

The High North: Opportunities and Barriers of the Economic Dimension

Ryszard Czarny¹

Department of Political Science, Faculty of Social Science at University of St. Cyril and Methodius, Trnava

The High North: Opportunities and Barriers of the Economic Dimension. The economies of the High North have a series of common features which differentiate them from the economies of the current world. It is a region of changes experiencing the consequences of global processes and implications of competition for access to not only current but the future potential resources where the increased global expectations as regards exploration of the Arctic's natural resources on an industrial scale will be accompanied by the growing environmental and human cost. The key challenge here seems to be reconciling economic activities and environment integrity.

Key words: *Arctic; exploitation of natural resources; growing environmental and human cost; mixed economy*

Severské štáty: Príležitosti a bariéry ekonomickej dimenzie. Ekonomiky najsevernejších štátov majú niekoľko spoločných rysov, ktoré ich odlišujú od ekonomík súčasného sveta. Vzhľadom na to, že danom regióne dochádza v dôsledkoch globálnych procesov a v dôsledkoch hospodárskej súťaže pre prístup k budúcim a potenciálnym zdrojom, rastie aj zvýšené očakávanie v kontexte z ich výskumu. Pokiaľ ide o prieskum prírodných zdrojov Arktídy je sprevádzaný rastúcimi nákladmi na ekologický a ľudský potenciál. Kľúčovou úlohou sa tak zdá byť zladenie hospodárskej činnosti a integrity prostredia.

Kľúčové slová: *Arktída; využívanie prírodných zdrojov; rastúce náklady na životné prostredie a ľudský potenciál; zmiešaná ekonomika*

Introduction

The world of the North can be truly fascinating. This yet not fully explored realm region is an area of great hope and in numerous cases also of consequences and challenges difficult to identify or predict. They assume a very special significance as they concern the vital zones of our globe in which the consequences of what is happening may become an extremely complex combination of opportunities on the one hand and contemporary threats on the other. In other words, they may impact international relations on a scale greatly surpassing the interests only of our hemisphere.

¹ Address: prof. Dr. Ryszard Czarny, PhD., Department of Political Science, Faculty of Social Science at University of St. Cyril and Methodius in Trnava, Bučianska 4/A, 917 01 Trnava, Slovak Republic. E-mail: ryszard.czarny@ucm.sk

This region is the European High North, and the Arctic in particular. It is beyond doubt one of the key areas of the global system, in which the melting of ice and permafrost seem to open new maritime transport routes and to allow access to the previously unavailable deposits of natural resources. This creates a potential source of disputes or even conflicts in the process of establishing the ownership of natural resource deposits and the delimitation of the boundaries. Hence the area has been extremely active and it is characterized by even a certain nervousness of the states of the region.

Because of the growing world demand for energy and, and consequently, the control over its deposits and resources, for the past two or even three decades the matters of energy security (Czarny 2009a: 59-65) have occupied not only the minds of scientists but also and politicians responsible for the security and foreign policy of individual states.² All that springs from the fact that, among others, high energy prices on the one hand, and technological advances on the other, made exploitation of crude oil viable and profitable in the areas inaccessible before.

All of the above is inextricably linked with today's world of global economy which has become much more flexible and open, and seemingly self-regulating. It is a reality which presents us with a full range of new opportunities but at the same time poses new enormous challenges.

Therefore, following the theme of challenges, it seems to be interesting to attempt the task of characterizing the High North in the context of the aforementioned great opportunities and equally significant and unpredictable but potential threats. Such an undertaking involves a necessity of tackling a series of extremely important themes, to mention only economic potential of the region and its international implications

Characteristics of the region's economies.

During WWII, the High North was treated mainly as a good location for radar stations, so the focus was primarily on the defense. Today, the issues of sovereignty and security have been enlarged by Northern states by the problem of improving the conditions of life for local people, together with environment protection, developing cultural cooperation,³ and above all the prospects of economic development.

Economy of the High North can be characterized as mixed, with a very strong extractive sector, which is to secure the subsistence for the local people. Moreover, there are significant differences not only between separate areas but

² See: *Międzynarodowe bezpieczeństwo energetyczne w XXI wieku*, (E. Cziomer – ed.), Kraków 2008.

³ More on the subject in (Czarny 2009b: 159).

also local communities where the market based on capital, skills and natural resources exploration coexists with non-market economy characterized, among others, by traditional hunting and trapping, gradually more connected with the economy of local markets.⁴

In spite of permafrost and ice, great distances and difficult accessibility, this no longer the economy functioning in isolation and therefore protected against the consequences of outside influences and decisions. It is a place where the newest technologies meet and at the same time of traditional techniques that make survival in extremely harsh climatic conditions possible (Mäenpää 2011-2012).⁵

It is a region of changes experiencing the consequences of global processes and implications of competition for access to not only current but the future potential resources where the increased global expectations as regards exploration of the Arctic's natural resources on an industrial scale will be accompanied by the growing environmental and human cost. The key challenge here seems to be reconciling economic activities and environment integrity. Only such approach will allow reaching the objective which is a sustainable socio-economic development of the region.

The economies of the High North have a series of common features which differentiate them from the economies of the current world. As said before, equally important are significant differences between regions and diversity visible in local communities of the region. Although the formal sector of the economy of the High North is perceived through the perspective of exploitation of natural resources, the local economy can be defined as mixed, where market and non-market activities all play an important role in supporting community livelihoods. Wages, traditional pursuits, and government grants and subsidies all provide important sources of income. The relative size and importance of

⁴ See: Industrial structure in Arctic regions, Available at: <http://www.regjerin.gen.no/en/dep/ud/documents/propositions-and-reports/reports-to-the-storting/2011-2012/meld-st-7-20112012-2/13.html?id=697784> (Downloaded: January 09, 2014), For Alaska, fisheries are included under agriculture, hunting and forestry. The bars for Canada and Norway are based on figures from 2007.

