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Keep It Cool!

Four Scenarios for the Danish Armed Forces in Greenland in 2030

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Abstract

Greenland society could undergo a revolution in future decades. Climate change, the industrial exploitation of natural resources, and political conflicts between the major powers can all lead to a state of dramatic economic and political instability. All of which will inevitably influence the role of the armed forces in Greenland. This report projects developments up to 2030 in order to point out which defence-related challenges Greenland society could be confronted with. The report assumes that by 2030 Greenland remains part of the Danish Commonwealth Realm. The report shows that increased civil activity will not only bring about major economic growth in Greenland, it will also create a considerable burden for the public sector. In this situation, the existing tasks of the armed forces will increase considerably. The report also shows that a potential conflict between the major powers in the Arctic is highly improbable. Should such a conflict arise, however, it would probably be between Russia and NATO and impose new tasks on the armed forces. Viewed as a whole, there is a risk that the armed forces in Greenland will become overburdened. In order to obviate this risk, the report recommends that steps should be taken now to prevent such challenges arising, to improve the efficiency of the existing capabilities of the armed forces, to prioritise the tasks of the armed forces and possibly draw up plans to increase capabilities.

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Recommendations

Future challenges should be prevented here and now through the following measures:

- Security for civil navigation in Greenland's territorial waters should be optimised through national Danish regulation. In continuation of this, the report recommends continuing the efforts to introduce international rules for navigation of this type through the UN's maritime organisation, IMO.
- In general, Denmark should attempt to avoid the militarisation of the Arctic. Specifically, restraint should be shown by not increasing military presence unnecessarily in order to avoid appearing as a threat to potentially hostile states. Furthermore, Denmark should devote energy and resources to developing and maintaining forums for dialogue with the participation of these states.

No time should be wasted in improving the efficiency of the existing capabilities of the armed forces:

- Denmark should attempt to ensure the establishment of an international satellite monitoring service – preferably in continuation of IMO's existing LRIT system.
- The headquarters of Island Command Greenland should be moved from Kangilinnguit to Nuuk. This would improve the performance of tasks and reduce costs. A joint rescue centre should be established in this connection with the participation of the armed forces and the police force.
- If it is considered desirable to amalgamate Island Command Greenland and the Command of the Faeroe Islands (FRK) in a joint North Atlantic Command, this Command should be located in Nuuk to ensure that the necessary knowledge of the characteristic climatic, geographical and maritime conditions in Greenland is available.
- Considerable economies of scale can be obtained by maintaining to operate the naval and coastguard authorities as a single authority. However, it should be noted that a potential radical increase in the number of tasks to be performed could make the establishment of a separate coastguard economically viable in the future.

The tasks of the armed forces should be prioritised in order to draw a clear line between the armed forces and the civil community:

- The civil activities carried out by the armed forces must be accounted as an indirect block grant to Greenland. If expenditure on civil activities is increased, a decision should be made regarding whether the armed forces should continue to carry out these tasks. In such a case, there should be a clear political decision that defines who should pay for this increase in costs.
- More activity increases the risk of "mission creep", with new types of tasks being imposed on the armed forces in areas where civil society has not built up the necessary capacity to handle these tasks. If this proves to be the case, there should be a clear political decision regarding how these tasks are to be performed – including which tasks the armed forces should not take on. Any new tasks should be accompanied by additional financing.

If these tasks cannot be carried out with the help of the above-mentioned measures, the level of capability should be increased:

- It could become necessary to bring in more air and maritime capacity. Plans should therefore be made now as to which maritime and air platforms and accompanying base capacities are needed.
- Security dynamics in the Arctic depend on whether Russia regards Western activities as a threat. Great caution should therefore be exercised in planning on increased military capabilities. Increasing capability should be avoided if possible.
- The development in NATO's strategic orientation contributes to Russia's view that there is a security threat in the Arctic. Denmark should therefore refrain from problematising the Arctic in a NATO context.

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01 Introduction and Method

Introduction

Many areas in Greenland are undergoing change. Global climate change is one area that plays a role – as does the demand for resources – and both are significant for Greenland's opportunities. The changes also influence human behaviour – specifically including where, how, why and how much people frequent the country. This could mean that the changes will also lead to new traffic patterns, and because the changes in Greenland are central to the traffic patterns, the tasks of the armed forces are also influenced by them.

The purpose of this report is to describe which task-related challenges the armed forces could be faced with in Greenland up to 2030. These developments depend on different, unpredictable variables. We therefore present a number of scenarios for developments up to 2030 in this report, based on various assessments of how these variables will develop. These scenarios specify the range of possibilities that could shape the future. At the same time, they serve as a reminder that our activities today shape the future.

The report is first and foremost intended for political and military decision-makers, each of whom must prepare for the consequences of future development trends and, while taking these into account, make decisions regarding the type and timing of such measures as will ensure the best possible management of the developments. Therefore, the report also contains a number of recommendations that will require political decisions and have consequences for the armed forces. But it also has the purpose of contributing to the academic and public debate on the connection between developments in Greenland and the tasks of the armed forces.

Method

The report comprises an analysis in two parts. First, there is a projection of economic and security policy developments up to 2030, based on Solow's growth model and the realistic balance of threat theory, through a systematisation of the available information on conditions in the Arctic. Four factors have been isolated in this way

in defining the developments: climate change, the presence of profitable natural resources, technological development, and militarisation. These factors are vitiated by considerable uncertainty and it is therefore impossible to make a reliable prediction as to how they will develop in the future. Instead, we have set out four scenarios for future developments based on how it could be imagined that these factors will develop up to 2030. The scenarios thus describe what the tasks of the armed forces will be in 2030 if no changes are made in their circumstances in Greenland even though the armed forces of the surrounding society and the other Arctic states change their patterns of activity. We have constructed the scenarios by assuming a certain development in a number of factors (climate change and technological development), while we vary other factors (the presence of profitable natural resources and militarisation). In this way, we produce four pictures of Greenland 2030 which, while they naturally do not exhaust the range of future possibilities, still represent the central development trends.

After having set out these four pictures of the future, the next step is to decide on a strategy regarding how the armed forces in 2009 should cope with the challenges set out in the scenarios. This constitutes the second part of the analysis. It is important in this connection to remember that the four scenarios only describe a limited selection of the range of future possibilities. The measures carried out today must therefore be held up against the probability that the challenges set out in the scenarios actually arise in the future, with the present-day costs of preventing them. This is done by outlining four different strategies for managing the organisation of the armed forces and the increasing number of tasks they must perform. They comprise preventing new problems from arising, improving the efficiency of the existing organisation, prioritising the tasks of the armed forces and heightening capabilities. As these four different strategies imply different workloads, they can be prioritised on the basis of those that should be introduced now and those that should be left until a later date, whereby we arrive at a number of recommendations as to how to prepare for the future now and in the coming years.

It was necessary to obtain a great deal of information in order to be able to perform these two analyses. Among other things, this included previously published data and analyses of conditions in Greenland and the Arctic. This information was supplemented with 20 interviews with experts and parties with knowledge of climatic and resource-related conditions, people from the public administration, industrial interests, and the armed forces or Coast Guard administrations in Denmark, Greenland, Canada and the USA (there is a complete list in appendix 2).

Delimitation and Preconditions

Greenland constitutes the pivot around which Denmark's Arctic policy revolves and it is therefore the Danish presence in Greenland that makes developments in the Artic important for Danish defence and security policy.[1] This report therefore focuses on Greenland, that is mainland Greenland and the accompanying Exclusive Economic Zone (EEZ), and only takes up conditions in Denmark, the Faeroe

Islands and the rest of the Arctic region when it is absolutely necessary for the analysis, or in cases where it has not been possible to remove such information from the source material without distorting it.

Where Greenland is concerned, the report focuses on the tasks and presence of the armed forces – including tasks involving police authority and the coastguard service, as well as support for the civil sector. Developments in Greenland society have only been included to the extent that they are of importance for the future of the armed forces in Greenland.

Chronologically, the report ranges up to 2030. This medium-term perspective makes it possible for us to look beyond existing conditions and anticipate future developments. This is because there would be so many elements of uncertainty in a longer perspective that it would be difficult to offer realistic predictions regarding the nature of developments.

Furthermore, we have set out specific preconditions for each of the two parts of the analysis. As mentioned, the scenarios are based on the assumption that the level of technology will gradually be heightened and that the climate will become moderately warmer up to 2030. By assuming there will be climate change, our scenarios in themselves imply a change in relation to the present situation. All of our scenarios therefore predict that new tasks will arise for the armed forces. It is also assumed in the structure of the scenarios that Greenland will still be part of the Danish Commonwealth Realm in 2030, will not have taken over the areas now handled by the armed forces, and that efforts will be made to attend to these areas at the present level of quality.[2]

When we move from the scenarios to the question regarding how the armed forces will handle these challenges, we also move from the analytical world to the necessity of considering the existing realities. We have been obliged in this connection to take account of the fact that climatic developments and technological innovation will not necessarily be in line with our predictions. Likewise, the analysis also includes the possibility of Greenland taking over certain areas of activity, which the armed forces must take into account in their plans for the future.

Method

The report comprises three parts. The first part presents the point of departure for the analysis by describing the armed forces and Greenland society in 2009. Chapter 2 thus presents the way in which the armed forces in Greenland perform a number of civil and military tasks today with the help of a range of units that have their headquarters in Kangilinnguit (Danish – Grønnedal).

The second part of the report contains the scenario analysis. In chapter 3, we describe the climatic, geological, technological and political conditions in the Arctic and the way in which our model for future economic and security policy developments uses this data to set out the scenarios. The four scenarios – Scenic lay-by, Klondike, Rich, but scared and Military base – are described in detail in chapters 4-7. They indicate in general that the armed forces could be

faced with a marked increase in the number of the military and civil tasks they performs today.

The third and final part of the report includes the second part of the analysis which describes how these challenges can be met. In chapter 8, we discuss a number of recommendations designed to prevent overburdening from arising, to improve the ability of the armed forces to utilise their existing capabilities, to prioritise the tasks that have precedence, and improve their level of capability. Finally, these recommendations are summarised in chapter 9.

02 The Armed Forces in Greenland 2009

Because of Greenland's enormous territory and inhospitable climate the activities of the armed forces in the country are carried out under completely different circumstances than elsewhere. At its greatest extent, Greenland's territory comprises mainland Greenland (with an area of 2,166,086 square kilometres)[3] and the Exclusive Economic Zone (EEZ), which extends 200 nautical miles from Greenland's coast, with the exception of the areas regulated by agreements with states that have overlapping EEZs (e.g. Canada). Average monthly temperature varies between +10° Celsius in the summer in the south to -30° Celsius in the winter in the north.[4] Most of Greenland's territorial waters are frozen during the winter,[5] while the northern and northeastern waters are covered by ice in the summer.

These factors make conventional industry almost impossible. Greenland's economy is therefore extremely one-sided as almost the entire workforce is employed either in the public sector (45 per cent), the fishing industry (20 per cent) or derived sectors (25 per cent).[6] This chapter describes how the armed forces operate under these conditions and includes descriptions of the structure of the organisation, the distribution of tasks, capabilities and budget.

The Island Command Greenland Organisation

The Danish state's military authority in Greenland is Island Command Greenland (GLK), which is under the direct authority of the Chief of Defence Denmark and receives support in the form of materiel from the Danish Navy and the Danish Air Force.[7] GLK's headquarters is located in Kangilinnguit near Ivittuut in southwest Greenland and is manned by 65 of the total of 104 personnel in GLK.[8] Kangilinnguit is a tiny, isolated community that can only be reached by ship or helicopter. GLK must therefore attend to functions that are normally handled by other public authorities. It is a military zone and was taken over from US forces when they left the area in 1951.[9] The possibility of moving GLK's headquarters either to Nuuk, Denmark or the Faeroe islands has been discussed previously, but no decision has been made as yet.[10]

Both Navy and Coastguard

The primary task of the armed forces in Greenland is to assert the sovereignty of the Danish Commonwealth Realm and ensure that it is not violated. However, there are no specific international laws that make demands on the extent of states' assertion of sovereignty and therefore no formula that establishes the number or arming of military units in relation to the surface area over which sovereignty is asserted. In the case of a military threat, however, it must be possible to detect and document the movements of foreign units and mark a presence and, in the final analysis, to be capable of compelling them to leave territorial waters by force. In the light of the fact that there is no immediate threat to the sovereignty of the Danish Commonwealth Realm in Greenland, this task could be performed in principle by relatively simple units that must, however, be capable of navigating in the Arctic and be equipped with monitors for air, surface, and underwater detection, and armed with weapons of a calibre suitable for firing warning shots.

In spite of this fact, the Danish Commonwealth Realm has made investments in rather capable maritime units because of a decision to entrust GLK with civilian coastguard services such as a sea rescue service, fishery inspection, environmental tasks, hydrographic surveys, and a number of less comprehensive tasks, additional to the purely military tasks.[11] This decision was made on the basis of considerations of rationalisation, that it would be disproportionately expensive to build, equip and operate special units to perform coastguard services and other official tasks in parallel with the armed forces' performance of core military tasks in the area. The costs of manning and equipping units of the armed forces to perform coastguard services is less than the costs of building up a special emergency service would be. This is not least due to the fact that weather conditions in Greenland's territorial waters require units with considerable stamina and robustness.

GLK could be compared to a Swiss Army knife with a handle containing not only a blade, but a collection of useful tools that makes it unnecessary to carry a toolbox. The naval tasks of the armed forces – asserting sovereignty and monitoring – are the blade of the knife. The coastguard services are the corkscrew, the nail scissors and the magnifying glass – extra tools that it is nice to have in the same unit, but that could also be separated from the Swiss Army knife.

