THE IMPACT OF CLIMATE CHANGE IN THE ARCTIC. GEOPOLITICAL ISSUES

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Abstract. Climate changes have a profound impact on the geography, economy, politics, and geopolitics of the Arctic. The five Arctic states (USA, Canada, Russian Federation, Denmark and Norway) are more and more aware of their Arctic dimension. Therefore they have tried to incorporate it into their national policies and the multilateral cooperation formats they are part of.

Climate change has generated a growing interest among the Arctic states in an increased regional cooperation. The Arctic states are trying to solve all the bilateral disputes in order to extend the exclusive economic zones beyond 200 nm (according to the Montego Bay Convention on the Law of the Sea), to exploit the natural resources of the region and to take benefit of the new transport routes.

The military exercises in the region, the review of military capabilities and the joint research and mapping expeditions are meant to strengthen the sovereignty of the countries bordering the Arctic.

Keywords: *climate change, security, Arctic, maritime boundary, exclusive economic zones*

Introduction

The Arctic is a region located in the north of the Arctic Circle and consisting of the Arctic Ocean and areas belonging to five states: Alaska (US), Yukon, the Northwest Territories and Nunavut (Canada), Greenland (Denmark), the Northern part of Norway and Siberia (Russian Federation).

The region is rich in oil and gas, gold, diamonds, iron, copper, zinc, lead, and uranium. The continuous discoveries of oil, natural gas, diamonds and gold in Alaska, Yukon or in the Northwest Territories had had serious impact on the demographics of these regions, which became more populated and experienced economic growth. Local population is represented by the Inuit community in Canada and Greenland (but Eskimos in Alaska), Saami (in Northern Norway, Sweden, Finland, and Kola Peninsula within the Russian Federation), as well as the populations from Northern of Russian Federation (Nenets, Enets etc.).

The economics of the Arctic consists of raw material exploitation (oil, natural gas, coal, ferrous and non-ferrous ores, gold, silver, diamonds, fishery, firs), being therefore extremely vulnerable to price fluctuations on the international markets. There are also small family businesses that deal with fishing and hunting.

Bilateral disputes regarding the delimitation of maritime boundaries, continental shore and exclusive economic zones

The Arctic states have several disputes regarding the delimitation of maritime boundaries, continental shelf and exclusive economic zones. In 1973 Canada and

Denmark (for Greenland) signed an agreement regarding their maritime border, except for the 875 m of Hans Island. The Hans Island is a small and uninhabited barren knoll of 1.3 km^2, located in the center of the Kennedy Channel of Nares Straits. The Hans Island is claimed by both Canada and Denmark and has become a focus of debate in both countries in the context of national sovereignty discourse, but also due to the possibility of existing oil and natural gas reserves in the area of the island (*Howard R.*, 2009).

Both Canada and US claim a sector in Beaufort Sea. US's position is that the boundary line should be perpendicular to the coast, following a line of equidistance from the coast. Canada claims the maritime boundary to be along the 141st meridian west out to a distance of 200 nm, following the Alaska-Yukon land border (according to the Treaty of Saint Petersburg (1825) between the United Kingdom and the Russian Empire which settled the boundary between the two). Therefore the two states claim an area of 24.000 km^2, which, according to Canada's National Energy Board may contain 1. 700.000.000 m^3 of gas and more than 1000.000.000 m^3 of oil (*Griffiths S.*, 2010).

Although there is a US-USSR Maritime Boundary Agreement from 1990 in the Bering Sea, the Russian Parliament has not yet ratified it. During the negotiations, the disputed area was of 15.00 square nm resulted from not agreeing which map projection to be used in drawing the boundary line of 200 nm. The 1990 agreement introduced several special areas beyond the 200 nm zone, but in which the sides ceded their rights to the opponent. As a result, the United States controlled a far larger part of the disputed area in the Bering Sea (*Kaczynski V.M.*, 2007).

Norway and The Russian Federation had until recently disputed a large sector in Barents Sea called the grey zone, with a surface of 175.000 km^2. On the 15th of September 2010, in Murmansk, an agreement between the two Arctic countries was signed, spliting the disputed area into two halfs (*Gibbs W.*, 2010; *Ministry of Foreign Affairs of Norway*, 2010).