⁵ The division into regions in this table is the same as that used in the report *The Economy of the North*, which was drawn up by Solveig Glomsrød and Iulie Aslaksen, both researchers in Statistics Norway, in 2008. The only region of the US included in the table is Alaska. Canada: the Yukon Territory and the Northwest Territories, Nunavut. Denmark: Greenland and the Faroe Islands. Norway: Finnmark, Troms and Nordland. Sweden: Norrbotten and Västerbotten. Finland: Lapland, the Oulu region and Kainuu. Russia: Murmansk, Karelia, Arkhangelsk, Komi, Yamal-Nenets, Khanty-Mansia, Taimyr, Evenk, Sakha, Koryak, Magadan and Chukchi. The whole of Iceland is included.

the market, the non-market sector, transfers are subject to significant fluctuations in the High North. The formal sector of the economy, based on the market, is characterized by the presence of large-scale capital which by its nature allows for the capability of industrial production. The informal, subsistence based – non-market – economy can be described as based on traditional pursuits such as fishing, hunting, trapping and gathering, always in connection to the local market economy.

Economic potential of the High North

In 2002, the population of the circumpolar Arctic was estimated at approximately 10 million (Aslaksen 2008: 118) which makes up only 0.16% of the world's population. With respect to the share of global production of goods and services in terms of measured gross domestic product (GDP), the Arctic share is somewhat higher and stands at 0.44 per cent. Those numbers may give an impression that the Arctic plays only a minor role in the global economy but the picture changes dramatically if we consider the importance of raw resources (Ahlenius 2005) in the world of today.

In this respect, our area of interest has abundant natural resources, from petroleum and minerals, to fish and forests. Managing the area and coordination of action are crucial due to climate changes. Regrettably, the consequence of the Arctic's economic development is increased pollution which travels across the borders and affects global public goods like clean air, water, biodiversity and wildlife. As the Arctic regions belong to different states, coordination within this field is one of the major challenges as information is dispersed and not easily available at the circumpolar level. Hence comes the necessity of presenting a comparative overview of the scale and structure of the economy in the region. As writes I. Aslaksen, "The Arctic is made up of 28 separate regions in 8 different countries: Arctic Russia includes the Republics of Karelia and Komi, the Murmansk and Arkhangelsk Oblasts, the Yamalo-Nenets and Khanty-Mansi Autonomous Okrugs, the Taimyr and Evenkia former Autonomous Okrugs, the Republic of Sakha, the Magadan Oblast, and the Chukotka and Koryakia Autonomous Okrugs. The North American Arctic includes Alaska and the Northern territories of Canada (Northwest Territories, Yukon, Nunavut). The European Arctic consists of Greenland, Faroe Islands, Iceland and Arctic Norway (including the Svalbard Archipelago and Jan Mayen), Arctic Sweden and Arctic Finland." (Aslaksen 2008: 241).

The primary sector in the Arctic consists primarily of large-scale extraction of non-renewable resources and harvesting of renewable resources. Industry plays some role only in some Arctic regions and is treated as a secondary sector. The tertiary sector is service industries that accounts for some 50% of

economic activities. The three Russian regions of Khanty-Mansi, Yamalo-Nenets and Sakha, and Alaska generate more than 60 per cent of Arctic economic activity, made up mainly by crude oil and natural gas extraction.

Economically, Russian Arctic is based mainly on industry and to a lesser extent on the forestry. Employers connected with state administration and the military play a significant role there. The fuel sector is now a predominant source of income in Arctic Russia; in the European part it is represented by the Shtokman field mentioned in the chapter to come. Distribution of wealth is very unequal in Russian High North: in Khanty-Mansi and Yamalo-Nenets gross product per capita is considerably higher than in the other Arctic regions of Russia (McDonald – Glomsrod – Mäenpää 2006: 59-60). In the European part, engineering industry, fishing industry, shipbuilding, forest, and defense industry dominate. Agriculture plays only a negligible role because of very short growing season.

Although it may seem surprising education, health and social work is the largest industry in Norwegian High North, followed by public administration and defense. Fishing (or perhaps marine harvesting), a traditional core element of the economy of northern Norway⁶, currently contributes only 3.7 per cent to regional GDP.

The estimates talked may be, however, misleading as although fish is harvested in the north, some fishing companies have headquarters in southern Norway. As a consequence part of the income from fishing in northern waters may be registered as income in the South of Norway. Nearly half of Norwegian fishermen are employed in the North, and this region plays also a crucial role in producing energy from hydro plants (McDonald and others 2006: 57). Mining is a very important sector of economy On Svalbard, mining is an important sector; today, two Norwegian mines operate on the archipelago (Sveagrava and Gruve 7), and one Russian (Barentsburg). Norwegian mines provide main employment for the Norwegian part of the islands and play an important social role. But tourism grows definitely in importance as in 2002 it generated income 60% larger than the fishing industry. Svalbard is one of the most frequently visited places in the region mostly because of its unique natural features and watching polar bears in their natural habitat is constitutes one of the main attractions (McDonald and others 2006: 57). Extraction of oil and natural gas does not play a significant role in Arctic Norway; deposits of these resources are located on the continental shelf on the North Sea. They were discovered in

⁶ See: Norwegian maritime boundaries, Norwegian Military Geographic Service, Available at: <http://www.regjeringen.no/en/dep/ud/documents/propositions-and-reports/reports-to-the-storting/2011-2012/meld-st-7-20112012-2/5.html?id=697752> (Downloaded: February 10, 2014).

the 1960s and are of major importance in the Norwegian management of energy resources (Czarny 2009b: 145). In 2007, together with launching exploitation of natural gas in Snohvit field, located 140 km north of Finnmark province, the sector of fuel extraction gains importance. In 2000, oil deposits were discovered in Goliat field, situated in the Barents Sea, 85 km north of Finnmark. It is the first oil deposit discovered in the Norwegian part of the Arctic and the production is scheduled to begin in 2013 (Friend 2009).