The armed forces attend to military and civil tasks throughout Greenland's territory with the exception of environmental tasks and the search and rescue service, which is shared between GLK and the police force (national authority), so that the Home Rule Government handles operations close to the coast, while GLK has responsibility at sea.[12] But in fact, this delimitation is fluid.[13]

Capabilities: Aircraft, Ships and Satellites

GLK maintains a number of small installations spread throughout the territory (see the map in appendix 1)[14] in order to be able to monitor the enormous area covered by Greenland. (The most important of these installations are SIRIUS sledge patrol in Daneborg

and Air Group West at Kangerlussuaq (Søndre Strømfjord) Airport, from which GLK deploys its air support with a fixed-wing plane made available for 380 hours a year (approximately eight days a month on average).[15]

GLK has the disposal of a Thetis-class inspection ship 365 days a year to perform more extensive tasks.[16] In addition, GLK has the disposal of three other maritime units for a total of 847 days a year.[17] These units were formerly small Agdlek-class inspection cutters, but two of them were phased out in 2008 and replaced by two somewhat bigger Knud Rasmussen-class inspection ships. GLK also has two hydrographic survey vessels[18] and last – but not least – there is SIRIUS sledge patrol, which patrols the national park in northeast Greenland on land, and belongs under GLK.[19]

In addition to the operative units, GLK also uses other systems in connection with monitoring tasks. The GREENPOS ship reporting system is mandatory for ships that are expect to arrive at Greenland's territorial waters and makes it possible to register and periodically monitor their presence.[20] Furthermore, a Long Range Identification and Tracking satellite monitoring system (LRIT) – which monitors ships above a certain size with the help of a shipborne transmitter – is being established and is expected to provide a more detailed overview of maritime activities in Greenland's waters.[21] However, both systems can be evaded as captains who do not wish their ships to be detected can simply refrain from reporting to GLK or switch off the LRIT system, which means that the need to assert sovereignty will remain unchanged.

Over and above this, the US Thule Air Base constitutes a central installation for the defence of Greenland. The area occupied by the base has been placed at the disposal of the USA in pursuance of the Danish Defence Agreement of 1951 and, among other things, contains an air base and a radar installation of major strategic importance to the USA.[22] The base constitutes a vital security policy link between Denmark and the USA.[23]

Who pays?

In 2007 the armed forces spent more than DKK 339 million in Greenland.[24] This financing occupies a grey zone between ordinary public funding and something that could be described as an indirect block grant. Military tasks are ordinary national tasks and are therefore financed through the state budget like any other public enterprise. The civil tasks on the other hand are performed for the Greenland Home Rule Government. As shown by the Home Rule Commission's report, this must be accounted an indirect block grant – i.e. economic assistance for the Home Rule Government in the form of the free management of the Home Rule Government's area.[25]

As there are no clear guidelines for the extent and degree of the assertion of sovereignty, it can be difficult on the face of things to find a dividing line between the two types of task. As a point of departure, maritime patrols always include the assertion of sovereignty as well as the ad hoc performance of official tasks relating to the coastguard service, including fishery inspection and search and rescue operations. To the extent that these tasks are

performed at the same time as monitoring and fishery inspection, for instance, it is difficult to separate military and civil tasks and it could therefore be claimed that some of GLK's materiel was bought to perform civil tasks and that the expenditure on this is an indirect block grant.

Summary

The tasks performed by the armed forces in Greenland are handled by Island Command Greenland (GLK), which is located in the isolated hamlet of Kangilinnguit. Tasks are divided into military authority tasks (asserting sovereignty and monitoring) and civil authority tasks (fishery inspection, sea rescue service, the environmental protection service, hydrographic surveys, etc.). The tasks are performed throughout Greenland's territory with the exception of the environmental protection service and the search and rescue service, which are shared between GLK and the Home Rule Government. GLK has the disposal of a Thetis-class inspection ship and periodically of an aircraft, partly of an Agdlek-class inspection cutter and partly of two Knud Rasmussen-class inspection vessels. As a supplement to its civil monitoring tasks, GLK also has the disposal of the GREENPOS ship reporting system and an LRIT satellite monitoring system. GLK's budget of DKK 339 million is financed by the Danish state, but the tasks are performed for different authorities. Military tasks are performed for the Danish state, while civil tasks are an indirect block grant to Greenland.

03 Scenario Structure: What Powers Development?

The tasks of the armed forced are inextricably bound up with internal economic developments and with the external perspective of change where new enemies and new threats can arise. To be able to anticipate the challenges of the future in 2009, it is necessary to understand what powers the process towards the future today. In other words, it is necessary to set up a model for security policy and economic development.

Model for Economic and Security Policy Developments

Economic development can be outlined with the help of a purpose-adapted version of Solow's growth model which views a society's level of production as a function of the efficiency of the workforce and the level of investment.[26] Efficiency is extremely low in Greenland due to the unfavourable climatic conditions. If there is to be industrial development, it must be based on the sole comparative advantage in Greenland that can compensate for the low level of efficiency: the presence of profitable natural resources. In this connection, factors such as climate change and technological development could make the exploitation of natural resources more efficient, but cannot in itself start such a development. To this must be added the fact that climate change could also lead to more navigation through Greenland's waters, which will create additional burdens for Greenland's public sector. Climate change will thus have the effect of reinforcing what is already positive growth, but will also lead to negative growth for society.

The regional security situation can be understood on the basis of a realistic balance of threat approach in which political developments are defined by the interests of states and the ability to realise them.[27] A state could thus have an interest in achieving different economic gains or in preventing regional or global threats from other states by improving its strategic position. However, a state's patterns of action also depend on whether it has the economic, social, geographical and military capabilities[28] to realise its wishes. Regional and global circumstances have been kept relatively separate in our model. The economic interests of each of the Arctic states are determined by economic development, as described in our model above – that is, they are closely connected with the existence of profitable natural

resources. At the same time, a state has territorial interests that are regulated by the UN's Convention on the Law of the Sea (UNCLOS).[29] Strategic interests are determined on the basis of whether the state in question is under threat in this or other regions. These two dimensions are connected because a global conflict could become regional and vice versa. Given the special conditions in the Arctic, geographical and climatic factors are of particular importance for states' level of capability.

Economic and security policy developments interact because economic development can change a state's economic interests. If economic development and security tension occur simultaneously, the two types of development will interact as militarisation will increase the costs of production. But at the same time the interest in various products will increase. In addition, economic development means that the state will be obliged to protect financially important installations.

The Significance of the Factors up to 2030

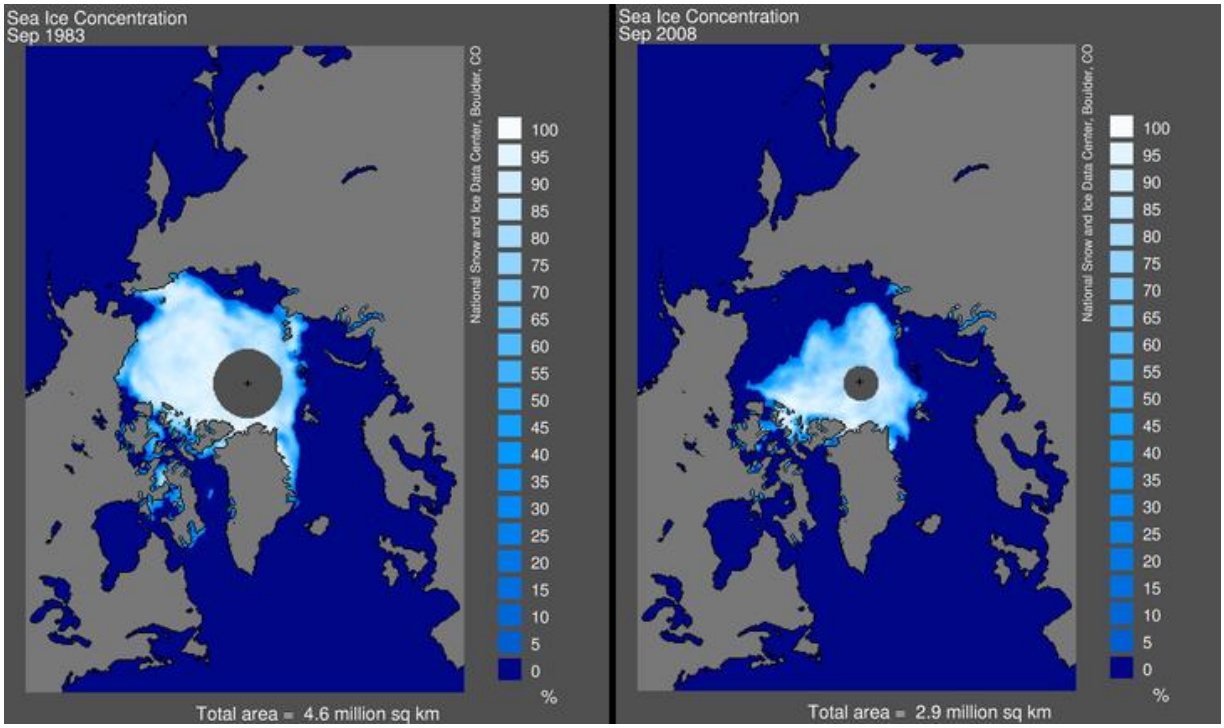
On the basis of this, we have defined the significant factors for developments in the Artic as climate, the presence of profitable natural resources, the level of technology, and state interests and capabilities. The next step in the analysis is to discover how it could be imagined these factors might develop up to 2030.

Climate: Towards Ice-free Waters?

Everything suggests that the climate is undergoing change.[30] Although some experts still dispute the existence of global warming, 96 per cent of the world's climatologists agree that the global temperature is rising.[31] The Arctic region has been particularly affected by this change.[32] The average temperatures in these areas have increased by twice the speed of those in the rest of the world.[33]

This opens up tremendous potential for Greenland. As the ice, which now presents an obstacle to human activity, disappears, new areas could become habitable. Within the time horizon of this report, climate change will have had an influence on the concentration of sea ice, while the inland ice will only retreat slowly.[34] The change in the climate that will be experienced in Greenland will primarily provide the opportunity for more sea transport and only uncover new areas of land to a lesser degree.[35]

Figure 3.1. The concentration of summer sea ice in 1983 and 2008

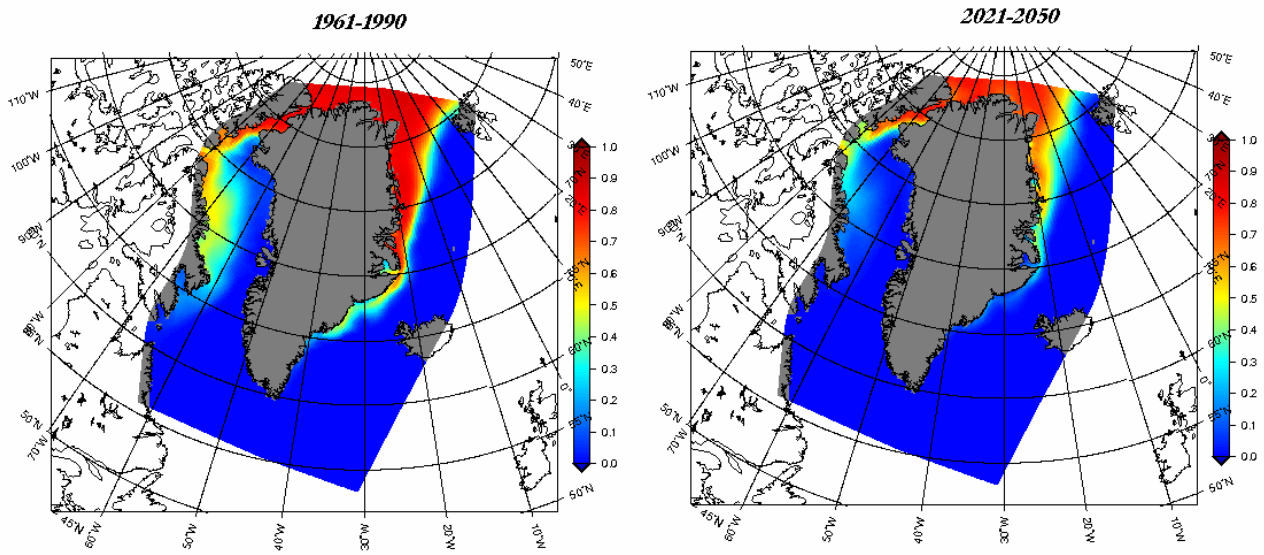


Source: National Snow and Ice Data Center.[36]

Figure 3.1 shows the concentration of summer sea ice in 1983 and 2008 throughout the Arctic. There has been a considerable retreat during the past 25 years – particularly along the east coast where Greenland is concerned. The Canadian and Russian waters have become more ice-free and this makes navigation possible in the Northeast and Northwest Passages during the summer.[37] While it has been possible to navigate the Northeast Passage for a long time, it was possible to navigate the first commercial freighter through its western counterpart in 2008.[38]

There is some disagreement in the academic world regarding prognoses for the spread of sea ice up to 2030. A small minority of researchers predict little or no change during this period. The majority of the research world, however, points out that sea ice will have been dramatically reduced or have almost completely disappeared in 2030.[39] In this connection, researchers from the Danish Climate Centre at the Danish Meteorological Institute (DMI) have calculated that it is highly probable that sea ice will have retreated considerably by 2030 as illustrated in Figure 3.2.[40] Other studies, by Wang & Overland (2009), among others, show that Arctic sea ice will almost have disappeared in 2030 during the six months of summer.[41]

Figure 3.2. Average concentration of sea ice in September, October and November, 1961-1990 and 2021-2050



Source: DMI

On the basis of these pictures, this report will assume that the concentration of sea ice will be reduced up to 2030. We take our point of departure in DMI's calculations and assume that summer sea ice will have retreated along the east coast of Greenland and in Baffin Bay, but that the northern areas will still be covered by ice all year round. It is possible that this development will occur more or less rapidly, but this will not basically change the scenarios, only the speed at which they will be built up.