The two countries still share differences regarding the fishing rights in Svalbard Archipelago.

Climate change in the Arctic

The Arctic experienced in 2007 an average temperature with 2°C higher than the average of the 1951-1980 period. In September 2007 it was recorded the minimum of ice extent in the Arctic: 4.3 mil. km², 39% smaller than the extent from the 1979-2000 period (*Russel J.*, 2009). September 2008 records showed a minimum in terms of volume (70% lesser than 1979 according to *Public Interest Research Insitute*, 2008), having an extent of 4.7 mil. km² (*Münich Re*, 2009*)*. There are several projections regarding the future of the ice cover in the Arctic, some scientist considering that it will completely melt in the near future: 2013 (*Byers M.*, 2009; *National Intelligence Council*, 2008), 2011-2015 (*Public Interest Research Insitute*, 2008), 2030 (*Adam D.*, 2010; *Russel J.*, 2009), while other are more optimistic: 2060 (*Zellen B.S.*, 2009; *National Intelligence Council*, 2008).

The Arctic is vulnerable to climate change. Besides the melting of the ice, the region experiences rise in temperature of Ocean waters, change in wind patterns, melting of permafrost, all of these causing a rise in greenhouse gas emissions and accentuating the climate change effects (*Zellen B.S.*, 2009). Moreover, climate change has other effects in the Arctic: floods and extreme storms in coastal areas, determining the local population to

relocate, and the species to migrate with devastating consequences for the population depending on fishing and hunting (*Zellen B.S.*, 2009).

Permafrost thaw will lead to increasing the emissions of methane in the atmosphere, which could accelerate global temperature increase. In 2003-2007, the methane released by melting permafrost rose by 31% (*Adam D.*, 2010). Estimates of methane deposits in Arctic permafrost, according to researcher Edward Schurr of the University of Florida, stands at 1.6 trillion m^3, which represents twice the amount already in the atmosphere (*Begley S.*, 2009). However, permafrost thaw will have a serious impact on the sustainability of roads, airports, dams, etc. For example, in Yakutsk, Eastern Siberia, melting permafrost has already damaged 300 structures and the airport runway. In Fairbanks, Alaska, parts of permafrost have warmed by more than 3 ° C to around -1 ° C, causing trees and land collapse (*Henson R.*, 2008).

Economic, political, and geopolitical implications of climate change in the Arctic

Climate change might open the way for new confrontations in the Arctic for access to possible reserves of natural resources and for controlling the new international transport routes.

Exploiting new natural resources

According to *US Geological Survey* (2008), the Arctic states (US, Canada, Norway, Denmark and Russian Federation) could take the benefits of 13% of the world's unexplored oil reserves - 90 bn. barrels - and of the 30% natural gas reserves – 44 trillions m^3. There are also important ferrous and non-ferrous ores and fisheries resources. The natural gas reserves are mainly located in the economic exclusive zones of the Arctic states and less in the disputed areas (*Howard R.*, 2009). The oil reserves are according to American experts mainly located in the area of Alaska, West Siberia and East of Barents Sea, Greenland coasts and Svalbard archipelago. The Beaufort Sea may also reveal oil reserves, as an extension of the oil fields from North Slope and Mackenzie Delta.

New international transportation routes and new disputes regarding the Northwest Passage

Melting of the Arctic ice opens two new international routes for maritime transport: the Northeast Route and the Northwest Passage (a network of five to seven possible routes among 19.000 islands and cliffs, but not all of them suited for larger ships). The Northwest Passage is with 7.000 km shorter than the route through the Panama Channel. Moreover, through the Northwest Passage larger ships may pass comparing with Panama Channel (*Howard R.*, 2009). The Northeast Route shortens with 40% the journey from Hamburg to Japan through the Suez Channel (*Münich Re*, 2009). The first ships passed through the Northwest Passage in 2000, while the Northeast Route was first completely crossed in the summer of 2002. Both routes were simultaneously open for crossing in the summer of 2008 (*Zellen B.S.*, 2009; *Münich Re*, 2009).