Fishing is the largest industry in Greenland, out of which shrimping has a lead role. Once traditionally leading cod fishing became of minor economic value due to decline of the resource base because of overfishing. Other sectors which constitute a base for employment on the island are education, health care and social work. Sheep husbandry has gained significance in recent years due in part to a warming climate. Therefore, grass production has replaced imported fodder and created a profitable industry. It is interesting, however, that there is no private ownership of land in Greenland and the state allocates user rights to animal herders (McDonald and others 2006: 53).

The Iceland economy is mainly focused on fishing and fish processing which jointly account for 11.4% of GDP in 2002, although shrimping is also of importance. Fossil fuels are not extracted at all, but the country is rich in hydropower and geothermal potential, not yet fully utilized (McDonald and others 2006: 56). Iceland's carbon footprint is therefore minimal and it is estimated at 0.2 per cent. That is all because in the national energy balance renewable sources are of crucial importance; 10 hydropower plants and 2 geothermal power plants provide over 70% of the electricity consumed in Iceland. The great potential in this form of producing energy have induced the government in Reykjavik to attract energy-consuming industry to the island: steel and aluminum mills. Oil is used only for cars and fishing boats, but even in this area there are plans to introduce renewable resources. The objective of Icelandic authorities is generation of energy entirely from renewable energy sources by 2030, and complete elimination of fossil fuels by 2050 (McDonald and others 2006: 132).

Practically all the Arctic regions of Scandinavia, along with Iceland, Greenland and the Faroe Islands, have a GDP per capita around the average for the circumpolar Arctic. These regions all have relatively diversified economies, a relatively high standard of living and denser economic development than elsewhere in the Arctic countries.

The Russian North dominated in the Soviet times by substantial public incentives in order to attract southerners to relocate North, has for the last 10 years, undergone something of a transition period. This has resulted in limited transfers and dwindling wages, eventually triggering massive out-migration from the region.

Economies in the North are not determined by one system of capital/wage and transfer payment rationality. The formal economy is complemented by the informal economy and subsistence activities, which continue to play an important role particularly in respect of individual and family-based activities such as hunting and fishing. This sort of activity relates to or even reflects directly the traditional social and/or cultural values. The informal sector (grey area) can be in this context defined as subsistence activity which is sold (or exchanged) in a local market or between people, but is not formally registered, for example, through taxation. It is located somewhere between the subsistence economy, i.e. hunting and fishing for oneself or one's own family, and the formal economy.

Usually, products from hunting and fishing are of course usually also transferred to the formal sector in addition to being consumed privately. As such then, the informal economy provides a link between the two economic sectors. On the basis of practical solutions, one could argue that in the Arctic making a strict differentiation between the subsistence and cash-based economic sectors is more or less artificial and rather senseless since the two sectors of economy are closely linked if not intertwined. As writes Rasmus Ole Rasmussen: "Detailed analyses of the real, or formal, economy remain however rather sparse. In recent years however a more thorough analysis of the economic role of the various sectors in Greenland has been conducted. The result of this analysis also provides an indication of both the relative and the absolute magnitude of the scale of these informal economic activities in relation to that of the formal economy." (Rasmussen 2007: 16).

Natural resource exploitation is still considered to be the main economic basis for the majority of communities in the North. Nevertheless, the real base is currently provided by the so-called "third sector," i.e. services with wage work in administration, education, the social service sector etc. In practice, that is now the main income source for most families. In addition, such incomes have in fact become necessary for the maintenance of many of the traditional renewable resource activities. For example, hunters and fishermen in Greenland are increasingly dependent on supplementary or perhaps basic wage work. In a family context, women are becoming the main income resource, typically from their work in schools, kindergartens, public and private administration, or cleaning. "In Greenland 24% of hunters and fishermen have incomes from other activities. In more than 70% of households however women contribute to the family income, and in more than 50% of families the major income source is generated by women." (Rasmussen 2007: 17).

In Greenland, similarly to other Nordic countries, transfer payments have become a substantial part of the welfare economy, including funding for the maintenance of a public system of schools and health services, but also

including pensions, childcare, housing support, different types of social services, and to some extent, the maintenance of the technical, social, and cultural infrastructure. In many small settlements where out-migration has resulted in an age structure dominated by pensioners, the main cash-income source is often pensions. Simultaneously, there function several informal, private economic activities like sales to relatives, neighbors, on local markets, etc., as well sharing between families and neighbors, all of which may substantially improve the family's income. In reality, in many communities, due to small cash income, it may be of crucial importance for the continuation of hunting and fishing.