Natural Resources: Unpredictable Perspectives

Although fishing is still the most important industry in Greenland, other sources of income will probably gain greater importance in the future. There are possibly huge deposits of oil, gas, and minerals in Greenland which, along with hydraulic power, could provide the potential for land or maritime-based industrial growth.[42]

Searching for oil and gas in Greenland is like a treasure hunt. Enormous sums are at stake, but in the final analysis, it is uncertain whether the treasure is there to be found. Surveys carried out by the United States Geological Survey (USGS) in 2008 indicate deposits of oil and gas off the coasts of West and North Greenland that correspond to 17 and 31 billion barrels of oil equivalent respectively.[43] Sea ice, however, creates uncertainty about this as it imposes limits both on basic geological surveys and the subsequent extraction and transport of the extracted materials to the world market. Optimistic estimates indicate that oil production could begin in West Greenland in about 2015, while oil production in Northeast Greenland would not be possible before about 2030.[44]

Mining in Greenland is subject to far fewer elements of uncertainty than oil and gas production, but the potential gains also appear to be fewer. Various mineral deposits such as molybdenum, olivine, gold, precious stones, and zinc have already been located.[45] The crux of the matter is whether it would be economically viable to extract these

resources. Mining is possible under far more unfavourable climatic conditions, however, and transport needs are much less vulnerable with regard to sea ice than is the case with oil and gas extraction.

Furthermore, hydraulic power is a resource that will open up for industrial development in the field of energy-intensive production. The aluminium processing company, ALCOA, is already looking into the possibility of opening an aluminium smelting plant in Maniitsoq, which would create hundreds of jobs.[46]

The possibility of resource-driven growth is first and foremost dependent on the presence of resources and world market prices – two factors that are beyond Danish political control.[47] In this connection it is worth noticing that only the most optimistic prognoses indicate that Greenland will receive royalties for oil extraction concessions within the time horizon of this report.[48] The mining industry pays no royalties, and it is as yet uncertain whether Greenland will receive royalties of any significance from ALCOA.[49] It goes without saying that this imposes limits on the benefits that can be gained in Greenland from resource exploitation. In the structure of the scenarios we thus operate with two possibilities: one in which resource-driven growth is not possible because the resources are not present or because world market prices are too low – and one in which both of these conditions for growth are present.

Technological Opportunities

The development of new technology opens up new opportunities for Arctic production. New technology might mean that new types of production would become possible and new types of production might become possible in what were once inaccessible places. New technology could also improve the efficiency of existing production and thereby make it more competitive in relation to world market prices.[50]

We have assumed in structuring our scenarios that new technology will arise, but that this will only have limited effect on Greenland society. We assume that there will be no technological quantum leap – and consequently we have based the report on a conservative estimate of a gradually progressing development. Irrespective of technological development, the climate, world market prices, and the presence of resources will continue to be the central parameters for growth in Greenland. New technology can therefore increase the pace of developments within our time horizon, but not in itself create new opportunities.

Militarisation: A New “Cold” War in the Arctic?

During the past couple of years, alarming stories have circulated in the western media to the effect that a new cold war in the Arctic is imminent.[51] When the Russian tricolour was planted on the sea floor beneath the North Pole,[52] it appeared natural to assume that militarisation of the Arctic was just around the corner. However, based on the interests of the various states in the Arctic, such a development must be characterised as highly improbable.

The balance of threat model can be used to delimit the number of relevant players and set up a model for their patterns of action. The

most obvious players are the five Arctic states: the US, Canada, Norway, Denmark/Greenland and Russia. The first four are all NATO allies and the likelihood that internal disputes – such as the dispute between Denmark and Canada over Hans Island[53] or between the USA and Canada on the status of the Northwest Passage[54] – should end in military conflict is infinitesimal. The primary potential line of conflict among the five Arctic states is therefore between the NATO member states and Russia.

Additionally, China is often mentioned as a potential player,[55] and it is true that China is a rising power and could have a strong interest in gaining access to Arctic energy resources, as well as in asserting its general right to free passage. With regard to capability, however, China is limited by the fact of its lack of geographical presence. This makes it unlikely that China could win control over resources or territory in the Arctic. But by carrying out military manoeuvres in the Arctic or by applying pressure through the UN Security Council, China could spoil the party for the five Arctic states by creating instability in the region. Behaviour of this kind, however, can be viewed as part of global security optics whereby the regional group of players is narrowed down to the five Arctic states based on a single line of conflict.

The potential line of conflict between NATO and Russia can similarly be understood on the basis of an analysis of the relationship between the latter's capabilities and its economic and strategic interests. Where capability is concerned, it is doubtful on the whole whether Russia possesses the necessary resources to compete with NATO. With regard to economy, even if its existing tremendous growth rates can be maintained, in 2025 Russia will only be at parity with Great Britain.[56] Militarily, Russia still has considerable forces – including a big Northern Fleet – but this has been deteriorating since the break-up of the Soviet Union.[57] Russia's primary capability thus lies in its nuclear force and not in conventional forces.[58]

Russia has little to gain economically – but conversely much to lose – in a confrontation. This is the case irrespective of whether gains are understood as territory or natural resources. The distribution of Arctic territory is based on a judicial regime defined in the UN's Convention on the Law of the Sea that all of the Arctic states, except the USA, are party to.[59] The demands that have already been made, or that are likely to be made, contain very few points of controversy and these can probably be resolved peacefully during the next decade (see map in appendix 3).[60] According to the rules of the Convention on the Law of the Sea, the major recipient of undistributed territory – which primarily consists of deep sea containing few resources – will be Russia, which therefore has little motivation to disrupt this process.

The same applies to the distribution of Arctic resources. According to the USGS, more than 60 per cent of the Arctic oil and gas reserves are in Russian territory.[61] In the case of a conflict, Russia would risk losing a big slice of the cake in order to get the last few crumbs. Furthermore, Russia can best optimise the utilisation and sale of its resources in a stable economic and political climate where it will be possible to obtain access to foreign capital and technology.[62] For

these reasons, Russia will probably act as a status quo power and attempt to maintain stability in the Arctic. This picture can naturally be altered if the distribution of territory or resources proves to be different to what is expected.

Beginning with the existing balance of power between states and the absence of threats from other Arctic states, it is difficult to see how Russia could reduce the level of threat by acting offensively in the region. This could change if the level of regional threat increases. Even though NATO is not pursuing an offensive strategy in the Arctic, regional tensions could arise as a consequence of what could be called a security dilemma. As a point of departure, states are uncertain of each other's intentions and, as a rule, fear the worst. In a situation characterised by major insecurity, they will therefore attempt to guard against anticipated threats by increasing their military capacities. This could create a spiral in which each state rearms in reaction to the signals from its neighbour which, in the final analysis, could result in a conflict proper.[63]

Viewed globally, it is possible that a conflict between NATO and Russia could arise over various strategic goals. In such a case, Russia might fear that NATO was planning to limit its ability to utilise its resources in the Arctic. In order to avoid this, Russia might decide to increase its military presence in the region and thereby start an Arctic arms race. Strategic interests in other regions could in this way lead to militarisation of the Arctic. In spite of this possibility, militarisation of the Arctic must be seen in general as highly improbable on the basis of the above-mentioned considerations.[64] But due to the extensive consequences such militarisation could have, it has been included as the other open variable in structuring the scenarios.

Four Scenarios for Greenland 2030

All of the above-mentioned factors would have consequences for Greenland society. As mentioned, economic development is driven by the presence of profitable resources. These will be tied to mainland Greenland and mean that Greenland could receive income in the form of taxes and royalties. In this connection, climate change and technological development would only have a reinforcing effect.

Economic development will also mean more activity and thereby also more burdens for Greenland society. Over and above this, climate change will have a considerable negative effect as less sea ice will make it easier for ships to pass by. Maritim transport will thus pass by Greenland on its way through the Northwest and Northeast Passages, cruise ships will spread out and sail into the Greenland fiords, while fishing vessels will follow the changing fishing patterns.[65] All of which will make greater demands on various forms of control and preparedness.

As described above, a potential militarisation of the Arctic will probably be relatively independent of economic development in the region, but rather arise as a consequence of security policy mechanisms. But militarisation would be connected with greater risk in connection with investing in Greenland. This would put a damper on industrial development.

Taking our point of departure in these analyses, we have set out the following four scenarios for future developments. As mentioned above, we have assumed that climate change will occur at a moderate pace and that there will be modest technological development. All of the scenarios indicate that the consequences of climate change would put pressure on Greenland. Our scenarios are thus defined by resource-driven growth and militarisation (see table 3.1).

It is impossible to predict whether there will be economic growth as a consequence of raw material extraction. Economic development requires a conjunction of the physical occurrence of raw materials, high, stable world market prices, and the willingness to take risks on the part of concessionaires. If one of these conditions is not fulfilled, economic growth will fail to materialise. The issue, with or without economic development, is equally probable due to the great uncertainty in this area. Where militarisation is concerned on the other hand, there is a great deal to suggest that this will not arise. The scenarios in which developments include militarisation are therefore very unlikely, whereas the scenarios that do not include militarisation are likely.

As they rely upon the assumption that there will be a certain level of climate change and technology, the scenarios are not exhaustive with regard to future developments. They are rather "off-centre" in relation to potential developments as in all of these scenarios; climate change will impose a considerable burden on Greenland society in the form of defence-related tasks. It could thus well be imagined that this burden would be lighter if climate change does not have such a dramatic effect, or if technological development takes a different course.

Table 3.1. The four scenarios

	No resource-driven economic growth	Resource-driven economic growth
No militarisation	*Scenario 1: Scenic lay-by* Much shipping passing by, low growth on land. More civil defence-related tasks. Probable.	*Scenario 2: Klondike* Much activity on land and offshore. More civil defence-related tasks. Probable.
Militarisation	*Scenario 4: Military base* Much shipping passing by, low growth on land. More military defence-related tasks. Highly improbable.	*Scenario 3: Rich, but scared* Much activity on land and offshore. More civil and military defence-related tasks. Highly improbable.

Developments in connection with the *Scenic lay-by* scenario primarily take the form of shipping passing Greenland's coasts, while development on land is relatively limited. The *Klondike* scenario indicates an increase in maritime traffic supplemented and stimulated by a resource boom in Greenland. *Rich, but scared* describes a situation in which the extent of economic development is pushed into the background by militarisation of the Arctic. In the final scenario – *Military base* – as in scenario 1, Greenland is a society with no significant economic growth on land, but is the centre of intense military activity.

Summary

Developments in society up to 2030 can be described in an economic and security policy model. Economic development in Greenland depends on interaction between climate change, the presence of profitable natural resources and technological innovation. The construction of the scenarios assumes a moderate rise in temperature and low technological growth, and economic development therefore primarily depends on the presence of profitable natural resources. The situation regarding security policy depends on the economic and strategic interests of the individual states and their level of capability. China probably does not possess the capability to assert its interests in the Arctic through military confrontation. The primary potential conflict is therefore between Russia and NATO. Such a conflict would probably be motivated by Russia feeling threatened regionally as a result of NATO's conduct in the Arctic, or events in other regions. But taking into account Russia's capabilities and interests, such a conflict is highly improbable.

These factors lead to four scenarios for developments in Greenland up to 2030. Two of these – *Scenic lay-by* and *Klondike* – predict a primarily economic development with varying benefits for Greenland. The two other scenarios, *Rich, but scared* and *Military base*, on the other hand, view developments as being of a primarily military character.

04 Scenario 1: Scenic Lay-by

The first scenario – *Scenic lay-by* – tells the story of a Greenland that bears a great deal of the burden of regional development in the Arctic, but has missed out on the economic benefits of this. Based on the factor analysis in chapter 3, which indicates that no resources of any considerable extent have yet been found or exploited, and the assessment that Russia has no interest in militarisation of the Arctic, this scenario is considered probable.

Arctic Perspective: No Militarisation, No Resources, Less Ice

In 2030, all of the doomsday prophecies regarding a possible militarisation of the Arctic are long forgotten. All of the Arctic states saw a peaceful development as a benefit in the long term and chose to allow the region to remain outside their mutual squabbles. Huge quantities of oil are being extracted in northern Russia that supplies Europe and the domestic market. At the end of the 2010s, the Arctic region was divided between the five surrounding states in accordance with UNCLOS, which the Americans finally decided to ratify. China did not take part in the process.

Climate change has changed the Arctic. The sea ice along Greenland's coasts is much reduced – which has made way for increased shipping. The Northeast and Northwest Passages are now so ice-free that commercial shipowners specialise in polar navigation in order to take advantage of the shorter sea routes between Europe and Asia. But the difficult conditions for Arctic navigation mean that these routes only account for a few per cent of global sea traffic. Seen in relation to the sparse traffic in Greenland's waters today, however, this constitutes a great increase in maritime traffic.[66] At the same time, climate change has made extreme weather conditions, including gales, more frequent.

Greenland 2030: A Neglected Society

Where Greenland is concerned, development has stagnated. There proved to be no oil beneath Greenland's waters and the oil companies were obliged to return from their Arctic adventure empty-handed. New mining companies open mines every year, but they close soon after as production is not economically viable because of the low prices of raw materials on the world market. It has not been possible to change this picture even with the help of new technology.

Hydraulic power in Greenland also proved to be too expensive in relation to initial costs.

With neither the great oil bonanza nor profitable mines, Greenland's economy continues to be very much a single-string affair. Fishing is still the primary industry and while there has been a small boom in this as fish stock have begun to return, this has not changed the size or composition of the country's economy to any great extent.

Greenland has not been able to make money on the new sea routes through the Northwest and Northeast Passages. It has not been possible to introduce an obligation to call at ports or any other measures that could lead to a significant financial gain. Instead, it was decided to focus on tourism based on sea-cruise traffic which has spread over a wider area in recent years. As Greenland's waters have become ice-free for several months a year and the disappearing ice is seen as a special attraction, more and more cruise ships have started to navigate Greenland's fiords and a modest tourist industry has grown up in some settlements.

The Tasks of the Armed Forces: More of the Same

The increase in maritime traffic has influenced three of the tasks of the armed forces in particular. First, the increase in the number of ships in a bigger area presents a challenge to their ability to monitor Greenland's territory. GLK units are unable to cover the huge area effectively. Foreign transport and fishing vessels on the open sea are able to navigate Greenland's territory unnoticed. The development of reporting systems such as LRIT and GREENPOS assist this task to a certain extent. Without international regulation, however, it is easy for foreign ships to avoid registration.

Second, migrating fish stock has increased the number of domestic and foreign fishing vessels in Greenland's territorial. This presents the armed forces with another challenge as the task of fishery inspection has grown considerably.

