actor receives one every 3rd turn). The Actor then makes an additional argument about the event.

Random Events[21].

		
Anonymous Hacking Attack	Fishing Dispute	Extreme Weather
		
Native People's Protest	Political Upheaval	Wildlife Protection Agreement
		
Air Disaster	Submarine Accident	De-Extinction Breakthrough

[21] Note: Each turn 2 x random events are chosen at the start of a turn, and allocated to adjacent Actors, in order (so every Actor receives one every 3rd turn). The Actor then makes an additional argument about the event.

National Strategic Investments

At the start of the game, the players should be provided with copies of the National Strategic Investment Cards (below), with each country having a budget (based partially on Parity Purchasing Power, per capita, offset by the scale of their national infrastructure), as follows:

- USA-12
- Russia-10
- China-8
- Canada, Denmark, Norway and the UK, each: 6.

They are deliberately descriptive in their capabilities and are intended to be broadly what the Actors want them to be, levied by common sense. The intention is that each card represents a level of investment that would make a significant different to their country's capabilities. The cards can be used to support arguments in play.

Effects on Climate Change

However, these investments represent long-term national strategic investments overall, to do with climate change, and the Arctic. If the Actors do not invest substantially in "Green Technologies", then the rate of climate change will increase. This may have an effect on the capabilities they have invested in.

For example, if an Actor invests in building Arctic Forward Operating Bases (FOBS), and fails to invest in Terrain Analysis, then as the ice melts at a faster rate, the infrastructure will degrade and fail to generate a significant advantage (which means that the investment can no longer be used to support Matrix Arguments).

Other examples are:

- As the ice melts, icebreakers become redundant, first on the Northern Sea Route, Then the North West Passage, then the Polar Route (about 10 years apart).

- Cargo ships with reinforced hulls are no-longer more reliable, but although insurance might be a little cheaper, they are now more costly to operate than normal cargo vessels.

- Problems with the Indigenous Populations will become more significant, unless they have been invested in specifically.

Thresholds

I would put the threshold at 50% of all investments in order to keep climate change to the projected levels, with a total investment of 27 points required.

I would also trigger the developments after game turn 2 or 3.

Of course, if the Actors invest in more than the 27-point threshold, climate change will progress at a slower rate (but will not be reversed in the timescale of this game).

RENEWABLE ENERGY

Solar, wind, hydro, and geothermal power are clean and sustainable energy sources that can replace fossil fuels, reducing carbon emissions.

ENERGY STORAGE

Advanced battery technologies and energy storage solutions enable the efficient integration of intermittent renewable energy sources and help balance supply and demand.

SMART GRID

Intelligent electrical grids that optimise energy distribution, minimize transmission losses, and enable the integration of decentralized renewable energy generation.

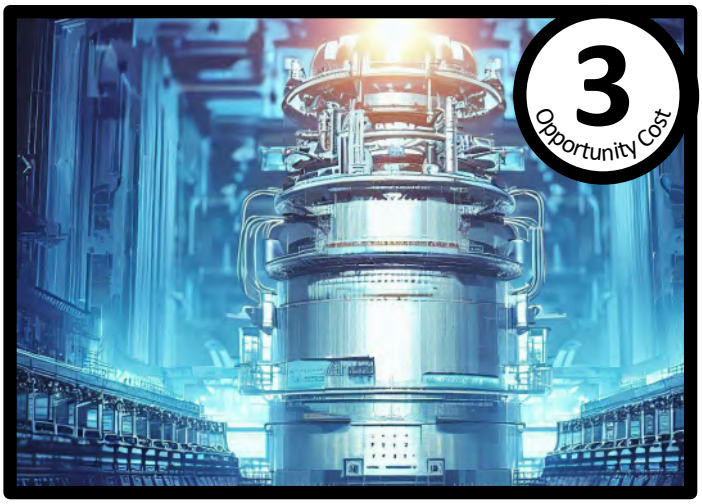
EFFICIENT BUILDINGS

Technologies such as smart thermostats, energy-efficient appliances, improved insulation, and efficient lighting systems can reduce energy consumption in buildings.