Apart from oil and natural gas, the Arctic contains other abundant mineral resources, in particular nickel, cobalt, tungsten, palladium and platinum. Many known reserves are not exploited because of their inaccessibility. Arctic Russia extracts the largest amount of minerals, but the other Arctic nations also have important extractive industries providing raw materials to the world economy.⁷

It should be also noted that global warming opens new prospects for Finland. Among others, it concerns developing Lapland, i.e. northern parts of the country known for their wilderness and extremely harsh climate. Those areas may contain unexplored and undiscovered minerals in quantities significant not only for Finland but also the world economy. Among others, these are probably deposits of iron ore, rare metals or rare earths including gold, uranium, and even diamonds. Their possible exploitation would require constructing not only mines but also roads and railways. To satisfy future needs of Lapland, next year is to see the launching of a construction of a six billion euro nuclear plant. The Lapland of tomorrow is to be an area of tourism, mining, and reindeer herding. In order for it to happen, as stated by the biggest paper in Finland *Helsingin Sanomat*,⁸ transport routes to Central and Eastern Europe are needed. One of them is to be a railway tunnel beneath the Gulf of Finland, i.e. across Estonia, Latvia and Lithuania to Poland, and then to the West of Europe.

When discussing the economy of the North, it is impossible to omit tourism which is a new and rapidly growing sector. In the future, tourism may become a very important branch of the circumpolar industry and greatly contribute to the economic development of the region.⁹ Climate changes and gradually

⁷ More on the subject (Czarny 2013: 110-126).

⁸ *Helsingin Sanomat*, January 02, 2011.

⁹ See: Zones of Marine Activity in the Arctic, *Megatrends in the Arctic – New inspiration into current policy strategies*, Report from Nordic Council of Ministers' seminar at Nordregio 29th May 2012. Nordregio Working Paper 2012:8, Available at: <http://www.nordregio.se/en/Publications/Publications-2012/Megatrends-in-the-Arctic/>, p. 85. (Downloaded: April 11, 2014).

improving infrastructure related to natural resources exploitation moving northwards, may provide access to very attractive and previously inaccessible places thus creating conditions for further development of tourism.

It appears, however, that Arctic tourism poses a number of challenges to sustainable development. On the hand, tourism represents an economic opportunity, but on the other further development of Arctic tourism also risks destroying the tourist industry's own base of attraction, by contributing to climate change and environmental degradation. As writes Dieter K. Müller from the Department of Geography and Economic History of Umeå University, "Nevertheless, tourism development is one of few livelihood alternatives for local communities – and not least indigenous peoples – that other-wise risk losing their traditional livelihoods, for example, owing to climate change. Furthermore, efforts to protect nature, such as the establishment of national parks, have created new attractions for Arctic tourism." (MISTRA 2011: 4).¹⁰

Fishing in the Arctic in 2002 amounted to around ten per cent of the world catch of wild marine fish. Apart from wild marine fish catch, the Arctic catch of shrimps and snow crab was 5.3 per cent of the global catch (2202). Farming of salmon and trout in the Arctic was around 7.7 per cent of the world production. The Arctic is estimated to have the share of the global volume of forest at some 8%. The biggest forests in the world remain in the Arctic mostly in their wild natural state because of harsh climate, great distances, and lack of infrastructure. Hence only 2.2 per cent of total wood removal, in million cubic meters, takes place in the Arctic.

Although the importance of the economy in the Arctic is now becoming more widely recognized, sufficient data is not yet available to give a comprehensive picture of the Arctic's current and future economic activities.¹¹ However, it is possible to define some of its characteristic features and list the main ones as follows:

- the Arctic economies generate a substantial share of their income from resource extraction, which means that even small changes may bring far-reaching and permanent consequences;
- a small and dispersed population poses significant problems;
- a number of challenges appears dues to climate change;

¹⁰ *MISTRA Arctic Futures in a Global Context*, A Swedish research programme in social sciences and humanities funded by Mistra, the Foundation for Strategic Environmental Research, 2011, www.arcticfutures.se, p. 4; see also: www.mistra.org, www.polar.se, (Downloaded: January 15, 2014).

¹¹ See: Arctic transportation routes – roads, shipping and pipelines, Hugo Ahlenius, UNEP/GRID-Arendal, Available at: http://www.grida.no/graphicslib/detail/arctic-transportation-routes-roads-shipping-and-pipelines_c0ee, (Downloaded: February 11, 2014).

- small internal markets and the narrow resource-based economy make the North dependable on external trade as a key source of income. At the same time, however, as shown on the map below, the High North has a great potential and possibly a great opportunity in spite of its economic vulnerability and relative instability.

It seems that the abbreviated analysis of the issue can be crowned by the following words which also serve as the summary: “A key challenge facing the North is integrating economic activity with environmental integrity, social concerns, and effective governance systems. In the context of the minerals sector, the goal should be to maximise the contribution to the well-being of the current generation in a way that ensures an equitable distribution of its costs and benefits, without reducing the potential for future generations to meet their own needs. This requires a framework for sustainable development based on an agreed set of principles and an understanding of the key challenges and constraints facing the extractive industry at different levels and in different regions and the actions needed to meet or overcome them.” (Loukacheva 2010: 99).

Energy resources

In the era of high prices of energy resources, the melting of Arctic ice and climate warming, the area under discussion is characterized by high activity and even a certain nervousness of the states of the region. It is hardly surprising if we keep in mind that according to American geologists from USGS, offshore resources of the Arctic alone are considered to possess extremely large deposits, including crude oil and natural gas reserves.

Oil and gas in the region, beneath the sea bed, were discovered as early as the 1960s. Initially, the Arctic shares of global oil and gas production were estimated at 10.5 and 25.5 per cent, respectively.

According to a US Geological Survey completed in 2000, Arctic shares of global proven and undiscovered reserves of oil and gas are around 14 and 23 per cent, respectively, which already meant that that the Arctic was one of the main players in the global energy supply. The Arctic holds 5.3 and 21.7 percent of the total proven global reserves of oil and gas.