Third, it has become more difficult to maintain environmental and sea rescue operations. More ships and more extreme weather conditions increase the risk of accidents. The probability of this on the open sea is relatively small, but an accident could result in an environmental catastrophe. There are no international rules for navigating the Northwest and Northeast Passages and outdated tankers with full cargoes of oil sometimes pass along the coast. The huge distances involved mean that even a well-consolidated emergency service cannot perform its tasks satisfactorily. Fortunately, this environmentally hazardous transport is relatively limited as there is no oil production in the area.

The biggest danger, however, is when cruise ships carrying thousands of passengers sail into narrow, uncharted fiords without a pilot. An accident under Arctic conditions could lead to a new Titanic incident. Even if passengers could be brought ashore, many of them would die of exposure on land. At the same time, the emergency services – which as mentioned are shared between the police force and the armed forces – are not geared to handle such a job to the optimum. There are not enough units to create an overview of the task – not to mention getting people ashore – and two different

authorities, that are located at a distance of 350 kilometres from each other, must coordinate the work.

Summary

Scenic lay-by describes a peaceful Arctic where climate change has led to an increase in shipping and more gales. Without natural resources worth mentioning, Greenland society has only experienced limited economic development, but the increase in traffic is a burden for society. The armed forces are challenged in relation to monitoring Greenland's territory, carrying out fishery inspection and maintaining an environmental and sea rescue service.

05 Scenario 2: Klondike

The *Klondike* scenario describes a peaceful Arctic where Greenland has undergone rapid economic development based on exploitation of major deposits of natural resources. Based on the factor analysis in chapter 3, economic development opportunities in Greenland as a consequence of the exploitation of raw materials is considered probable and, as the assessment is that Russia has no interest in militarisation of the Arctic, the overall scenario appears probable.

Arctic Perspective: No Militarisation, Less Ice, Many Resources

As in scenario 1, the Arctic in this scenario is a sea of peace with the surrounding states focusing on reaping the benefits of natural resources and transport routes rather than on waging war on each other. Climate change has opened the seas, including the Northwest and Northeast Passages, which now carry a few per cent of global shipping. This has meant a great increase in traffic in Greenland's waters, but at the same time, extreme weather conditions have become more frequent.

Greenland 2030: A Society Undergoing Explosive Growth

Greenland in 2030 is buzzing with activity. As described in the last chapter, climate change has led to increased fishing and cruise ship tourism, and transport ships navigate Greenland's waters on their way to the Northwest and Northeast Passages. The overriding source of growth, however, comes from the oil, mining, and raw material processing industries, which all make a huge contribution to the growth of society. Oil and gas fields were discovered in the mid 2010s in the area off Disko Bay and in 2025, oil extraction accelerated with the help of high-tech undersea platforms. Seismological surveys have revealed more potential in the northern part of Baffin Bay and off the coast of Northeast Greenland. Drilling facilities are almost ready for operation and production is expected to begin in a few years. During the same period, the mining industry finally gained a foothold in Greenland in step with climate change and the fact that the world market made it economically viable to operate a handful of mines on a permanent basis. High energy prices have also made ALCOA's aluminium smelting plant extremely successful.

Where oil is concerned, oil extraction worth billions of dollars is materializing, but the concessions are framed in such a way that it

will still be a couple of years before royalties from international companies begin to pour into Greenland. At that time, the oil industry will have become the all-important source of income and have outstripped income from the block grant from Denmark, fishing and other industries. But for the present, society's oil income comes from the income tax paid by oil industry employees and companies in Greenland that sell goods and services to the oil companies. In the same way, neither the mining industry nor the aluminium smelting plant in Maniitsoq make any significant contribution to the direct revenues of the Home Rule Government's treasury. Growth comes from the jobs in these industries and from companies that offer them goods and services.

In general, Greenland's economy has become less dependent on fishing and the block grant. Up to ten per cent of the workforce is employed in the oil, mining or raw material processing industries or by their subcontractors.[67] Although there are considerable gains from these new industries, they depend on society's ability to train Greenlanders to perform the jobs they require. In the slightly longer term, however, there is the prospect of an enormous jackpot when Greenland begins to receive tax revenues from oil extraction.

The Tasks of the Armed Forces: The Armed Forces Under Pressure

Similarly to scenario 1, the armed forces in the *Klondike* scenario are under pressure in the areas of monitoring, fishery inspection, sea rescue and environmental protection services. However, the increased level of activity is not just transferred to the military but actually reinforced because of two trends. First, increased activity in mainland Greenland has the effect that more shipping is needed to transport goods to Greenland and take the products from mines and other industries out of the country. More maritime traffic increases the probability of accidents, which again puts further pressure on the sea rescue service. Second, oil production in Greenland means that the number of oil tankers has increased dramatically. Together with the possibility of an accident on an oil rig, this presents the environmental protection service with a challenge. But this challenge is reduced to a certain extent because concessions make demands on the oil industry to establish an emergency service in the case of an accident.[68] However, this private service will necessarily need the assistance of the armed forces in case of a more extensive emergency. As in scenario 1, there is an overall need for more units, more regulation and an amalgamation of the sea rescue service in order to perform these tasks.

In addition to the increase in the extent of their tasks, the armed forces have also been indirectly presented with a number of new tasks that they have not previously been obliged to perform. In step with the establishment of mines in remote locations, a greater need for acute assistance in connection with accidents, etc., has also arisen.[69] If, for instance, there is a need for ambulance transport from a remote mine, it is unlikely that the civil authorities will be capable of providing it. As the only authority with the necessary capacity, the armed forces will be asked for help. Slowly but surely, mission creep could arise – i.e. a situation in which a new task is imposed on the

armed forces that should otherwise have been performed by the civil authorities. Such cases would put more pressure on the limited resources of the armed forces.

Summary

In the *Klondike* scenario, we see a society that reaps the benefits of the developments experienced in the peaceful Arctic, but is also burdened by them. Climate change has increased the flow of traffic in Greenland's waters while rich oil and gas deposits have led to an oil bonanza that is still only in its initial phase. A permanent industry has grown up on land in connection with mining and hydraulic power production. Although Greenland in undergoing explosive growth, the major benefits of this still lie some way off in the future.

As in scenario 1, the armed forces are challenged with regard to the management of monitoring, fishery inspection and the environmental protection service. In this scenario, the pressure on the latter function is even greater as a consequence of industrial activity. At the same time, mission creep has begun to arise as the armed forces are increasingly being asked to assist civil society in emergencies.

06 Scenario 3: Rich, but Scared

The third scenario – *Rich, but scared* – takes its point of departure in a Greenland that possesses rich natural resources and has plenty of opportunities to exploit them, but tension between the military powers in the area gives this development a negative character. Climate change and resource allocation in this scenario have an influence on the tasks of the armed forces, but this is completely overshadowed by the military situation. As described in chapter 3 – due to the level of Russia's capability and Arctic interests – this scenario is considered highly improbable.

Arctic Perspective: Much Militarisation, Many Resources, Less Ice

In 2030, relations between Russia and NATO have deteriorated. This has led to considerable rearmament.

Initially, the tension was only felt at diplomatic level until the tradition of peaceful cooperation and institution-building lapsed. The institutions of the UN have become a battleground for the interests of major powers. Therefore those institutions have lost value. As a consequence shipping is now regulated through national initiatives and voluntary agreements.

Economically, Russia, with its client states, on the one hand, and NATO on the other, led by the USA have gradually evolved into two separate blocs that seek to minimize trade arrangements with each other. The primary area of commerce – energy – is in dispute as Russia is attempting to squeeze political concessions out of NATO member states in return for supplies of cheap oil and gas. At the same time, the Russian oil industry is hampered by difficulties in importing Western drilling technology and expertise.

The situation in the military sphere has gradually intensified and relations between Russia and NATO have been conflictual at regular intervals, but so far without escalating into armed hostilities. Russia is spending a major part of its oil income on modernising its forces and has maintained a military strategy in which nuclear weapons play a central role as a deterrent. Russia has slowly phased out its older nuclear weapons and delivery systems and acquired more modern systems. There is tension between Russia and NATO

concurrently in several regions, which puts pressure on Russia's relatively limited capabilities.

All of this has left its mark on the Arctic, which has undergone dramatic militarisation in past years. Russia has retrofitted and enlarged its Northern Fleet and put high-ranking officers in command of it. Both sides carry out military exercises in the Arctic more frequently and the two blocs provoke each other with flights along territorial borders, violations of each other's territorial waters and exercises of a clearly military nature. It is not unusual for fishing boats and transport ships to sail close to their opponent's waters with military escorts. Since its renunciation of UNCLOS in the mid 2010s, Russia has asserted its claim to the North Pole and the surrounding seas by gradually increasing its military presence there. The risk that a human mistake could be interpreted as a provocation by the opposite party is therefore constantly present. At the same time, both parties are attempting to limit each other's opportunities to utilise the strategic resources in the region.

Greenland 2030: Concern in spite of Growth

Economic development in Greenland society is characterised by the presence of profitable oil, gas, and mineral deposits, but limited by militarisation. The unpredictable situation regarding security makes investing in a country such as Greenland, which lies in the fault line between two blocs, less attractive.

However, this is compensated for by the fact that all of the parties involved are extremely interested in gaining access to strategic resources such as oil, gas and certain minerals, and there is a general reluctance, especially on the part of the West, to rely too one-sidedly on Russian hydrocarbons. This reluctance has led to a great interest in oil and gas from Greenland – to the great concern of Russia. Permanent offshore oil production has been established west of Disko Bay, while the construction of production facilities in the less accessible fields in the northern part of Baffin Bay and in Northeast Greenland has not yet been initiated. Employment in the oil industry is therefore considerably lower than in scenario 2, and the prospect of major revenues from oil in the shape of royalties lies further off in the future. The mining industry is also less extensive, but there are several profitable mines that provide considerable industrial employment. There has also been a marginal increase in fishing.

Economic globalisation has declined in step with the deterioration in the situation regarding security. Both cruise ship tourism and transport ship traffic have increased considerably, but the increase is less than in scenario 2.

The Tasks of the Armed Forces: An Organisational Janus Head

The armed forces are influenced by having to perform two major tasks with few resources. On the one hand, one of the civil tasks, fishery inspection, has become more extensive and has taken on a paramilitary character. This is partly because violations of fish quotas have become a means of provocation that the two blocs use against each other, and partly because fishing in East Greenland has

moved further north and is concentrated close to international waters.

There has also been a certain increase in the extent of industrialisation and maritime traffic and this has led to a heavier workload for the sea rescue and environmental protection services. This development, however, is less extensive than in scenario 2. Mission creep has also occurred as the armed forces have assisted civilian society in tasks occurring as a result of the growth in industrialisation.

Concurrently with the armed forces having to take on a larger number of civil tasks, the military burden in the form of monitoring and asserting sovereignty has grown dramatically and NATO has been obliged to devote considerable resources to this. The US in particular has pressed to strengthen the northern dimension of the alliance. Russian civil and military units violate Greenland's territorial waters and airspace regularly. Russian merchant ships as well as merchant ships from Russian client states systematically refuse to use LRIT systems and neglect to declare their presence when entering Greenland's territorial waters. There is reliable evidence that Russia is using intelligence-gathering vessels camouflaged as merchant ships and trawlers and also gathering intelligence with the aid of submarines.

Increased military traffic, both in the air and at sea right up to the Economic Zone around Greenland is intended to provoke repulsion operations and test NATO's ability to react and its willingness to invest resources in defending Greenland. The US has stationed considerable military forces in Greenland and, among other things, has upgraded Thule Air Base so that the base can be used for air defence tasks. NATO has occasionally operated reconnaissance aircraft (AWACS) in Greenland's airspace. Denmark has been unable to repulse violations of Greenland's airspace from its bases in West Greenland promptly. As the LRIT system is unfit for use in a military context, NATO is working to build up its own satellite monitoring capacity.

Summary

In the *Rich, but scared* scenario, the Arctic is marked by tension between Russia and NATO in connection with security policy. Military presence in the Arctic has thus undergone explosive growth and the armed forces of the two parties are constantly gauging each other's strength through repeated provocations. Climate change has brought about an increase in civilian traffic, and the presence of profitable resources has led to industrial development in the form of oil and mining industries which are, however, hampered by the fact that militarisation has made investing in Greenland less secure. This has brought moderate growth to Greenland society, but the major gains lie far off in the future and it is uncertain whether it will ever be possible to benefit from them.

The armed forces are faced with two tremendous tasks in this situation. On the one hand, they must take on more civil tasks such as fishery inspection, sea rescue and environmental protection services. On the other hand, they must react to constant Russian

violations of Greenland's territorial waters and airspace. As a consequence, the armed forces are under pressure where resources are concerned.

07 Scenario 4: Military Base

The final scenario – *Military base* – is similar to scenario 3 in many respects although Greenland has not experienced major economic growth in this scenario. Society is burdened by tension between the major powers and by a dramatic increase in civil navigations. As was the case with scenario 3, this scenario is also considered highly improbable.

Arctic Perspective: Much Militarisation, No Resources, Less Ice

In 2030, the search for natural resources has proved to be fruitless and Greenland is still very much dependent on fishing and the block grant from Denmark. However, the ice-free waters have been made use of by various commercial interests, and transport, cruise ship and fishing traffic have multiplied many times in relation to the level in 2009.

The diplomatic and security policy situation has deteriorated through many stages of escalation, as described in scenario 3. Russia and NATO now constitute two separate military blocs that constantly test each other militarily, economically, and with regard to supplies. As climate change has gradually opened up huge areas of sea in the Arctic, this region has also become part of the game. In the Greenland region, this takes the shape of Russian units sailing or flying close to the border of the Economic Zone. In the absence of new communities around mines and offshore drilling rigs, this primarily occurs close to existing settlements – especially on the east and north coasts of Greenland. In response, the USA has dedicated considerable military capacity to keeping Russia in check, and the region is generally high on NATO's agenda.

In the context of the alliance, the Arctic is a sore spot: several NATO countries still import Russian oil and gas and oppose a policy of confrontation on economic grounds, while the USA applies pressure to prevent Russia establishing supremacy over the Arctic areas.