ELECTRIC VEHICLES

Battery-powered transportation systems can significantly reduce emissions from the transportation sector, particularly when coupled with renewable energy sources.

CARBON STORAGE



Technologies that capture and store carbon dioxide emissions from power plants and industrial facilities to prevent their release into the atmosphere.

NUCLEAR POWER

Next-generation nuclear reactors that are safer, more efficient, and produce less waste can provide clean, reliable, and low-carbon energy.

SUSTAINABLE AGRICULTURE

Precision agriculture, hydroponics, vertical farming, and regenerative farming practices can reduce emissions from agriculture and increase food production efficiency.

GREEN HYDROGEN

Electrolysis of water using renewable energy to produce hydrogen, which can be used as a clean fuel for transportation, industrial processes, and energy storage.

ARTIFICIAL INTELLIGENCE

AI can optimise energy consumption, improve energy grid management, and enhance climate modelling for more accurate predictions and policy-making.

SUSTAINABLE MATERIALS

Development of eco-friendly materials, such as bioplastics, and more sustainable manufacturing processes can reduce emissions and waste.

GEOENGINEERING SOLUTIONS

Research into large-scale interventions to counteract climate change, such as solar radiation management and carbon dioxide removal technologies.

ARCTIC ISR

Enhanced surveillance capabilities, including unmanned aerial vehicles (UAVs), satellites, and long-range radar systems, to monitor activities in the Arctic region, detect potential threats, and gather intelligence.

ICEBREAKERS

Developing icebreakers and Arctic-adapted naval vessels capable of operating in icy waters to maintain a presence, ensure freedom of navigation, and protect national interests.

SUBMARINES

Investing in advanced submarine technologies, including stealth, long-range capabilities, and under-ice operations, to protect maritime interests and deter potential adversaries.

ARCTIC SOF

Training and equipping specialized Arctic warfare units capable of operating in extreme cold weather conditions, conducting reconnaissance, and carrying out missions in remote areas.

ARCTIC FOBS

Establishing and maintaining strategic forward operating bases, airfields, and logistical infrastructure in the Arctic region to enable rapid deployment and sustain military operations.

PERSONAL EQUIPMENT

Developing and procuring specialized cold-weather clothing, equipment, and vehicles suitable for Arctic conditions to ensure the safety and effectiveness of military personnel.

CYBERSECURITY

Strengthening cybersecurity capabilities to protect critical infrastructure, military networks, and communications systems from cyber threats and developing capabilities for information warfare in the digital domain.

ARCTIC SAR

Enhancing search and rescue capabilities to respond effectively to emergencies, accidents, and potential humanitarian missions in the region.

TERRAIN ANALYSIS

Investing in detailed surveying of the arctic terrain with a view to understand the effect of climate change on terrain stability and viability.

PRECISION STRIKE

Investing in long-range missile systems, including anti-ship, anti-aircraft, and land-attack missiles, to deter potential adversaries and project power across vast Arctic distances

FINANCIAL INSTRUMENTS

Developing sophisticated financial instruments, with allies and partners, to spread the risk of operating in the Arctic region.

ARCTIC WARSHIPS

Investing in specialised military naval vessels optimised for operations in the Arctic area, over great distances and with long endurance.

DUAL-USE SHIPPING

Specialised Arctic military vessels capable of dual use as Naval warships and operating as an icebreaker.

POPULATION EDUCATION

Undertaking in a long-term campaign of compulsory education about the effects of climate change, and investing in AI powered reduction in fake news.

ARCTIC SURVEY SHIPS

Specialise survey vessels developed to analyse for the presence of valuable minerals and the effects of climate change.

CARGO SHIPS

Develop a merchant fleet of specialised cargo vessels optimised for operating in the Arctic region, with reinforced hulls and measures for operating safely over the vast Arctic distances.

ALLIES & PARTNERS

Develop specialised agreements with Allies and Partners to intelligently share resources to combat climate change.

INDIGENOUS POPULATION

Engage, empower and invest in the indigenous population in the Arctic in order to avoid potential problems in the region.