Using these two new routes in the future will shorten the trip time, will facilitate the use of larger ships and will diminish the transport costs. At the same time, investments will be needed in order to create the necessary facilities (new and larger ports, facilities for

handling, maintenance, storage) and the early-warning and rescue structures. Moreover, *Natural Resources Canada* estimates that due to climate change, navigation in the Northwest Passage will become more difficult (*Byers. M.*, 2009).

Canada claims that the waters of the Northwest Passage are internal, giving therefore Canada the right to transit and to regulate and control transit in those waters (enacts fishing and environmental regulations, fiscal and smuggling laws, laws for the safety of shipping, but also closing the passage). US with the support of most European states claim that they are international straits, connecting to free seas (Atlantic and Arctic Ocean), therefore offering free vessels the right to transit the passage. The US has difficulties in defending its thesis, since in the period 1902-1984 only 22 foreign vessels have completely transited trough the Passage (*Howard R.*, 2009).

In 1970, Canada adopted the *Arctic Waters Pollution Prevention Act* enacting strict environmental and safety regulations within 100 nm from Canadian coastline, in contradiction with the international laws at that time, which did not recognize any right of the state beyond the 12 nm of territorial waters. Canadian diplomacy achieved a great success at Montego Bay in 1982, when it succeeded in including a reference of the ice-covered areas, which allows the state to apply stricter regulations in the exclusive economic zones than the international regulations (Article 234) (*Andersen A.*, 2009) and the right of the littoral states to impose regulations against maritime pollution on a distance of 200 nm. In July 2009, *The Arctic Waters Pollution Prevention Act* was also modified in this regard (*Byers. M.*, 2009).

There have been several tensed episodes regarding the status of these waters: in 1969, a US oil tanker crossed the Passage, which raised the protests of ecological organizations and of Canadian authorities which invoked the *Arctic Waters Pollution Prevention Act*; in 1985 the US icebreaker Polar Sea passed through from Greenland to Alaska, having before informed the Canadian authorities without asking for permission to cross as US had claimed to not being legally required to (the diplomatic incident led to signing in 1988 the *Arctic Cooperation Agreement*, which had solved only the crossing of US vessels through the Passage and not the sovereignty issues).

The highest security risk for Canada is the use of the Passage by terrorist and organized groups for arm, drugs, and human beings trafficking if the unclear status of the Passage is being prolonged. In this regard, it might be in the interest of the US that the Passage is declared Canadian internal waters, so that the Canadian authorities impose and exert stricter regulations (*Byers M.*, 2009).

The dispute regarding the sovereignty over the Northwest Passage has implication for the Russian Federation as well, since the Moscow authorities claim, in the National Security Strategy, that the Northeast Route is an internal route within the national transport system of the Russian Federation.

New disputes among Arctic states over exclusive economic zones

According to the United Nations Convention on the Law of the Sea (Montego Bay, 1982), no state owns the Arctic. Each littoral state is entitled to 200 nm exclusive economic zone, which can be extended to 350 nm based on scientific evidence showing the natural continuation of the continental shelf (or another 100 nm if the depth is greater than 2,500 m). The request for extension of exclusive economic zone can be done through

a formal request within ten years after the Convention on the Law of the Sea was ratified. Norway ratified UNCLOS in 1996, Russian Federation in 1997, Canada in 2004 and Denmark in 2004. US have not ratified UNCLOS yet. Only the Russian Federation and Norway formalized their claims in the Arctic in 2001 and 2006 at the Commission on the Limits of the Continental Shelf. In some areas of the Barents Sea and Norwegian Sea, there are overlaps between the claims of the two coastal States.

The Russian Federation issued claims on the Lomonosov and Mendeleev ridges to be regarded as a natural extension of its continental shelf. Commission issued a recommendation on 27 June 2002, urging Moscow to submit a revised application.