Greenland 2030: Denmark's Northernmost Base

Without accessible resources, Greenland's economy remains relatively unchanged in relation to 2009. Greenland's national income still comes from the block grant from Denmark and fishing,

which has benefited from a small boom, because it is now possible and profitable to fish in a bigger area.

The lack of financial development has the consequence that the Danish Commonwealth Realm will not be able to provide financial security for rearmaments via future capitalisation of located natural resources. The increased presence of Danish military units provides the Home Rule Government with a small increase in tax revenues, while on the other hand the increased shipping activity in Greenland's waters emphasizes the need for a military as well as a coast guard alert in Greenland.

The Tasks of the Armed Forces: Focus on Military Activities

In 2030, the armed forces will be taking on civilian as well as military tasks. Although the volume of civil tasks has seen a considerable increase since 2009, the task is smaller than in scenario 3. The amount of shipping has generally grown, thus increasing the strain on the armed forces' sea rescue and environmental protection services. The fishery inspection task has increased in volume and complexity, since the area that can be fished in is increased, and violations of fish quotas are among the forms of provocation the two blocs use against each other.

In this scenario, similarly to scenario 3, the armed forces must be able to respond to Russian units violating Greenland territorial waters and airspace close to inhabited areas. Furthermore, Russia is militarily active in areas that it claims close to the North Pole. There is an increased challenge to be able to detect and document the presence of foreign units and assert a presence in these areas. In the worst case, these units must also be compelled to leave – possibly by military force.

Summary

In the *Military base* scenario, Greenland's economy has not changed since 2009 and the primary developments have been in the security policy domain. Relations between Russia and NATO are tense and the two blocs carry our manoeuvres along each other's borders. Russia is to a certain extent able to use its position of energy exporter to drive a wedge between NATO member states.

The military presence in the Arctic has increased considerably. Russia performs acts of military provocation in the disputed areas around the North Pole and close to communities in Greenland.

In this situation, the armed forces are burdened with two tasks. They must take care of more extensive civil tasks, such as fishery inspection and sea rescue and environmental protection services, and respond to constant Russian violations of Greenland's territorial waters and airspace.

08 How can the Armed Forces Prepare for the Future?

In the previous chapters, we came up with a framework of four ideas for the future of Danish armed forces in Greenland. But this framework of ideas only becomes meaningful if we use them to generate the best possible preconditions for the future by taking steps in the present. In this way – by taking small steps today – we might be able to avoid having to deal with major problems in 2030.

From Scenarios to Recommendations

Although the four scenarios provide a fair picture of the directions developments could take up to 2030, it is by no means certain that the future will take these directions. The factors that shape economic and political developments could have far more powerful effects than those predicted in this report. We have based our analysis on assumptions that include a certain change in the global climate and a certain amount of technological innovation in order to come up with a manageable number of scenarios. It could be said that for the sake of analytical simplicity, we have chosen to look at developments in these two areas as constants, whereas they are in fact also variables. Therefore, the scenarios do not take into account a development in which these two factors are determinative for the future. There are thus elements that have not been described and elements of uncertainty in the scenarios that must also be included in the considerations, so that present-day plans take their point of departure in the entire range of future possibilities.

Although there is uncertainty, the scenarios can be used to plan the activities of the armed forces. As they are based on the two factors that are most important for development, they illustrate the central development trends of the future. If there should be a technological quantum leap, or if the climate takes a completely different turn to what has been assumed, the future will take shape in accordance with a stronger or weaker version of one of the four scenarios. It will thus still be possible to prepare the armed forces for the burdens that could arise in the future based on knowledge of these trends.

The scenarios indicated that there could be a certain risk that the armed forces will become overburdened with tasks as changes occur in Greenland society, and that this excessive burden could take on different forms depending on the type of development that emerges.

Plans for future activities must be based on an assessment of the probability of a specific problem arising. This must be held up against the length of time it will take to implement the necessary measures and what they will cost. Expensive measures that can be rapidly implemented should not be used in order to avoid an improbable future. It is common to all of the measures we recommend introducing today, that they are inexpensive, so no great loss would be incurred if the problems they are intended to prevent do not occur. On the other hand, there are more expensive measures that should only be introduced when developments show they are necessary. This is possible because they can be implemented over the course of relatively few years.

The various measures can be subdivided according to type. On the condition that it is considered undesirable to compromise on the quality of the way the tasks are performed, there are four different strategies for handling an excessive number of tasks. First, an attempt can be made to prevent new problems arising altogether. This would make it possible to avoid the organisation having to deal with the new workload at all. Second, if problems still arise, an attempt can be made to improve the efficiency of the organisation so that more tasks can be performed with the existing capabilities. If the number of tasks exceeds the potential for improving efficiency, the organisation will thus be faced with more than its capabilities can deal with. This fact points to a third and a fourth strategy: Third, it can simply be accepted that some tasks will not be performed by prioritising them so that they are performed in order of their urgency. Fourth, if prioritisation fails to solve the problem, capabilities can also be increased so that they match the number of tasks to be performed.

Future Burdens on the Civil Task Structure

The four scenarios showed that the complex of civil tasks would increase with an increase in commercial maritime traffic (in the form of cruise ships and transport vessels), more offshore installations and the provision of more assistance in relation to civil society on land. These problems can be solved with the help of the four strategies mentioned above.

Prevention

The best way to prevent problems arising as a consequence of increased economic activity is to introduce better regulation of maritime traffic. In this connection, there is an obvious potential for regulation in connection with cruise ships and transport vessels in Greenland's waters and international waters. The biggest problem in Greenland's territorial waters is the many cruise ships that navigate narrow, uncharted fiords. This problem can be solved by introducing stricter Danish legislation in this area.

A further problem outside the three-mile limit is posed by the operations by poorly-secured ships carrying environmentally dangerous cargoes in hazardous Arctic waters. The risks connected to this activity could be reduced by introducing stricter international rules under the auspices of the IMO. This work would be relatively slow - and such regulation would therefore take a long time - but on

the other hand, it would effectively reduce the above-mentioned problems.

Improving Efficiency

The preventive measures referred to above cannot solve the problem of an increase in the burdens presented by civil tasks, so there is a need to improve the efficiency of GLK's organisation. The three primary possibilities for improving efficiency are connected with GLK's location, the organisational division of work, and cooperation with the other Arctic states.

Moving GLK from Kangilinnguit to Nuuk would release resources that could then be used for other purposes. Due to Kangilinnguit's isolated location, GLK must maintain many of the ordinary operational and logistical functions from its own budget.[70] According to a survey carried out by the Chief of Defence Denmark, it would be possible to save DKK 24.2 million a year by moving GLK's headquarters to Nuuk.[71] The costs of moving to Nuuk (DKK 195 million) must be subtracted from this amount. After 8.4 years, however, the savings gained by moving to Nuuk would have exceeded these costs, which would result in a clear benefit in improved efficiency.[72]

In addition to this economic motivation, moving to Nuuk would also make it possible to establish a joint rescue centre in collaboration with Greenland's police force. As matters stand today, the rescue service is shared between the police force and the armed forces, which could lead to problems with coordination in connection with a rescue operation.[73] It also appears more rational to build up a single, unified picture of the situation with the help of the emergency services' collective knowledge – than to build up a two separate pictures based on the isolated information possessed by the police force on the one hand and GLK on the other. These problems could be solved by amalgamating the two authorities at a joint centre in Nuuk. Another benefit that could be obtained by improving efficiency would be to relocate GLK, which is responsible for fishery inspection in Greenland's waters, close to the Fisheries Licence Office, which is responsible for the administration of fishing licences and quota allocations for Greenland's fishermen. Today, when doubt arises as to possible transgressions of fish quotas or illegal fishing, the matter is often referred to the police force, which then takes over the investigation.

Several alternatives have been broached in the debate on GLK's location. Consideration has been given to moving GLK's command function to Denmark and maintaining a link in Nuuk. This would be the optimum solution from a purely economic perspective as it would mean an annual saving of a further DKK 2.2 million and a saving on moving expenses of DKK 37.5 million.[74] However, this solution has several disadvantages. First, it would make it impossible to create a joint rescue centre with Greenland's police force or direct contact between fishery inspection and the Fisheries Licence Office, so the improved coordination in an emergency would be lost. Second, there is an imminent risk that moving the command function to Denmark would create a command with no in-depth knowledge of the unique

climatic, geographical and maritime conditions in Greenland. Third, moving GLK could contravene the spirit of the Home Rule agreement as moving it to Denmark would make it more difficult to build up local knowledge in this area. Technically, this could make it difficult to transfer the task to the Home Rule Government at the same time as it would mean an isolated build-up of know-how in Danish hands, which would make it more difficult to transfer the area to the Home Rule Government at a later date because the Government would lack competence. Fourth, there would probably be considerable political opposition to this solution due to local economic interests.

Another alternative would be to relocate GLK to Thule and thereby tie the US to the defence of Greenland with regard to security policy and at the same time improve the management of the increased maritime traffic in the Northwest Passage. However, this solution is inappropriate as long as the threat to security in Greenland is not heightened to any great extent. This is due not least to the reasons that Russia might ascribe to such a step and the fact that, in the given case, Russia might take symbolic or actual steps to counteract it. Furthermore, there is nothing to suggest that the US would not make an effort to secure Greenland under any circumstances. Additionally, the sea ice in the northern part of Baffin Bay will make the seas around Thule difficult to navigate in for many years to come, and there is also the consideration that it would probably be more expensive to operate GLK in Thule than in Kangilinnguit. There would therefore be no potential for improving efficiency by relocating it there. As moving GLK to Denmark or Thule must be regarded as sub-optimum solutions, it would appear to be more advantageous to move it to Nuuk.

Thought has been given to improving cost-effectiveness by amalgamating GLK and FRK in a joint North Atlantic Command (NAK) in Thorshavn, Nuuk or Denmark, which would release a further DKK 6.5, 6.9 or 10.2 million a year respectively.[75] But the above-mentioned non-economic aspects of such an amalgamation must also be taken into account. As previously mentioned, it would involve the risk of reducing local knowledge of the special climatic, geographical and maritime conditions in Greenland. At the same time, an amalgamation would contravene the spirit of the Home Rule agreement as it would increase the difficulty of transferring the area at a later date. Furthermore, the advantages of coordination, which could be obtained by relocating the command function in Nuuk, would be lost and there would be a risk of considerable local political opposition. This potential loss of efficiency appears to be greater than the relatively small economic benefits to efficiency of establishing a joint NAK in Denmark. If it is still considered desirable to establish a joint NAK, we therefore recommend that it should be established together with the command function in Nuuk.

Civil tasks in most other Arctic nations are handled by a coastguard that is separate from the military authority. As described in chapter 2, the decision made in the Danish Commonwealth Realm in Greenland was that the two functions should be unified under the same authority because of the considerable benefits to efficiency that can be obtained by this. The Home Rule agreement states that

Greenland can take over the coastguard function, but this would mean that Greenland would have to establish and run its own Coast Guard units which would then operate in parallel with the vessels of the armed forces. In this case, the armed forces could save on the few resources that are used today in connection with civil tasks, but this would be less than the greatly increased expenses that Greenland would have to defray to deal with these tasks. On the basis of this, we recommend that the coastguard and naval function should both remain the responsibility of the armed forces. As the plethora of tasks of the armed forces increase and become more diversified, the advantages of economies of scale could lose their significance so that it would be more rational for the armed forces to focus exclusively on military tasks. However, this depends on developments taking a certain direction in which the civil tasks increase dramatically or in which the armed forces must handle military functions to an increasing extent. At present, this development cannot be taken for granted and it would be best to wait and see whether these trends actually emerge.

In addition, there is a potential for improving efficiency by collaborating with the other Arctic states. There is already an extensive collaboration in various international institutions today[76] that could be maintained and extended to advantage. The greatest potential, however, lies in the existing satellite monitoring programmes. Establishing extensive satellite monitoring of Greenland's waters to the greatest extent possible would improve GLK's ability to perform sea rescue operations. This would provide an overview of the units that are present in Greenland's waters and which options for providing assistance there would be in an emergency. But this could only be done efficiently in collaboration with the other Arctic states, by expanding IMO's existing satellite monitoring system, LRIT, for instance. However, since the perspective for implementing such a solution should be measured in years, although satellite monitoring has considerable potential for improving efficiency, it has so only on a long-term basis.

Prioritisation

As described in the scenarios, the potential burden on the armed forces has two aspects. First, there is the risk that new tasks will be imposed on them through mission creep. This can be dealt with by giving higher priority to the tasks that have customarily been allocated to them than to any new tasks. Specifying which tasks do not belong to the armed forces would make it possible to avoid the imposition of new tasks if they are not accompanied by economic compensation.

Second, there is a risk that existing tasks will become more extensive and thereby impose a heavier burden on the armed forces. As described in chapter 2, dealing with civil tasks in Greenland is a kind of indirect block grant and an increase in tasks of this kind must be considered as an increase in the block grant. Whether it is reasonable for the block grant to be increased by the Danish state taking on a heavier burden for the benefit of Greenland society is exclusively a political decision. Therefore, it should be made absolutely clear whether the Greenland Home Rule Government, the

companies that benefit from the payments, or the Danish state through its defence budget, should pay for this. If the expenses are added to the defence budget – without this being increased correspondingly – there should be a clear prioritisation of the activities that must be reduced to compensate for it. Basically, an increase in the number of tasks in Greenland that are not financed would mean less money for the armed forces' international operations and the maintenance of military preparedness in Denmark.

Increasing Capability

The most expensive solution to the problem of an increase in the number of tasks to be performed would be to increase the level of available capability, but on the other hand, it is a solution that could be implemented in the course of a few years,[77] so it should be deferred until it becomes clear whether the heightened level of activity makes an increase necessary.

If this proves to be the case, it would depend on which types of activity are most urgent. If an improved monitoring capacity is prioritised – e.g. to gain an overall view of accidents or document oil pollution, a fixed-wing monitoring plane or possibly an unmanned plane[78] would probably be the best solution. If, instead, there is a need for capabilities to support the coordination of sea rescue operations or fishery inspection for instance, it could be best to invest in more maritime capacity.