Almost all of the Arctic proven gas reserves are found in Russia. Based on geological evidence and methods, the Arctic share was assessed at 20.5 per cent and 27.6 per cent of undiscovered oil and gas, respectively.

According to the United States Geological Survey (USGS), north of the Arctic Circle tremendously large deposits of crude oil are situated, estimated at 90 billion barrels, and deposits of some 47 billion cubic meters of natural gas, which is the equivalent of liquefied natural gas (LNG).

Figure 1: Estimates of hydrocarbon deposits in the High and Far North¹²

bbo – billion barrels of oil tcm – trillion cubic meters

Area	Source	Total Oil	Total Natural Gas
Arctic region	U.S. Geological Survey	90 bbo (estimated)	47 tcm
Beaufort Sea	Canada's Northwest Territories government	–	99 tcm (estimated)
Russian Federation (all territories)	U.S. Energy Information Agency	60 bbo (proven)	47.5 tcm (proven)
Russian Arctic Ocean territories	Russian government	3 bbo (proven) 67.7 bbo (estimated)	7.7 tcm (proven) 88.3 tcm (estimated)

Sources: U.S. Geological Survey, U.S. Energy Information Agency, Government of the Northwest Territories of Canada, and the Russian Federation.

The Arctic is estimated to contain about 13% of the world's undiscovered oil and 30% of its gas (Młynarski 2011: 278).¹³ As writes K. Urbański: “Most of the deposits are situated under the sea bed. These areas belong to the USA, Canada, Sweden, Norway, Russia, and Denmark – Greenland” (Urbański 2008). When the ice sheet rapidly melts due to global warming, it is easier to search for the deposits and with time also to exploit them. According to the afore-mentioned American survey, most of the Arctic deposits are located near enough to the land to be included into the economic zones of the region's countries.¹⁴

Exploitation of the deposits with the use of today's technology is not only possible but with the growing price of energy resources quite profitable. As mentioned before, the size of the deposits has not been definitively proven yet,

¹² Available at: <http://www.masterresource.org/wp-content/uploads/2010/07/Arctic-Reserves.jpg>, (Downloaded: May 25, 2013).

¹³ see also: Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle, Report US Geological Survey, 2008, <http://pubs.usgs.gov/fs/2008/3049>, (Downloaded: October 18, 2013). The Arctic Council estimates the energy potential of the Arctic at 5% of the world's oil deposits and 20% of gas.

¹⁴ The shelf holds rich deposits of oil, gas and minerals. How much of them the Arctic really holds, nobody knows, and the issue is a subject of heated debates.

but the sites being currently exploited already make up a sizeable portion of the world exploitation of fossil fuels.

The figures show that the global oil and gas production are at 10.5 and 25.5 per cent, respectively, and it comes from the areas situated near the polar circle or north of it, out of which some 97% of total Arctic oil and gas production takes place in Alaska and the Russian Federation. This is very much when compared to other regions of the globe, especially considering sparse population, and underdeveloped infrastructure and economy of the region.

In the European part of the High North, the greatest chance of discovering a “resource Eldorado” have the Russian Federation in the East Barents Basins, Denmark (or rather Greenland today) at the coast of Greenland, and Norway. Climate changes make access to the already discovered deposits much easier and increase the chances of finding new ones. Sea ice retreat allows for the possibility of opening new shipping routes and improving the capacity of those already existing, which additionally boosts the interest of various governments in the region and assigns a new dynamics to the old international disputes.

Potential oil and gas-bearing regions make up about 90% of the total shelf area of Russia - 5.2 - 6.2 million km². This includes 2 million km² in the Western Arctic on the shelves of the Barents and Kara Seas¹⁵ and 1 million km² on the shelf of the Laptev Sea, the East Siberian and Chukchi seas and the Eastern Arctic.

There are huge projected oil and gas reserves in the Timan-Pechora, Yenisei-Laptev, Barents-Kara and Indigirka-Chukotka oil and gas provinces, as well as the South Yamal, Lena-Anabar and Anadyr oil and gas-bearing regions.

11 fields are situated on the shelf of the Barents Sea and those include four oil fields (Prirazlomnoe, Dolginskoe, Varandeykoe and Medinskoe), 3 gas fields (Murmanskoe, Ludlovskoe and Severo-Kildinskoe), 3 gas condensate fields (Shtokman, Pomorskoe and Ledovoe) and 1 oil and gas condensate field (Severo-Gulyaevskoe). The Shtokman field alone, which is the largest in the world, contains about 4000 billion m³ of gas. In the Kara Sea there are gas condensate fields that are just as big – Leningradskoe and Rusanovskoe. There are more than 180 fields in the Timan-Pechora province. They include fountain deposits that provide up to 1000 tons of oil per day. The richest deposits of oil, gas and gas condensate have been explored in the Nenets Autonomous Region. The oil reserves of the Russian Federation are at the level of reserves of Norway, which is first in Western Europe in terms of its oil reserves. The gas reserves are at the same level as reserves in India; they are greater than those of Denmark and Germany put together and they constitute 11% of the reserves in Western Europe.¹⁶

¹⁵ There are potential hydrocarbon resources of 50 - 60 billion cubic meters on those shelves. Compare: *World Energy Outlook 2012*, Presentation to the press, London, 12 November 2012, International Energy Agency, OECD/IEA 2012.

¹⁶ Based on: *The Deposits of the Arctic*, <http://www.arctic-info.com/Encyclopedia/Rubric/The%20Deposits%20of%20the%20Arctic>, (Downloaded: February 20, 2013).