Norway requested in 2006 the extension of the continental shelf and exclusive economic zone with an area of 250,000 km^2 in three regions: the Loop Hole in the Barents Sea, north of the Kola Peninsula, west of Novaya Zemlya, and south-west of Svalbard, Basin Western Nansen in the Arctic Ocean, Banana Hole). The Commission issued on 27 March 2009 recommendations favorable to the extension of the continental shelf with an area of 235,000 km^2 in the Western Nansen Basin area and requested Oslo to discuss the delimitation of the other sectors with the Russian Federation, Iceland and Denmark (*Barents Observer*, 16 June 2006).

Canada and the U.S. are conducting geological survey in order to submit a request to extend their exclusive economic zones (*Zellen B.S.,* 2009). In summer 2008, Canada and the U.S. developed a joint expedition for mapping the ocean floor to demonstrate that the Lomonosov ridge is a natural continuation of the continental shelf of North America (*Zellen B.S.,* 2009). In turn, Denmark claims that the Lomonosov ridge is an extension of the continental shelf of Greenland. LORITA-a Danish project (April-May 2006) included the research expedition LOMOROG (August-September 2007), with the Danish icebreaker *Odeon* and the Russian *50let Pobedy*. There were several Canadian-Danish joint expeditions in March 2006 and March 2009 for exploring the Lomonosov Ridge and for making measurements of ice surface.

Strengthening sovereignty in the Arctic

The Arctic states are becoming more and more concerned about the Arctic and, therefore, they have recently revised their security strategies in order to include it or have elaborated distinct strategies for this area.

In May 2007, the Russian Federation established the Arctic National Council, led by the Prime Minister, aimed at shaping policy guidelines to safeguard Russian interests in the Arctic. (*Shaffer B.,* 2009). The Russian Federation has already included in the new "National Security Strategy 2020" (May 2009) the likelihood of a military conflict in the Arctic. Russian Federation does not exclude the use of military force in conflicts on resources at its borders, although, through the voice of its Foreign Minister, Serghei Lavrov, announced that it does not intend to militarize the region (Arctic Council, April 2009, Norway). The Russian authorities outlined in September 2008 in document entitled "Principles of State Policy of Russian Federation in the Arctic by 2020" the policy guidelines for this region: a separate military force designed specifically for this region and the subordination of the Coast Guard to the Federal Security Service, aiming at combating terrorism, trafficking and illegal immigration, as well as at protecting of natural resources.

To mark the growing interest for the Arctic, on 18 June 2007, the Russian Federation *ARKTIKA* expedition planted a flag on the ocean floor (next to the North Pole).

Moscow is also concerned with the development of technology for exploitation of hydrocarbons in extreme Arctic conditions. Thus, the government has announced the construction of a new oil platform in the western region at Prirazlomnoye, to become operational in 2011, being the first in the world capable of operating at -50 ˚ C (*Breazu S.*, 2009; *Harding L.*, 2009).

The new U.S. regional strategy for the Arctic (*Arctic National Security Directive*), released on the 9th of January, 2009, reflects an increased national security interest in comparison to the previous document from 1994. There are seven areas of U.S. policy in the Arctic: national security, international governance, expansion of continental shelf and the boundary delimitation, scientific cooperation, maritime transport, economy and energy, environmental protection and conservation of natural resources. The new strategy gives special importance to the Eskimo communities (similar to that of 1994) and international actors (*Zellen B.S.*, 2009).

The strategy recommended the ratification of UNCLOS, as a form of protection and promotion of the U.S. interests in the Arctic. In 2008, the U.S. conducted a military exercise - *Northern Edge*, where 5,000 troops took part (*Zellen B.S.*, 2009).

Canada launched in July 2009 the Strategy *Our North, Our Heritage, Our Future*, which intends to strengthen its sovereignty over the rich resources in this area and over the maritime routes. The strategy takes into account the increase in personnel (*Canadian Rangers*) with 900 people, the establishment of an an army reserve unit in Yellowknife additional to the *Canadian Rangers* (already inaugurated by Prime Minister Harper in August 2009). The strategy also envisages the economic development zone, with a new development agency (*CBC News*, 26 July and 17 August 2009).