Future Burdens on the Military Task Structure

The analysis has shown that there is little risk that the Arctic will become a high tension zone. If, nevertheless, this were the case, there is a significant risk that the military functions of the armed forces will become overburdened. It should be noted in this connection that our investigations have given no indication that there is any potential for improving efficiency and prioritisation in relation to the strictly military tasks.[79] The following analysis therefore focuses on the opportunity to prevent future problems and on how these could be dealt with by increasing capability.

Prevention

The best way to avoid the armed forces being burdened with more military tasks in Greenland is to prevent tension arising altogether. As described in chapter 3, Russia has no economic or territorial motivation to militarise the Arctic. Military build-up in the region would thus rather be engendered by Russia's perception of the global and regional threat to security. This view is partly derived from NATO's – including Denmark's – activities in the Arctic. If NATO builds up capabilities in the region, a security dilemma could arise in which minor, mutual rearmament could bring about an escalation in the security situation. This dynamic, however, cannot be taken for granted in advance. Through its defence and foreign policies, Denmark could thus actively avoid militarisation by refraining from building up military capabilities if this is not absolutely necessary.

As described in scenario 3, tension is characterised by international forums losing their significance and by military manoeuvres

becoming the primary form of communication between states. Without alternative channels of communication, states find themselves trapped in a situation where they can only communicate through the uncouth language of military manoeuvres and misunderstandings can further escalate conflict. Denmark can counteract this by taking a foreign policy course that emphasises dialogue in forums such as the Arctic Council, the IMO, the Baltic Council, and the Council of Europe. So Denmark should maintain its commitment to the various forums for dialogue and attempt to influence its allies to do the same. Energy should also be invested in encouraging Russia to attend meetings of these bodies, even though it might be necessary to accept making concessions in some areas.

Increasing Capability

As a player in the great security policy game, Denmark's opportunities to stop militarisation are limited. Should militarisation arise, however, Denmark should have the capabilities to respond to it. The first Danish step in connection with an escalation would be to arm all of the existing Danish units. If a conflict should build up to a critical point, there might be a need to increase its military presence.

As described in chapter 2, military tasks comprise detection, identification and documentation, marking the presence of the armed forces and, in the final analysis, compulsion and suppression. Depending on the intensity of the conflict, these tasks could be very extensive. In the worst case, there might be a need for comprehensive radar coverage of Greenland's airspace and territorial waters and major military preparedness capable of dealing with violations of Greenland's territory at sea and in the air. In this case, military needs would probably include maritime units, air platforms, and accompanying base capacity.

To a certain extent, maritime units could perform military tasks in Greenland's waters. Ships, however, are hampered by the fact that they can easily be avoided by air units and should therefore be supplemented with air platforms capable of rapid response to violations of Greenland's territory. It is difficult to say exactly which platforms could come into question in this connection because there is no precise knowledge of which direction developments in weapon technology, among other things, will take.

If new types of unit are to be deployed around Greenland, this will require base capacity. It must be possible to react rapidly to violations on the part of hostile units in order to be able to detect and document their movements, mark the presence of Danish troops and, if it should be necessary, to force the units in question to leave Greenland's airspace. Air bases must therefore be located within a realistic reaction radius in relation to the areas in which it could be imagined the enemy might operate.[80]

If the Arctic should become the centre of a serious military confrontation, the Danish armed forces would not be capable of responding to it unaided and would have to rely on assistance from its NATO allies.

Building up all of these types of capability and meeting obligations to allies make it necessary to anticipate developments and to be

capable of preparing for a threat that could lie years off in the future. Farsighted activities of this kind, however, help to form Russian views of the security situation in the Arctic. If Denmark builds up military capacities or attempts to direct focus towards the Arctic in NATO, it could mark the beginning of a Russian counter-rearmament and in this way lead to a development that there was an initial desire to prevent. Denmark should therefore – as already mentioned – refrain from unnecessarily building up military capacities in Greenland. As Denmark's NATO strategy contributes to forming the security-policy dynamic in the region, it should similarly be cautious with regard to directing military focus towards the Arctic. In the case of tension regarding security, Greenland would be within the USA's strategic sphere of interest in particular.[81] As matters stand today, NATO support can be relied on with regard to dealing with a Russian threat. There is therefore no reason to position the Arctic higher on NATO's agenda.

Summary

The scenarios indicate that the armed forces could be obliged to perform more civil and military tasks in the future with the same capabilities. This challenge can be met by preventing problems from arising by improving the efficiency of GLK's organisation, prioritising tasks, and increasing capabilities.

The ability of the armed forces to deal with a heavier burden in connection with civil activities could be enhanced by a number of measures that could be implemented relatively cheaply and within a short time horizon. Problems can be prevented by regulating maritime traffic nationally and internationally. The efficiency of GLK could be improved by moving its headquarters from Kangilinnguit to Nuuk, possibly amalgamating it with FRK, and improving satellite monitoring facilities. At the same time, the core tasks allocated to GLK could be prioritised and a decision made regarding how the growing expenses of this could be financed. Air and maritime capacity should only be built up further if these measures fail to adequately reduce the number of tasks to be performed.

It is highly improbable that tension regarding security in the Arctic will escalate, but it constitutes a major risk for the armed forces. This should be prevented by refraining from unnecessarily armament and by devoting resources to maintaining forums for dialogue that include Russia. If, in spite of this, the Arctic should be militarised, military capabilities must be increased by buying more units, building up bases and requesting support through NATO. There are grounds to wait to see which course developments take in order to avoid a security policy dilemma, but it is necessary to be prepared for change so that these capabilities can be built up at short notice. Similarly, Denmark should be cautious about pursuing an active strategy in NATO with regard to the Arctic.

09 Recommendations

This report shows that it is highly likely that there will be more civil and military activity in Greenland in the period up to 2030. It is probable that Greenland will undergo economic development that will impose a heavier burden on the armed forces, primarily as a consequence of an increase in maritime traffic. On the other hand, it is highly improbable that the Arctic will be militarised in the coming years. Should militarisation arise, however, it will probably be based on a conflict between Russia and NATO. Both of these trends imply a risk that the armed forces will become overburdened. The following measures are recommended to prevent this:

Future challenges should be prevented here and now through the following measures:

- Security for civil navigation in Greenland's territorial waters should be optimised through national Danish regulation. In continuation of this, the report recommends continuing the efforts to introduce international rules for navigation of this type through the UN's maritime organisation, IMO.
- In general, Denmark should attempt to avoid the militarisation of the Arctic. Specifically, restraint should be shown by not increasing military presence unnecessarily in order to avoid appearing as a threat to potentially hostile states. Furthermore, Denmark should devote energy and resources to developing and maintaining forums for dialogue with the participation of these states.

No time should be wasted in improving the efficiency of the existing capabilities of the armed forces:

- Denmark should attempt to ensure the establishment of an international satellite monitoring service – preferably in continuation of IMO's existing LRIT system.
- The headquarters of Island Command Greenland should be moved from Kangilinnguit to Nuuk. This would improve the performance of tasks and reduce costs. A joint rescue centre should be established in this connection with the participation of the armed forces and the police force.

- If it is considered desirable to amalgamate Island Command Greenland and the Command of the Faeroe Islands (FRK) in a joint North Atlantic Command, this Command should be located in Nuuk to ensure that the necessary knowledge of the characteristic climatic, geographical and maritime conditions in Greenland is available.
- Considerable economies of scale can be obtained by maintaining to operate the naval and coastguard authorities as a single authority. However, it should be noted that a potential radical increase in the number of tasks to be performed could make the establishment of a separate coastguard economically viable in the future.

The tasks of the armed forces should be prioritised in order to draw a clear line between the armed forces and the civil community:

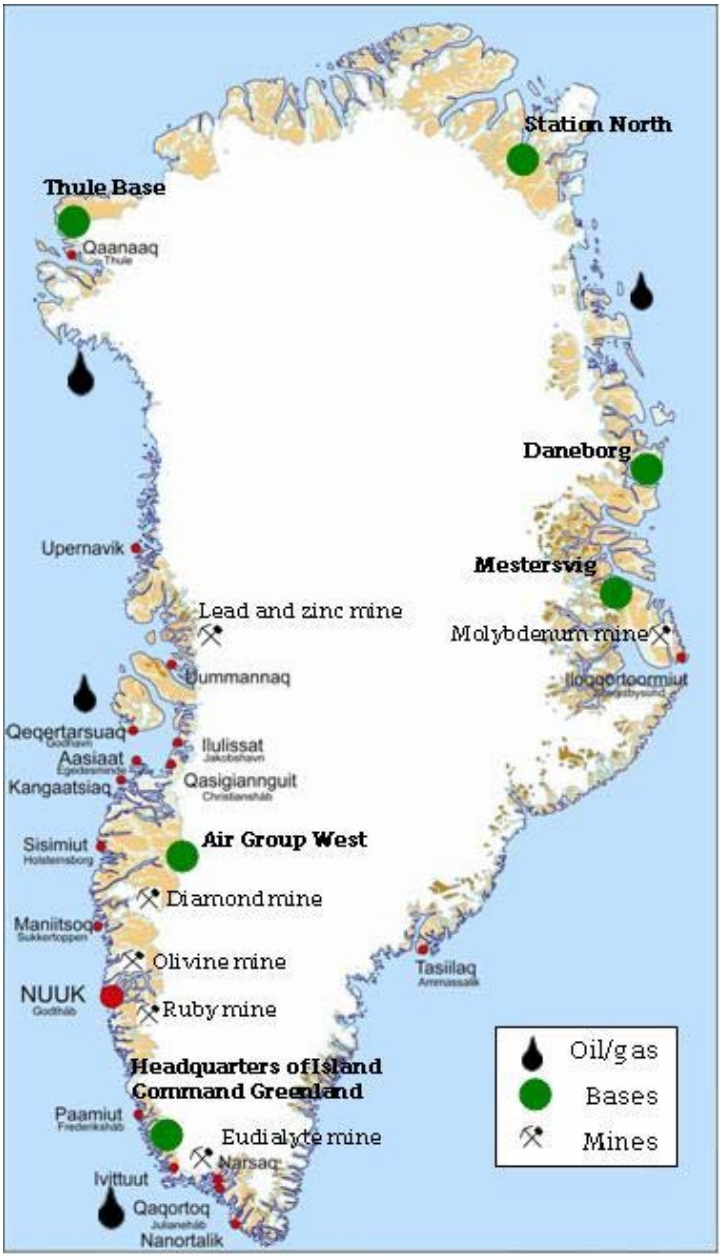
- The civil activities carried out by the armed forces must be accounted as an indirect block grant to Greenland. If expenditure on civil activities is increased, a decision should be made regarding whether the armed forces should continue to carry out these tasks. In such a case, there should be a clear political decision that defines who should pay for this increase in costs.
- More activity increases the risk of "mission creep", with new types of tasks being imposed on the armed forces in areas where civil society has not built up the necessary capacity to handle these tasks. If this proves to be the case, there should be a clear political decision regarding how these tasks are to be performed – including which tasks the armed forces should not take on. Any new tasks should be accompanied by additional financing.

If these tasks cannot be carried out with the help of the above-mentioned measures, the level of capability should be increased:

- It could become necessary to bring in more air and maritime capacity. Plans should therefore be made now as to which maritime and air platforms and accompanying base capacities are needed.
- Security dynamics in the Arctic depend on whether Russia regards Western activities as a threat. Great caution should therefore be exercised in planning on increased military capabilities. Increasing capability should be avoided if possible.
- The development in NATO's strategic orientation contributes to Russia's view that there is a security threat in the Arctic. Denmark should therefore refrain from problematising the Arctic in a NATO context.

10 Appendices

Appendix 1: Larger communities, military installations and potential resource deposits in Greenland 2007.



Source: Own adaptation based on data from the Danish National Survey and Cadastre, the Danish Raw Materials Directorate[82] and Island Command Greenland.

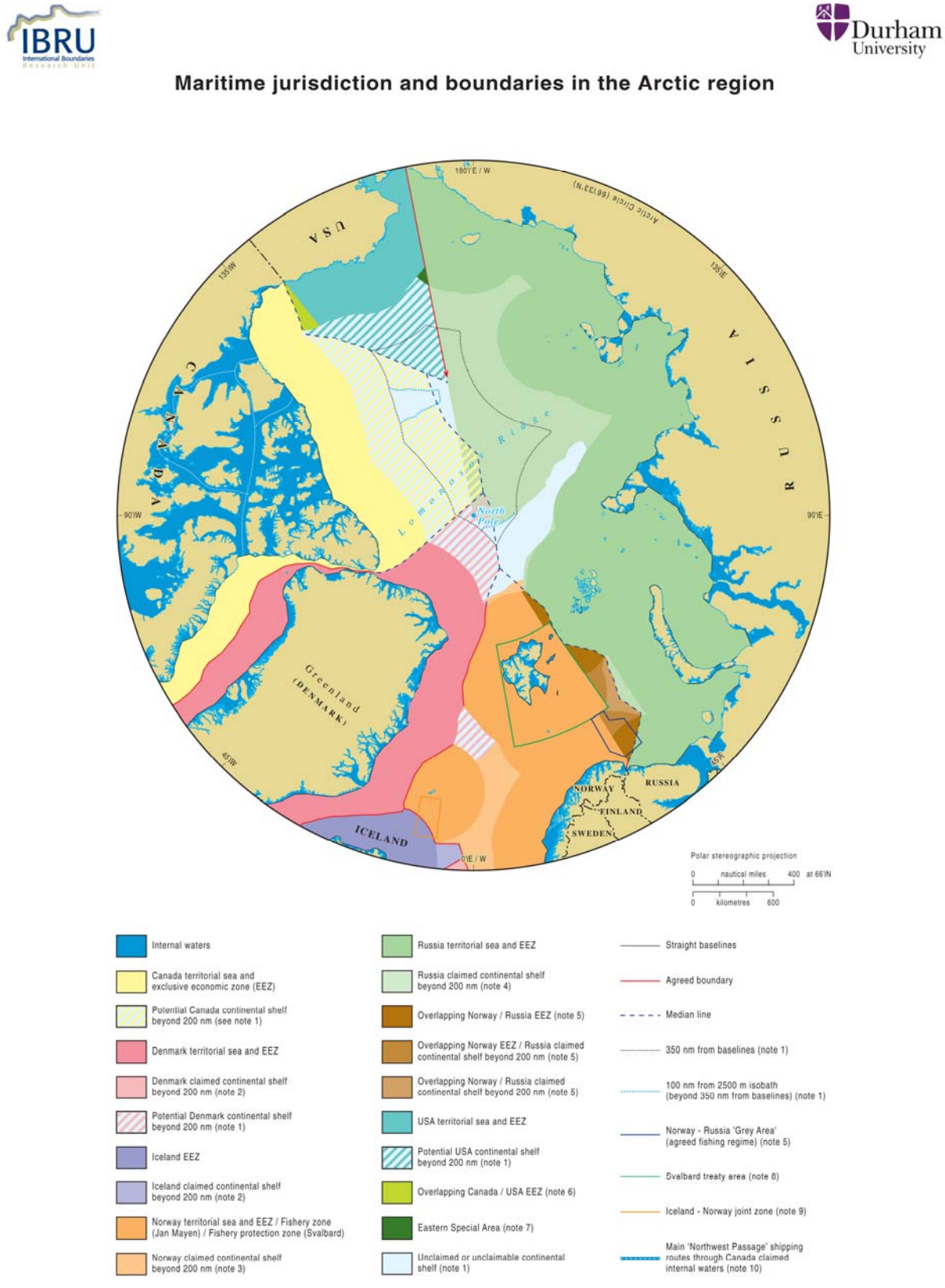
Appendix 2: List of interviews, conferences, seminars, debate meetings, etc.