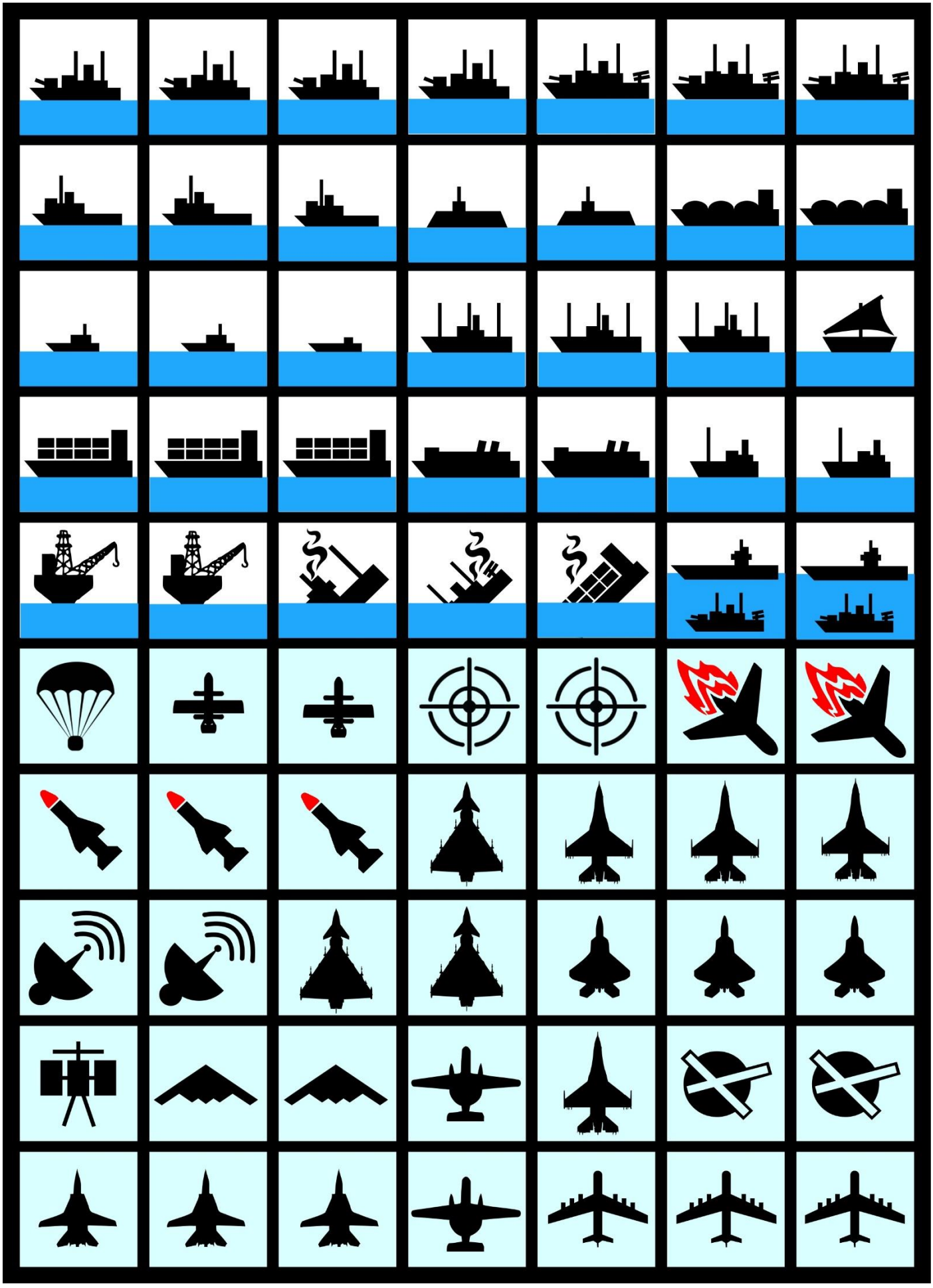
UNDERWATER SENSORS

An advanced network of underwater sensors able to detect submarine activity and provide data on climate change.