Khanty-Mansi Autonomous Region, the main oil and gas region of Russia, is one of the largest oil-producing regions in the world. Although the district makes up only 3% of Russia's territory, it has been providing 57% of oil production in the country for many years. It has more than 500 oil and gas deposits, the reserves of which are approximately 20 billion tons. Projected oil reserves are estimated at 35 billion tons. In the Khanty-Mansi Autonomous Region, there are such large oil and gas fields as Mamontovskoe, Samotlorskoe and Ust-Balykskoe. Huge natural gas resources brought international recognition to the Yamalo-Nenets Autonomous Region. It is the largest gas producing region of Russia, which produces 90% of Russian gas and 22% of the world's natural gas. The largest deposits in the world - Urengoyskoe, Zapolyarnoe, Medvezhe and Yamburgskoe will satisfy domestic and export needs of Russia in the 21st Century. In the Yamalo-Nenets Autonomous Region, there are 32 hydrocarbon fields, four of them are on the shelf of the Gulf of Ob, two in the Kara Sea and the rest on land. It is planned that three industrial zones will be created for the integrated development of hydrocarbon reserves in the Yamal Peninsula. The first to be put into the development in 2012 will be the largest field called Bovanenkovskoe. The two more should follow: Yuzhnaya and Tambayskaya. In the long term, it means that the Yamalo-Nenets Autonomous Region will keep its leading position in domestic gas production and one of the top positions in global production.

The afore-mentioned plans constitute only a part of a broader Russian program which is to continue through research in the North, which is of great importance in developing the economic potential of this region and strengthening the country's national defense. Therefore, it is necessary to create conditions that encourage investment from resource companies and provide guarantees that investments in geological exploration will be safeguarded.

In the American sector of the Arctic oil reserves on the shelf of the Chukchi Sea are estimated at 15 million barrels and gas reserves at more than 2 trillion m³. The Prudhoe Bay field on the northern coast of Alaska currently accounts for 20% of the oil production in the US. 49 oil and gas fields were discovered in the Canadian sector in the delta of the Mackenzie River and 15 fields on the Arctic Islands. The largest gas reserves are located off the coast of Alaska and Siberia.

Currently, there is no oil and gas extraction in Greenland. Estimates say that offshore northeastern Greenland alone holds up to 31.4 billion barrels of undiscovered oil. A joint research, organized by the American and Danish geological services, shows that it is a very difficult area for exploitation: (the distance to the sea bed is more than 500 meters) and weather conditions are extremely harsh. Between 1975 and 2000 it was free of ice on the average only for some 150 days in a year, and the rest of the time the sea water was covered with floating blocks of ice reaching some three meters in thickness. All of this made any exploitation practically impossible. Fortunately for the oilers, the period of ice-free water grew in recent years to 180 annually. This in essence means that together with further warming of Greenland exploitation on the industrial scale can be soon

possible. The main obstacle remain the afore-mentioned weather conditions which call for the use of special oil rigs resistant to ice, which in itself is a huge technological challenge. The stakes are very high as access to the deposits means not only huge potential profits but also in an attractive location stable politically and uncontested by any other country. The first attempts at exploitation on the calmer western waters of the island were made in 2010 by the British oil company Cairn Energy, which already met with protests of ecologists fearing their impact on the environment. They were continued in 2011 using the state-of-the art drillships and partially submerged platforms (Kubiak 2012: 121-122).

In the High North, some 145 kilometers off the Norwegian coast near the city of Hammerfest, there is a StatoilHydro fully-automated plant. From a depth of more than 300 meters below Barents Sea level, it extracts gas which is pumped through a 70-centimeter pipeline from the ocean floor and transported to a terminal on land. There, it is cooled, liquefied and loaded onto tankers. The platform is called "Snow White" (*Snøhvit*) and it is an experimental, completely automated installation for extracting gas from the depth of the sea. If the prototype proves successful, more installations like that will extract gas in great quantities from the Arctic Ocean.

April 2011 brought the information that Norwegians have the new prospect of huge oil and gas reserves under the Barents Sea. The Norwegian Ministry of Petroleum and Energy, in a communique issued on April 1, 2011, as the biggest deposits discovered in the last decade.¹⁷ They are situated some 200 kilometers from the shoreline of Norway and were discovered through exploration drilling from a special drilling platform built especially to operate in the extreme circumpolar conditions. Water depths reach there about 370 m and oil fields and gas deposits are located at 880 meters beneath the sea bed. According to the estimates of the Norwegian authorities, the discovered field holds some 250 million barrels of oil equivalent worth over 21 billion euro. In turn, the consortium led by the state-owned Statoil, which actually made the discovery, estimates that the field holds half a billion barrels. The drilling will be continued to a vertical depth of 2200 meters below sea level.

Statoil and its partners¹⁸ have chosen a development concept for the twin fields of Skrugard and Havis discovered in the Barents Sea. It includes a floating production unit with a pipeline to shore and a terminal for oil from the Skrugard field at Veidnes outside Honningsvåg in Finnmark. The exploitation is scheduled to begin in 2018. As mentioned before, in 2011 – 2012 Statoil and its partners discovered Skrugard and Havis, which are two independent structures within the same license and represent the Skrugard field development. According to the estimates, 400-600 million barrels of recoverable oil have been proven in this area. "The decision to bring Skrugard oil ashore at Veidnes is a key element of the

¹⁷ It takes usually 10 years from making a discovery to production of oil and gas.

¹⁸ Partners in the project are Statoil operator (50%), ENI 30%, Petoro 20%.

further development of Norwegian oil and gas industry. This may spark off a new industrial era. This concept choice will facilitate further exploration and help make any future discoveries profitable," (Pettersen 2013).