Interviews:

Date	Location	Institution
19/11 2008	Copenhagen	The Danish Meteorological Institute (DMI)
3/12 2008	Copenhagen	The Geological Survey of Denmark and Greenland (GEUS)
10/12 2008	Copenhagen	GEUS
15/12 2008	Copenhagen	GEUS
17/12 2008	Århus	Admiral Danfleet Headquarters
18/12 2008	Copenhagen	DMI and the Technical University of Denmark (DTU) Space
6/1 2009	Copenhagen	The Danish Shipowners' Association
16/1 2009	Copenhagen	The Danish Maritime Authority
20/1 2009	Copenhagen	The Russian Embassy
26/1 2009	Washington D.C.	The US Coastguard
28/1 2009	Ottawa	The Canadian Coastguard
2/2-4/2 2009	Kangilinnguitt	Island Command Greenland
5/2 2009	Nuuk	The Ministry for Finance and Foreign Affairs of Greenland
6/2 2009	Nuuk	Chief Administrative Officer in Greenland
9/2 2009	Nuuk	The Climate and Infrastructure Board (KIS)
9/2 2009	Nuuk	The Ministry for Finance and Foreign Affairs of Greenland
9/2 2009	Nuuk	The University of Greenland
10/2 2009	Nuuk	KIS
10/2 2009	Nuuk	The Danish Raw Materials Directorate
10/2 2009	Nuuk	The Police Force in Greenland

Seminars, conferences, debate meeting, etc.

Date	Location	Title	Arranger
25/9-26/9 2007	Tromsø	Emerging from the Frost: Security in 21st Century Arctic	Institute for Defence Studies (IFF)
22/10 2008	Copenhagen	Climate Forum – From climate scenarios to climate adaptation	DMI
13/11 2008	Copenhagen	Energy Security: Charting New Strategic Challenges	The Danish Institute for International Studies (DIIS)
04/12 2008	Copenhagen	The Greenland Home Rule Government	Greenland's House
16/12 2008	Copenhagen	Russian security policy after the Georgia crisis	The Danish Defence Intelligence Service (FE)
30/1 2009	Reykjavik	Security Prospects in the High North: Geostrategic thaw or freeze?	NATO Defence College



Source: International Boundaries Research Unit, Durham University[83]

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International Boundaries Research Unit (2008): *Maritime jurisdiction and boundaries in the Arctic region*. Located 15/4 2009 on webpage: http://www.dur.ac.uk/resources/ibru/arctic.pdf.

Ministry of Foreign Affairs: Consensus within the North Atlantic Treaty between the governments; The Kingdom of Denmark and the United States of America in the defence of Greenland. Located 6/4 2009 on webpage: http://dk.nanoq.gl/Emner/Landsstyre/Departementer/Departement_for_finanser/Udenrigsdirektoratet/Hvad_arbejder_vi_med/U

denrigs-
_og_Sikkerhedspolitik/Forsvarsaftalen_mellem_USA_og_Danmark_Thulebasen.aspx

National Snow and Ice Data Center: *Sea Ice Index: Extent, Concentration, and Concentration Anomalies*. Located 18/2 2009 on webpage:http://nsidc.org/cgi-bin/bist/bist.pl?annot=1&legend=1&scale=100&tab_cols=2&tab_rows=2&config=seaice_index&submit=Refresh&m00=01&hemis0=N&img0=conc&m01=09&hemis1=N&img1=conc&year0=1983&year1=2008&.cgifields=no_panel

Rule of Law Committee for the Oceans: *The Ilulissat Declaration*. Located d. 27/4 2009 on webpage: http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf

12 Notes

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Notes:

[1] The Danish Defence Commission of 2008 (2009): *Forsvarskommissionens beretning,* Copenhagen: The Ministry of Defence.

[2] Greenland-Danish Home Rule Commission (2008): *Grønlandsk-dansk selvstyrekommissions betænkning om selvstyre i Grønland*. Copenhagen: Greenland-Danish Home Rule Commission.

[3]Central Intelligence Agency: *World Factbook*. Located 6/4/2009 at the web site address: https://www.cia.gov/library/publications/the-world-factbook/geos/gl.html

[4] The southern temperatures apply to Narsarsuaq, while the northern temperatures were measured at Station North. Source: Danish Meteorological Institute. *Klimanormaler for Grønland*. Located 6/4/2009 at the web site address: http://www.dmi.dk/dmi/index/gronland/klimanormaler-gl.htm. The lowest temperatures measured were under -50° C. Source: Danish Meteorological Institute. *Vejrekstremer i Grønland*. Located 6/4/2009 at the web site address: http://www.dmi.dk/dmi/index/gronland/ekstremer.htm#ekstremer-temperatur.

[5] Southwestern Greenland around Nuuk is thus the only area where it is possible to navigate during the winter.

[6] Fishing and the block grant thus constitute society's primary sources of income. In spite of this one-sidedness, the level of prosperity is relatively high. (Greenland-Danish Home Rule Commission (2008), pp. 428-29). Viewed solely as gross national income corrected for purchasing power per inhabitant, Greenland can be compared to an average EU Member State. (Greenland-Danish Home Rule Commission (2008), pp. 448-49).

[7] Island Command Greenland: *Opgaver*. Located 6/4 2009 at the web site address: http://forsvaret.dk/GLK/OmGLK/Opgaver/Pages/Opgaver.aspx

[8] Chief of Defence Denmark (2006): *Rapport vedr. analyse af nordatlantiske kommandoer*, Copenhagen: Chief of Defence Denmark, p. 11.

[9] Ministry of Foreign Affairs.: *Overenskomst i henhold til Den Nordatlantiske Traktat mellem regeringerne i Kongeriget Danmark og Amerikas Forenede Stater om forsvaret af Grønland*. Located 6/4/2009 at the web site address: http://dk.nanoq.gl/Emner/Landsstyre/Departementer/Departement_for_finanser/Udenrigsdirektoratet/Hvad_arbejder_vi_med/Udenrigs-_og_Sikkerhedspolitik/Forsvarsaftalen_mellem_USA_og_Danmark_Thulebasen.aspx

[10] Chief of Defence Denmark (2006), p. 53.

[11] These minor tasks include "Acute help for the police force, VIP flights and sea journeys, and other assistance for civil society" (Island Command Greenland: Opgaver. Located 6/4/2009 at the web site address: http://forsvaret.dk/GLK/OmGLK/Opgaver/Pages/Opgaver.aspx)

[12] The task of combating pollution within the three-mile limit is thus the responsibility of Greenland's Home Rule Government, while the task outside the three-mile limit is the responsibility of the state. The division is different in relation to sea rescue as the police handle this task in areas close to the coast, while GLK coordinates sea rescue on the open sea. (Greenland's Home Rule Government (2007): *Redegørelse vedrørende ulykker inden for SAR-området i Grønland.)* Located d. 6/4 2009 at the web site address: http://dk.nanoq.gl/Service/Publikationer/Rapporter/2008/Beredskabsforside/~/media/99D09978AAD64B78B24CFA5E980069EC.ashx.), p. 8.

13 Greenland's Home Rule Government (2007).

[14] Petersen, Nikolaj (2008): *Arktis: Den nye dimension i dansk sikkerhedspolitik,* in *Økonomi & Politik*, vol. 81, no. 4, p. 18.

[15] Chief of Defence Denmark (2008): *FKO's årsprogram*, Copenhagen: Chief of Defence Denmark, pp. 2-5-7.

[16] Admiral Danfleet Headquarters (2009): *Skibe og materiel.* Located 5/3/2009 at the web site address: http://forsvaret.dk/SOK/Om%20SOK/Skibe/Pages/default.aspx

[17] In 2007 – which does not differ significantly from other years – a Thetis-class vessel was available 365 days a year. During the same period, the three Agdlek-class cutters were available for a total of 847 days (Ministry of Defence (2006): *Styringsdokument 2007 mellem Forsvarsministeriet og Forsvarskommandoen*, Copenhagen: Ministry of Defence, p. 6). As these vessels were only used in Greenland during this period, the total number of potential days was 3 x 365 = 1,095. They were therefore available 847/1095 = 77.4 per cent – i.e. more than three-quarters of the maximum time. During the remaining time, the ships were at the shipyard or out of commission for one reason or another. This picture has not changed significantly after Agdlek was replaced by Knud Rasmussen.

[18] The two hydrographic survey vessels are only in operation during the summer and are manned in collaboration with the Danish Maritime Authority.

[19] Island Command Greenland: *SIRIUS Formål.*, Located 6/4/2009 at the web site address: http://forsvaret.dk/GLK/Sirius/Formaal/Pages/default.aspx

[20] Island Command Greenland: *Information about the GREENPOS system.* Located 4/4/2009 at the web site address: https://admin.forsvaret.dk/GLK/GREENPOS/GREENPOS%20in%20ENGLISH/Pages/default.aspx

[21] The International Maritime Organisation: *Long Range Identification Tracking Systems*. Located 4/4 2009 at the web site address http://www.imo.org/Safety/mainframe.asp?topic_id=905

[22] Ministry of Foreign Affairs.: *Overenskomst i henhold til Den Nordatlantiske Traktat mellem regeringerne i Kongeriget Danmark og Amerikas Forenede Stater om forsvaret af Grønland.* Located 6/4/2009 at the web site address: http://dk.nanoq.gl/Emner/Landsstyre/Departementer/Departement_for_finanser/Udenrigsdirektoratet/Hvad_arbejder_vi_med/Udenrigs-_og_Sikkerhedspolitik/Forsvarsaftalen_mellem_USA_og_Danmark_Thulebasen.aspx.

[23] Archer, Clive (2003): *Greenland, US Bases, and Missile Defence: New Two-Level Negotiations?,* in *Cooperation and Conflict,* vol. 38, no. 2, pp. 125-147.

[24] Information from Chief of Defence Denmark. This figure was calculated on the basis of the total costs principle, i.e., it includes the costs of the domestic support structure and depreciation on materiel. Two reservations should be made in relation to this figure. First, this calculation does not include a consideration of averages for the periodical inspection of the various units. As the inspections are extensive, the annual costs will fluctuate from year to year, depending on whether inspections are carried out in the year in question. Second, the total costs principle is not the only method of calculation. If costs are calculated instead as annual operating costs (i.e. payroll costs and operations solely in Greenland without depreciation on materiel), this would be DKK 183 million (Statistics Greenland: *Offentlige finanser, samlede offentlige udgifter, 2. forsvar, 2007*, retrieved 27/4/2009 at the web site address:

http://bank.stat.gl/statgren/Dialog/varval.asp?ma=OFDFUNK&ti=Funktionel+fordeling+af+offentlige+udgifter+by+sektor%2C+funktion+and++tid%2E&path=../Database/Gronland/Offentlige%20finanser/&lang=1.)

[25] Greenland-Danish Home Rule Commission (2008): *Grønlandsk-dansk selvstyrekommissions betænkning om selvstyre i Greenland*. Copenhagen: Greenland-Danish Home Rule Commission, pp. 444-45.

26 Solow, Robert M. (1956): A Contribution to the Theory of Economic Growth, in Quarterly Journal of Economics vol. 70, no. 1, pp. 65–94.

[27] Walt, Stephen Martin (1987): *The Origin of Alliances*, Ithaca: Cornell University Press. There is some discrepancy between the approach used and the theories on international policy used in our analysis. This is because the theories used chiefly deal with the character of the international structure and *not* the actual foreign policy reality. (Waltz, Kenneth (1979): *Theory of International Politics*, New York: Random House, pp. 118-121). Walt's neorealism thus focuses rather on explaining the dynamics of international policies rather than on developments in foreign policy. (Walt (1979), p. 6). This analysis is, on the contrary, a foreign policy analysis of a specific situation in a geographically limited area with the aim of predicting political developments. There are other factors of significance in this in addition to the international structure – such as international law, perception considerations, social norms, etc.

[28] In this report – in continuation of Walt's balance of threat approach – we take a broad view of capabilities in which they are not simply seen as military resources, but also include economic capacity, cultural capital, geographical location, etc. (Walt (1987), pp. 21-33).

[29] This incorporation of legal arguments in a neorealistic analysis does not harmonise with the theoretical background. As explained in the footnote above, this is due to the fact that this is a foreign policy analysis which must necessarily include factors other than the purely structural factors. This is supported by other neorealists – such as Scott Borgerson – where this factor is also included in the analysis of the Arctic (Borgerson, Scott (2008): *Arctic Meltdown: the Economic and Security Implications of Global Warming,* in *Foreign Affairs,* vol. 87, no. 2, pp. 63-77).