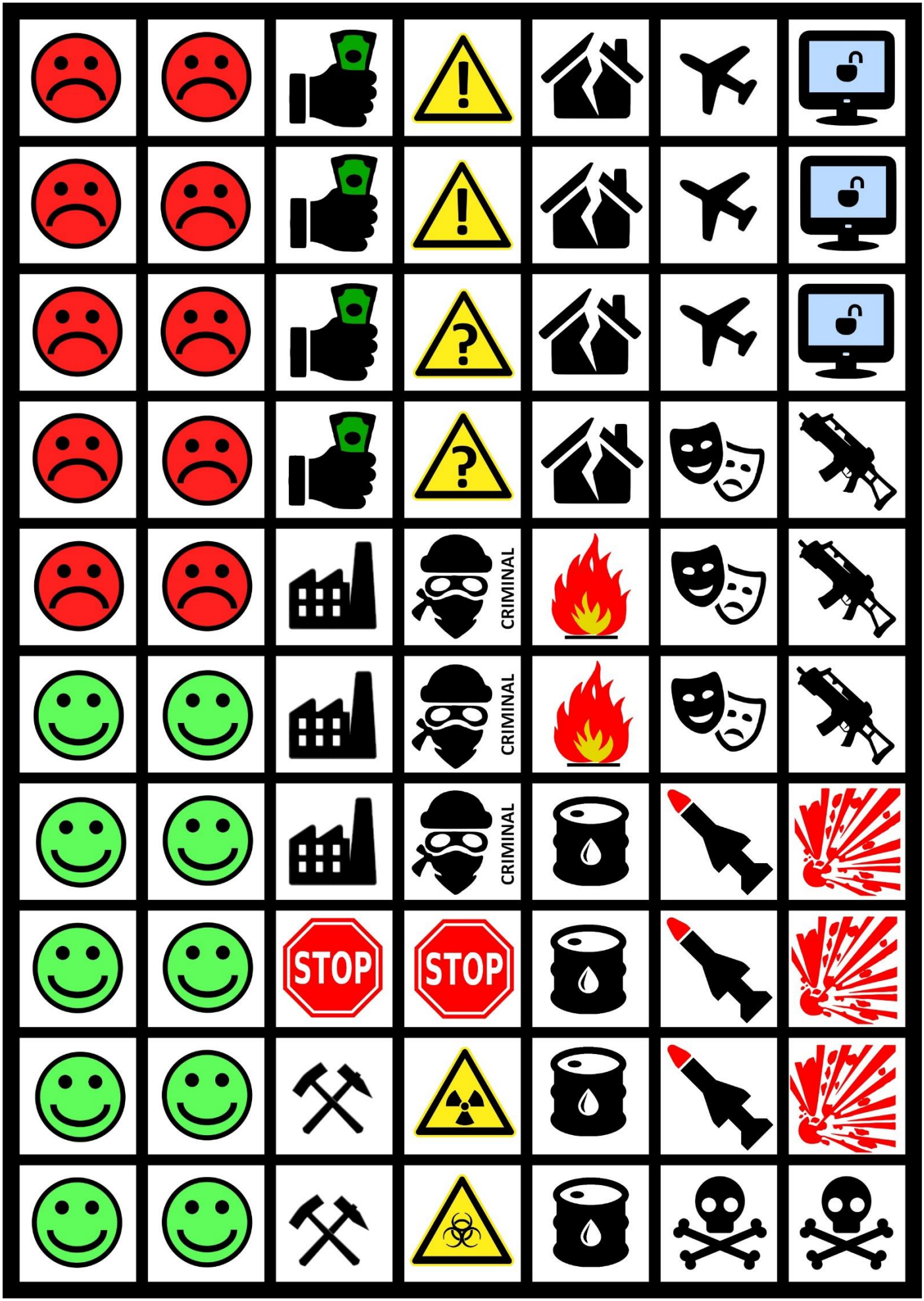
MEDICAL RESEARCH

Develop a comprehensive programme of medical research into dormant diseases in the permafrost, with the aim of creating vaccines and preventing outbreaks of disease.

Example Counters:




FAKE
DECEPTION
PASSPORT
NEWS


CRIMINAL
CRIMINAL
CRIMINAL
STOP
STOP