At the same time, Canada has lately intensified its actions targeting this region. Thus, on July 9, 2007 Canada announced the purchase of a new fleet of eight patrol vessels for the North region, the establishment of a training base and the revitalization of the Canadian deep sea port of Nanisivik, located at the entrance to the Northwest Passage (old mining location for copper and lead exploitation) (*CBC News*, 26 July and 17 August 2009). Ottawa has also begun to monitor traffic through the Northwest Passage (*Zellen B.S.*, 2009). Prime Minister Stephen Harper participated in the summer of 2009 in a military exercise intended to demonstrate Canada's sovereignty in the neighboring region of Baffin Island (at the entrance to the Northwest Passage) - *Operation Nanook* (700 soldiers involved - land and sea forces: three ships and a Submarine) (*CBC News*, 17 August 2009).

The Norwegian Strategy (*New building blocs in the North*) launched in March 2009 is a reinforcement of the former *North Strategy*, launched in December 2006, which only aimed at ensuring a sustainable development of the region (based on three principles: the presence, activity and knowledge). The new strategy includes concrete measures for priority areas, strengthening maritime surveillance, emergency preparedness and security, fostering sustainable use of oil resources and green resources, developing knowledge about the implications of climate change, infrastructure development, preservation of culture and lifestyles of indigenous peoples etc. The strategy also provides a more

dynamic definition of the High North, giving him synonymous with the circumpolar Arctic region (not just the Barents Sea region, as was shown in the 2006 Strategy).

Strengthening the Arctic cooperation

The Arctic is characterized by intensive collaboration between indigenous communities, local governments and NGOs. Cooperation is based on traditions and networks of communication between the indigenous populations. There are strong connections between communities of indigenous people, which are particularly important in reducing tensions in the Arctic. The Inuit Circumpolar Council (formerly the Inuit Circumpolar Conference), created in 1977, is a nongovernmental organization representing the 150,000 Inuit population, acting for their rights, as well as for the strengthening and development of Inuit culture. This is partly connected with the cooperation at governmental level. By increasing cooperation the regional identity is being reinforced (*Arctic Human Development Report*, 2004).

The beginnings of the Arctic intergovernmental cooperation are reflected in bilateral agreements on scientific cooperation and environmental protection of the 80s between the USSR and other Arctic nations. In October 1987 the Rovaniemi Process was created and in 1991 Arctic Environmental Protection Strategy (often referred to as the Finnish Initiative). The Arctic Council has continued the Strategy, being established in 1996 for cooperation and coordination of environmental protection, and gradually, for ensuring the sustainable development in the Arctic, with the involvement of the indigenous population. This body brings together Canada, Denmark (including Greenland and Faroe Islands), Finland, Iceland, Norway, Sweden, Russian Federation, and the United States. In addition, permanent participants are the organizations of the indigenous communities. Observer status have a number of countries (France, Denmark, Poland, Spain, Netherlands, and United Kingdom), international organizations (such as UNDP, UNEP, and Nordic Council) and NGOs. The Arctic Council has no legislative or regulatory power. It is an international body with advisory function, providing governments with solutions to common problems. The sensitive topics are not found on the Arctic Council's agenda, such as security policy or use of natural resources, particularly marine mammals. There are discussions about transforming the body into an international organization to represent the "voice of the Arctic" (*Arctic Human Development Report*, 2004).

The Barents Euro-Arctic Region, established in 1993, is an international forum for bilateral and multilateral cooperation. The founding document - *Kirkenes Declaration* - is not an international treaty. The members are: Norway, Sweden, Denmark, Finland, Iceland, Russian Federation and the European Commission. The cooperation is focused on practical problems of the border region between the Nordic countries and the Russian Federation. The areas of cooperation are: environmental protection, economic cooperation, science and technology, regional infrastructure, culture, tourism, people-to-people. From the perspective of diminishing the tension in the region, this form of cooperation can be regarded as a success (*Arctic Human Development Report*, 2004).