The Skrugard and Havis assets will have a common infrastructure. Production from Skrugard and Havis will be tied in to a semi-submersible floating installation through a subsea production system located in about 380 meters of water. The production is estimated at almost 200,000 barrels of oil equivalent per day. The oil will be transported through a 280-kilometer pipeline from Skrugard to Veidnes outside Honningsvåg. It will be piped directly to an oil storage facility, i.e. two mountain caverns. The oil will be sent from there in a pipeline to the quay for transportation by tankers. Some 50-100 crude tankers per year are estimated to call at the terminal. In view of the above, Northern Norway, step by step, is becoming the country's next big petroleum region.

Conclusion

We often say that the European High North, and the Arctic in particular is unique, which it is, but we mean it in relation to its physical characteristics. However, from the point of view of generally understood social science, it is also exceptional because of its sui generis political, economic and social system.

In general, it could be stated that the growing interest is driven by new economic opportunities in commercial maritime transport, development of oil and gas deposits, mining, fisheries, and tourism resulting in strengthening of economic and geopolitical relations between the Arctic and the rest of the world. Many observers consider this development a source of potentially escalating conflict because of the competition for control over the natural resources in the region. Others are very concerned with the consequences of the progressing integration of the Arctic with the global system of advanced industrialized society whose current lifestyle cannot possibly be considered sustainable. It seems also quite clear that the Arctic cannot follow its own traditional way of development independent of the global power system.

Consequently, it is virtually impossible to predict the pace and trajectory of such a development. Furthermore, there exist strong grounds to support the statement that the Arctic of today is at a turning point or at the transition period, as often presented by scientists. According to them, the fundamental challenges in extraction of deposits are today's technological and logistical constraints and deficiencies which, once overcome, together with the intensification of extractive activities, will still increase the risk of ecological disasters and may threaten the living conditions of the indigenous peoples. In order to prevent this, close cooperation is necessary on research projects and supervision of extraction activities, as well as technological and financial collaboration. The engagement of the international business, NGOs, local social organizations, academia and experts will prove indispensable in the matter.

There is a necessity of a comprehensive approach to the issue which would include humans, the environment, economic development, politics and governance.

The policy regarding the Northern Regions must be first of all based on the cooperation and dialogue with other Arctic states. This in turn calls for an immediate need of developing and accepting a joint plan of action which I would call a strategy for the High North. Although the framework, being developed today, concerns mainly the existing natural resources, such a foundation should include issues other than oil and gas only. It should incorporate sustainable management of fish resources, environmental monitoring system and research concerning it, strengthening and enlarging cooperation with Russia, protection of the indigenous peoples, and many others. It is also of utmost importance that apart from extending the scope of issues in the Northern Regions to land areas (until then only sea areas tended to be included), similarly to the Norwegian government, the problems need to be discussed in various fora like the EU, UN, NATO, regional organizations, and through consultations with the US and Canada.

REFERENCES

- AHLENIUS, H.: *Development of fossil fuel resources in the Arctic, 2005*, UNEP/GRID-Arendal, Available at http://www.grida.no/graphicslib/detail/development-of-fossil-fuel-resources-in-the-arctic-2005_118e (Downloaded: February 10, 2014).
- AHLENIUS, H.: Arctic transportation routes – roads, shipping and pipelines, UNEP/GRID-Arendal, Available at: http://www.grida.no/graphicslib/detail/arctic-transportation-routes-roads-shipping-and-pipelines_c0ee, (Downloaded: February 11, 2014).
- ASLAKSEN, I.: Presenting the Economy of the North. In: *The Political Economy of Northern Regional Development*. Vol. I, Yearbook 2008, Copenhagen, p. 118.
- Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle, Report US Geological Survey, 2008, Available at: <http://pubs.usgs.gov/fs/2008/3049>, (Downloaded: October 18, 2013).
- CZARNY, R. M. (a): *Dylematy energetyczne państw regionu nordyckiego*, Kielce 2009, Scandinavium, 216 p. ISBN 978-83-897-1435-0.
- CZARNY, R. M. (b): *Energy Dilemmas of the Nordic Region Countries*, Kielce 2009, Scandinavium, 214 p. ISBN 978-83-897-1437-4.
- CZARNY, R. M.: *The Imperative High North: Opportunities and Challenges*, Trnava 2013, pp. 110-126. ISBN 978-80-716-5925-9.
- Estimates of hydrocarbon deposits in the High and Far North, Available at: http://www.master_resource.org/wp-content/uploads/2010/07/Arctic-Reserves.jpg, (Downloaded: May 25, 2013).
- GLOMSRØD, S. – ASLAKSEN, I.: Report – *The Economy of the North*. Statistics Norway, Oslo 2008.
- FRIEND, P.: *Eni Approved for Goliat Development, First Oil Field in Barents Sea*, Rigzone, May 08, 2009, Available at: http://www.rigzone.com/news/article.asp?a_id=75931, (Downloaded: August 02, 2012).
- Industrial structure in Arctic regions*, Available at:

- <http://www.regjeringen.no/en/dep/ud/documents/propositions-and-reports/reports-to-the-storting/2011-2012/meld-st-7-20112012-2/13.html?id=697784>, (Downloaded: January 09, 2014).
- KUBIAK, K.: *Interesy i spory państw w Arktyce w pierwszych dekadach XXI wieku*, Warszawa 2012, pp. 121-122. ISBN 978-83-7436-292-4.
- LOUKACHEVA, N. (ed.): *Polar Law Textbook*, TemaNord 2010:538, Nordic Council of Ministers, Copenhagen 2010, p. 99.
- MÄENPÄÄ, I.: *Percentage of total employment by industry for various Arctic regions*. 2008, Meld. St. 7 (2011 – 2012), Available at: <http://www.regjeringen.no/en/dep/ud/documents/propositions-and-reports/reports-to-the-storting/2011-2012/meld-st-7-20112012-2/13.html?id=697784> (Downloaded: January 09, 2014).
- McDONALD, H. – GLOMSROD, S. – MÄENPÄÄ, I.: *Arctic economy within the Arctic Nations*. In: *The Economy of the North*, Oslo 2006, pp. 59-60.
- Międzynarodowe bezpieczeństwo energetyczne w XXI wieku*, (E. Cziomer – ed.), Kraków 2008, Krakowska Szkoła Wyższa, 332 p. ISBN 978-83-757-1001-4.
- MISTRA Arctic Futures in a Global Context*. A Swedish research programme in social sciences and humanities funded by Mistra, the Foundation for Strategic Environmental Research, 2011, Available at: www.arcticfutures.se, p. 4; see also: www.mistra.org, www.polar.se (Downloaded: January 15, 2014).
- MLYNARSKI, T.: *Bezpieczeństwo energetyczne w pierwszej dekadzie XXI wieku. Mozaika interesów i geostrategii*, Kraków 2011, p. 278. ISBN 978-83-233-3119-3.
- Norwegian maritime boundaries*, Norwegian Military Geographic Service, Available at: <http://www.regjeringen.no/en/dep/ud/documents/propositions-and-reports/reports-to-the-storting/2011-2012/meld-st-7-20112012-2/5.html?id=697752> (Downloaded: February 10, 2014).
- PETTERSEN, T.: *Statoil confirms Skrugard volumes*. February 12, 2013, Available at: <http://barentsobserver.com/en/security/2013/01/cold-war-rhetoric-worries-norwegian-foreign-minister-10-01>, (Downloaded: February 17, 2013).
- RASMUSSEN, R. O.: Women do better in wage-terms. In: *People and Politics of the Arctic*. Journal of NORDREGIO, No 4, December, Vol. 7, 2007. Available at: http://www.nordregio.se/Global/JoN/JoN%202007/JoN%204%202007/JoN%204_2007.pdf (Downloaded: October 09, 2012).
- The Deposits of the Arctic*, Available at: <http://www.arctic-info.com/Encyclopedia/Rubric/The%20Deposits%20of%20the%20Arctic> (Downloaded: February 20, 2013).
- URBAŃSKI, K.: *Droga do niedrogiej ropy. Rzeczpospolita*, July 30, 2008.
- Zones of Marine Activity in the Arctic, Megatrends in the Arctic – New inspiration into current policy strategies*, Report from Nordic Council of Ministers' seminar at Nordregio 29th May 2012. Nordregio Working Paper 2012:8, Available at: <http://www.nordregio.se/en/Publications/Publications-2012/Megatrends-in-the-Arctic/>, p. 85, (Downloaded: April 11, 2014).
- World Energy Outlook 2012*, Presentation to the press, London, November 12, 2012. International Energy Agency, OECD/IEA 2012.

Ryszard Michał Czarny professor at the Department of Political Science at Faculty of Social Science in Trnava, expert in Scandinavian issues, lawyer, political scientist; born August 13, 1949. He completed law school and received his doctorate in political science („*Regionalism in International Relations after WWII*”) at the Jagiellonian University of Krakow, Poland. He was granted his next scholastic degree in the field of contemporary political and economic relations at Nordeuropa Instytut of the University of Greifswald, Germany; full professor of humanities, researching political and economic conditions of the cooperation of the Northern European States; author of many publications, including major works on the Scandinavian countries (including: *Regionalism in international relations*”, *Die Neutralitätspolitik als Sicherheitsproblem des Königreiches Schweden*”, *Sweden in the European Union. Political and legal analysis*”, *Sweden – Poland – The European Union*”, *In the new Europe. Glossary of terms*”, *Energy Dilemmas of the Nordic Region Countries*”, *EU Northern Dimension. Development Study*”, *The Northern Spaces – Contemporary Issues*” – edit., *High North – between geography and politics*”) and numerous articles and essays on contemporary international relations. Senator of the Republic of Poland from the Kielce Constituency (1993 – 1997). Deputy Speaker of the (1993 – 1995), Minister of National Education of Poland in 1995 – 1996; Deputy Leader of the Parliamentary Commission of the Polish Congress and the European Parliament (1993 – 1995); represented Poland at many international parliamentary conferences; in the years 1997 – 2001 Ambassador of the Republic of Poland in the Kingdom of Sweden, later Titular Ambassador at the Polish Ministry of Foreign Affairs (until 2004) – Special Envoy of the Minister of Foreign Affairs responsible for Poland’s promotion in Sweden within the program of the Swedish Year in Polish international policy „Polen.nu”; in the years 2005 – 2007 Ambassador of The Republic of Poland in the Kingdom of Norway and the Republic of Iceland. The member of expert’s pool of EU Northern Dimension Institute. Entered into “WHO’S WHO of Professionals” (USA 2001), the member of Social Working Group of International Arctic Science Committee, the Presidium member of Polar Research Committee – Polish Academy of Science, the member of Political Sciences Committee – Polish Academy of Science, expert of Polar Task Force at MFA

Prof. Dr. Ryszard Czarny, PhD.
Department of Political Science
Faculty of Social Science at University of St. Cyril and Methodius in Trnava
Bučianska 4/A
917 01 Trnava
Slovak Republic
E-mail: ryszard.czarny@ucm.sk