[30] The Intergovernmental Panel on Climate Change (IPCC) (2008): *Klimaændringer 2007: Synteserapport*, Copenhagen: The Danish Meteorological Institute, pp. 3-4.

[31] Doran, Peter D. and Maggie K. Zimmerman (2009): *Examining the Scientific Consensus on Climate Change*, i *EOS,* vol. 90, no. 3, pp. 22-23.

[32] Stendel, Martin et al. (2008): *Arctic Climate and Climate Change with a Focus on Greenland,* in *Advances in Ecological Research*, vol. 40., p. 13

[33] Hassol, Susan et al. (2005): *Arctic Climate Impact Assessment*, Cambridge: Cambridge University Press, p. 8.

[34] The Danish Meteorological Institute: *Polarhavet og havisen*. Located 6/4 /2009 at the web site address: http://www.dmi.dk/dmi/index/viden/temaer/ind_i_polaraaret/polarhavet_og_havisen.htm

[35] ECON (2007): *Report 200707 – Arctic shipping 2030. From Russia with Oil, Stormy Passage, or Arctic Great Game*, Oslo: ECON.

[36] The National Snow and Ice Data Center: *Sea Ice Index: Extent, Concentration, and Concentration Anomalies*. Located 18/2/2009 at the web site address:

http://nsidc.org/cgi-bin/bist/bist.pl?annot=1&legend=1&scale=100&tab_cols=2&tab_rows=2&config=seaice_index&submit=Refresh&mo0=01&hemi0=N&img0=conc&mo1=09&hemi1=N&img1=conc&year0=1983&year1=2008&.cgifields=no_panel.

It should be noted that neither 1983 nor 2008 were extremes in relation to other years. The difference between the years can partly be explained by short-tem fluctuations, but the general tendency is still considerable.

[37] The causal connection between reduced sea ice cover and increased navigation, however, is limited by other factors. Thus, more changeable weather, more impact from waves, more icebergs, and similar unpredictable weather conditions will contribute to a limitation of this increased traffic. In spite of this reservation, a connection can be said to exist between a reduction in sea ice cover and an increase in ship traffic. (ECON (2007), p. 9). Under these conditions, however, the new sea routes will hardly become a new Arctic motorway. The reduction in distances is too small and the commercial considerations are too unfavourable for this. (Christensen, Svend Aa. (2009): *Er de nordlige søruter egentlig kortere? Lidt for rosenrøde billeder af et blåt polarhav?*, Copenhagen: Danish Institute for International Studies). Traffic will rather be concentrated on the few shipowners that specialise in Arctic navigation.

[38] Ejsing, Jens (2008): *Fragtskib gennem Nordvestpassagen for første gang*, in *Berlingske Tidende*, 3/12/2008, 1st section, p. 20.

[39] Doran and Zimmermann (2009), pp. 22-23

[40] Stendel, Martin et al. (2007): *Regional Climate Change for Greenland and the Surrounding Sea,* Copenhagen: The Danish Meteorological Institute.

[41] Wang, Muyin and James E. Overland (2009): A sea ice free summer Arctic within 30 years?, in Geophysical Research. Letters, vol. 36.

[42] The Danish Raw Materials Directorate (2008): *Råstofdirektoratets årsberetning 2007.* Nuuk: The Danish Raw Materials Directorate.

[43] United States Geological Survey (2008): *Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle*, Washington: United States Geological Survey, p. 4.

[44] Sørensen, Bent H. (2007): *Oliesøgninger med store udfordringer*, in *Berlingske Tidende*, 7/10/2007, 3rd section, p. 10.

[45] The Danish Raw Materials Directorate (2008).

[46] Nielsen, Jørgen Steen (2008): *ELDRØMME: Kæmpe Aluminiumsværk med grønlandsk vandkraft*, in *Berlingske Tidende*, 15/4/ 2008, 1st section, p. 7.

[47] Denmark naturally has no influence on the composition of Greenland's subsoil and can therefore not decide that raw materials are present from a political quarter. As a small, open economy Denmark would not be able to influence world market prices in any significant direction. This can only be done by the major economic players on the market changing the course of their policies.

[48] Royalty income from oil and gas will be received as oil companies begin to make a profit and can repay their original investments. (The Danish Raw Materials Directorate (2004): *Samfundsmæssige aspekter af efterforskning og udnyttelse af olie og gas i Greenland*, Nuuk: The Danish Raw Materials Directorate, pp. 22-24). Only when this has

occurred will Greenland society receive an income in addition to the indirect taxation of wage income.

[49] Licensees receive no royalties and only small annual fees in connection with mineral extraction. (The Danish Raw Materials Directorate: *Standard* Terms *for Exploration Licences for Minerals (Excluding Hydrocarbons) in Greenland.* Located 28/4/ 2009 at the web site address: http://www.bmp.gl/minerals/exploration_license.pdf; Boas, Anders and Lotte F. Kaarsholm (2007): *Ingen mineralpenge til Grønland*, in *Information*, 3/10/2007, 1st section, pp. 4-5). In relation to ALCOA's aluminium smelting plant in Manitttsoq, any royalties will be established by law at a later date. (Greenland's Home Rule Government: *Bemærkninger til lovforslaget.* Located 28/4/2009 at the web site address: http://dk.nanoq.gl/Service/Hoeringsportal/Landstingslov/2008/~/media/6D512603D50E4FFC9E672ACE4D02756A.ashx, pp. 6-7).

[50] An example of technology of this type is submerged oil drilling platforms which make it possible to extract oil and gas in otherwise inaccessible waters. In addition, the oil extraction season can be prolonged when it is possible to continue production even when the winter ice spreads. (Sørensen, Bjørn K. (2007): *Undervandsbor skal hente olie under Nordpoilens is,* in *Ingeniøren*, d. 21/9 2007, p. 6).

[51] Graff, James (2007): *Fight for the Top of the World,* in *TIME*, vol. 170, no. 14; Anonym (2007): *Drawing lines in melting ice* in *The Economist*, vol. 384, no. 8542, p. 51*;* Nielsen, Ole B. (2009): *NATO og Rusland i konflikt om Arktis' energiressourcer,* in *Berlingske Tidende*, 31/3 2009, 1st section, p. 17.

[52] Kruse, Simon (2007): *Rusland vil have fingre i Nordpolen,* in *Berlingske Tidende*, 26/7/2007, 1st section, p. 18.

[53] Borgerson (2008).

[54] Kraska, James (2007): *The Law of the Sea Convention and the Northwest Passage*, in *The International Journal of Marine and Coastal Law*, Vol. 22, no. 2, pp. 257-281.

[55] Borgerson (2008)

[56] Jakobsen, Peter V. (2009): *Rusland er ligegyldig – fuld fart frem*, in Mortensen, Hans (ed.) (2009): *Helt Forsvarligt? Danmarks Militære Udfordringer i en usikker Fremtid*, Copenhagen: Gyldendal, pp. 44-45.

[57] De Angelis, Francesco (2008): *The Russian Military Spending: Modernization Not Rearmament*, in *Transition Studies Review*, vol. 15, no. 3, pp. 588-600.

[58] Nuclear weapons thus have very special properties in relation to conventional weapons and are extremely difficult to use in low-intensive conflicts. But they imply a certain political power that Russia could use in an Arctic context. (Jervis, Robert (1989): *The Meaning of the Nuclear Revolution – Statecraft and the Prospect of Armageddon*, Ithaca: Cornell University Press, pp. 1-9).

[59] Young, Oran B. (2009): *Whither the Arctic? Conflict or Cooperation in the Circumpolar North*, in *Polar Record,* vol. 45, no. 1, p. 74.

[60] The International Boundaries Research Unit (2008): *Maritime jurisdiction and boundaries in the Arctic region.* Located 15/4/2009 at the web site address: http://www.dur.ac.uk/resources/ibru/arctic.pdf.

[61] Own calculations based on the United States Geological Survey (2008) and the International Boundaries Research Unit (2008).

[62]There are naturally resources other than oil and gas, but this is still the primary resource and provides a good indicator of development.

[63] Herz, John H (1951). *Political Realism and Political Idealism*. Chicago University Press.

[64] It is also remarkable that Russia has backed up an institutionalisation of Arctic conditions. Russia is thus a cosignatory of the Ilulisat Declaration and an active participant in dialogue forums and research collaboration with other Arctic states – including research collaboration that aims to support the claims of these states with regard to UNCLOS (Convention on the Law of the Sea: *The Ilulissat Declaration*. Located 27/4/2009 at the web site address: http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf)

[65] ECON (2007), pp. 5-6.

[66] Christensen (2009).

[67] It is naturally extremely difficult to come up with precise estimates for employment, but the estimate below indicates that the figure provides an idea of the direct significance of these industries for the composition of employment. Based on estimates from the Danish Raw Materials Directorate (2004) more than 100 people are employed in the operation of each oil field, while their establishment employs 120 people per field. In this scenario we assume that three fields are in operation and that four are being established. This give a total of 780 employees, which corresponds to 2.6 per cent of the existing Greenland workforce of 28,000 people (Home Rule Commission (2008)). ALCOA estimates that the aluminium smelting plant in Maniitsoq will employ more than 600 people (ALCOA: *Project Background.* Located 26/2/2009 at the web site address: http://www.alcoa.com/greenland/en/proposed_smelter/project_background.asp), which corresponds to 2.1 per cent of the workforce. Where the mining industry is concerned, the point of departure can be taken in one of the exploitation licences (the other is the Nalunaq gold mine which is now closed down) and five of the exploration licences (there is another licence, but there are no employment projections for this as yet), which were issued in 2008, to gain an idea of the employment prospects in the mining industry. This concerns an olivine mine in Fiskegjord with 50 employees, a ruby mine in Qeqertarsuaatsiat with 40 employees, a molybdenum mine in Ittoqortoomiit with 400 employees, a lead and zinc mine in Maarmorilik with 110 employees, a eudialyte deposit (rare soil types) in Nakaalaaq with 80 employees, and a diamond mine in Sarfartoq with 500 employees (Danish Raw Materials Directorate (2008), pp. 12-16). With the point of departure in these employment projections from the Danish Raw Materials Directorate, total employment in the mining industry is just over 1,180 people, or 4.2 per cent of the workforce. Viewed overall, this means that these three industries account for more than 8.9 per cent of employment. However, this figure is necessarily vitiated by great uncertainty, but indicates that an overall employment frequency of about 10 per cent is not improbable.

[68] Danish Raw Materials Directorate (2006): *Disko Vest Udbudsrunde Fase 2 (Modeltilladelse)*, Nuuk: Danish Raw Materials Directorate, pp. 24-26. http://www.bmp.gl/petroleum/Open-Door_Model_Licence_DK-version.pdf 24/2 2009

[69] This is mitigated to a certain extent through the concessions with the companies involved taking on an obligation to prevent accidents, etc. This can be seen in the model licences issued by the Danish Raw Materials Directorate. The Danish Raw Materials Directorate: Exclusive Licence for Exploitation of certain minerals in a land area, Nuuk: the Danish Raw Materials Directorate, pp. 8-9

[70] Chief of Defence Denmark (2006), p. 11.

[71] Chief of Defence Denmark (2006), p. 53.

[72] Chief of Defence Denmark (2006), p. 53.

[73] There would be a number of linguistic advantages, for instance, in amalgamating the two commands: The working language in GLK is Danish, with the option of changing to English, and a coordination measure in Greenlandic requires an interpreter to be called in. The working language in the police force in Nuuk is Greenlandic, with the option of changing to Danish. A coordination measure in English requires an interpreter to be called in.

[74] Chief of Defence Denmark (2006), p. 53.

[75] Chief of Defence Denmark (2006), p. 53.

[76] See the Command of the Faeroe Islands, for instance: *Vellykket Coastguard-møde.* Located 6/4/2009 at the web site address: http://forsvaret.dk/FRK/Nyt%20og%20Presse/Pages/VellykketCoastGuardm%C3%B8de.aspx.

[77] New units could thus be built within a few years. Building the inspection ship Knud Rasmussen took just over three and a half years from the date the contract was signed between the armed forces and Karstensens Skibsværft in December 2004 (Rasmussen, Rene (2006): *De nye inspektionsfartøjer til Nordatlanten tager form,* in *Søværnsorientering,* vol. 36, no. 4, p. 16) until the ship arrived in Greenland for the first time in March 2008 (Kristensen, Astrid B. (2008): *Tilfreds besætning på Knud Rasmussen*, in *Søværnet,* vol. 38, no. 3, p. 24). However, a less easy barrier to overcome is whether the necessary crews can be trained to operate the units. An increase in crew capacity would require very long-term planning.

[78] Unmanned aircraft are extremely robust and their development is going at a rapid pace. Greenland's Raw Materials Directorate is planning to perform an extensive survey off the coast of Southeast Greenland, for instance, with a rented drone in the summer of 2009. Drones can be used under weather conditions that manned aircraft cannot fly in, they are inexpensive to operate and if they are lost, there is no loss of human life. On the other hand, fixed-wing planes or helicopters, for instance, can carry rescue equipment or provisions that can be dropped to people in distress at sea or on land.

[79] As the assertion of sovereignty is a national task, it can only be handled by the armed forces. It is therefore meaningless to discuss whether this task can be transferred to other authorities by reordering priorities. As the security policy situation at present is not so aggravated that the armed forces operate under military preparedness, it is also difficult to find the potential for improving efficiency in this area. These two dimensions have therefore not been included in this report.

[80] This would require storing logistical supplies (e.g. fuel, spare parts, tools and weapons) and airfields that could be maintained in operative condition under extreme weather conditions. Hostile aircraft could be deployed at great heights so that weather conditions on the ground would not play any major role, while Danish aircraft might have to operate under very difficult conditions. This would make great demands on the robustness of the aircraft and on the maintenance of airfields.

[81] Petersen (2008), p. 4.

[82] The Danish Raw Materials Directorate (2007).

[83] The International Boundaries Research Unit (2008).