In January 2009, NATO held a seminar in Iceland (*Security Prospects in the High North*) to discuss the security situation in the North, addressing the climate change that affects the Arctic. NATO Secretary General Jaap de Hoop Scheffer said that NATO's

interest for the region is not the result of a security threat, but of a change occurred in the region, that of the ice melting. NATO Secretary General addressed the opening of new transport routes for vessels and the increasing environmental hazards. NATO's contribution in this area can be in the field of search and rescue operations. However, given the role undertaken by the Alliance for ensuring energy security of the Euro-Atlantic area, NATO could be involved in: the protection of critical infrastructure, strengthening the regional cooperation and providing intelligence (*NATO News*, 2009).

According to the NATO Secretary General, Jaap de Hoop Scheffer, NATO recognizes the central role the Arctic Council plays in the regional cooperation, but believes that some issues regarding the High North can be addressed within the NATO-Russia Council. The NATO Strasbourg / Kehl Summit Declaration (April 2009) includes a paragraph on the North for the first time since the end of the Cold War, without an explicit definition of the possible areas of involvement for the Alliance.

The concern expressed by the Alliance for the High North is due, in most part, to the efforts of Norway. In June 2009, Oslo announced that the operational command center moved from Stavanger to Reitan (located in northern Norway, above the Arctic Circle), arguing that the relocation is consistent with the increased interest of government for the Arctic (*Rozoff R.*, 2009).

The European Union interest for the Arctic has intensified after the Report of March 2008 from the European Commission and the High Representative for Common Foreign and Security Policy, Javier Solana, which showed that climate change affected the geostrategic dynamics of the Arctic, with possible consequences for international security and stability. Although the Northern Dimension, founded in 2000, has addressed issues of concern for the Arctic, the European Commission and the European Council consider it necessary to formulate a policy for the Arctic, along with playing a role more actively in this area, since new challenges arise at an increasing rate.

On 20 November 2008 the European Commission presented its Communication "The European Union and the Arctic region". The goals set by the Commission for an Arctic policy are: protecting and preserving the Arctic in unison with its population; promoting sustainable use of resources; contributing to enhanced Arctic multilateral governance (on the basis of the UN Convention on the Law of the Sea).

The Foreign Affairs Council (8 December 2008) adopted Conclusions on the Arctic, which aims to gradually formulate a policy for the region (thus approving the objectives set by the Commission). The Council proposes that the EU's future strategy for the region should rely on: the international community to effectively implement appropriate measures to limit climate change to preserve the unique character of the region, strengthen the implementation of bilateral agreements and arrangements, at regional and international level, especially UNCLOS, activities relevant regional bodies - the Arctic Council, the International Meteorological Organization, UNEP, maintaining the region as an area of peace and stability.

Conclusions

Climate changes have a profound impact on the geography, economy, and geopolitics of the Arctic. Many scientists have spoken about an imminent *Age of the*

Arctic, which was foreseen three decades ago by the former Governor of Alaska, Walter J. Hickel (*Zellen B.S.,* 2009).

The Arctic states should consider solving all the sovereignty issues in the Arctic in order to be able to exploit the natural resources in the region. It is possible, that due to the impact of climate change in the Arctic, to see this region as becoming more and more important, from a periphery to a "new Mediterranean Sea" of the 21st century: an area of increased trade flows and strategic relevance.

The Arctic states are more and more aware of the Arctic dimension of their geography, trying to include it in their national strategy and policies and in the multilateral formats they are part of. Moreover, other states (notably China) have showed special interest for this area.

On short term, the impact of climate change has involved a militarization of the region, the Arctic states trying to consolidate their position in the region. One can conclude that the Arctic states have acted in the former Cold War logic, where a supplementary arming adds a plus in security. But it is highly unlikely that there will be open conflicts or great hostilities in the Arctic, UNCLOS providing the rules and procedures to manage most of the disagreements. The Arctic states will act towards solving all their bilateral sovereignty disputes, in order to take the benefits of the natural resources from the region (the recent agreement between Norway and the Russian Federation is a proof in this regard). Possible military actions, military capabilities rearrangements, common research and mapping expeditions have the aim of consolidating sovereignty in the Arctic.

In order to avoid a prisoner dilemma and not to transform the Arctic in a new confrontation area, collaboration and coordination at all level are required. The Arctic cooperation formats have consolidated, while other regional organizations have shown interest for this area (European Union and NATO).

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