THE IMPACT OF ENDOGENOUS FACTORS ON DIVERSIFICATION OF TOURISM SPACE IN THE ARCTIC

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Abstract

The article is aqualitative analysis aimedat explaining diversification of Arctic tourism spatial distribution in relation to endogenous factors that influence tourism in this part of the world, that is tourism resources, accessibility and infrastructure. It provides a review of tourism attractiveness features for the Arctic,which was basedon identifying the presence and concentration of favorable endogenous, tourism-related features of a studied area. Further, regional differences were compared with tourism statistics data in order to explore the role that investigated factors play in generating tourism traffic. The analysis confirms the concentration of tourism in areas easily accessible in terms of transport infrastructure and higher level of urbanization, even though less attractive in terms of natural resources. Tourist traffic is generated when there is relatively easy availability of transport, especially with the presence of ports and airports. Arctic areas that are potentially attractive due to natural resources are much less explored than those with good accessibility, but less attractive qualities. As the result of such an approach, even though Arctic is associated with more specialized tourism, it is dominated by mass tourists, looking for relatively cheaper and comfortable attractions.

Key words: *Arctic; Arctic tourism; endogenous development factors;tourism attractiveness;tourism space.*

Introduction

Tourism is a phenomenon that occurs all over the world, including most peripheral areas of the globe, such as the Arctic. This so called "last frontier" attracts travelers and explorers since XIX century (UNEP, 2007). Initially, the interest was stimulated by the desire to achieve the North Pole, cross the North-West Passage or travers Greenland. Even though,nature-based tourists and extreme-experience seekers have been present in the Arctic for years, the interest in this part of the world is nowadays higher than ever before (Hall and Saarinen, 2010). Number of tourists visiting the Arctic grows every year from around 1 million at the beginning of the '90s, up to 1,5 million at the beginning of XXI century (UNEP, 2007). In some areas visitors already outnumber the inhabitants and for many destinations tourism becomes a crucial contribution to the socio-economic development. For the whole Arctic in the last years the constant growth in the share of tourism in local and regional economies has been observed (AHDR, 2014). However, tourism activities occur with different intensity and regional variations in type and scale.

Driving force in generating tourism traffic, that may explain its spatial differences, is represented by destination's attractiveness (Mika, 2012). Hu and Riche (1993, p. 25) define attractiveness as *'feelings, beliefs and opinions that individual has about destination's perceived ability to provide satisfaction on his or her special vacation needs'*. Mayo and Jarvis (1981) additionally note that attractiveness is related to travelers' decision-making process and the individual feeling of importance as attractiveness reflects on *'the perceived ability of the destination to deliver individual benefits'*. However, this ability is influenced by the whole spectrum of factors. Within modern regional development concepts, they can be exogenous (external) and endogenous (internal) ones (Grosse, 2007). Exogenous factors related to tourism, namely those not set in the specific area, but influencing it, are, for example, shape of global economy and global tourism trends, geopolitical situation, or economic policy of a given country. Equally important are endogenous factors, that are set in individual features and resources of a given area. In the context of tourism, Rogalewski(1974) indicates such endogenous factors as: 1) tourism resources 2) tourism infrastructure and 3) transport accessibility. Similarly, Warszyńska(1999) suggests that tourism attractiveness is built by, so called, "primary" elements, that is tourism resources, as well as "secondary" factors enabling or easing taking part in tourism activities. Combination of those elements creates tourism potential (Włodarczyk, 2009). "Primary" elements are for instance landscape, climate, flora and fauna, as well as cultural heritage. "Secondary"ones are constituted by technical and organizational infrastructure (Kurek and Mika, 2007), hence they can be also called infrastructural. Those elements are observed in a given geographic space, which embraces both physical, as well as socio-economic spaces, hence it is referred to in this study as a tourism space (Kurek and Mika, 2007).

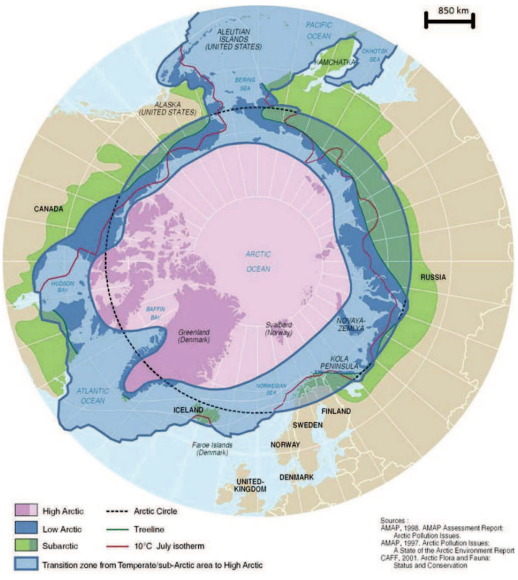
The aim of this analysis was to explain the diversity of tourism traffic in the Arctic from the perspective of endogenous factors of tourism development and the assessment of which elements of tourism space attractiveness - natural or infrastructural, to a greater extent affect tourism traffic. Thus, qualitative review of selected endogenous characteristics of Arctic space was done and results compared with tourism traffic data. Due to the complexity and scope of the two subsystems, the focus was on the elements crucial from the authors' point of view in generating tourism traffic.

The analysis shows the dominant role of infrastructure, especially transport infrastructure for tourism distribution in the Arctic. The presence of urban settlements, and related ports and airports, is a key determinant attracting tourism. Well-developed infrastructure and lower travel costs in the southern regions of the Arctic and sub-Arctic affect the concentration of tourism in these areas. For expedition tourists, infrastructure constraints are not an obstacle, but this type of tourism, generates much less traffic. Although the tourism in the Arctic is generally associated with the exploration of inaccessible and remote areas, also this part of the world is dominated by mass tourisms seeking relatively cheaper, convenient and less extreme attractions.

Study area

The definition of 'Arctic tourism' itself is relatively new in literature. First time it was used by Hall and Johnston (1995), who tried to characterize tourism in both the Arctic and the Antarctic (polar tourism), including defining its geographic scope. Geographical delimitation of Arctic tourism is, however, often arbitral, as Arctic boundaries can be drawn differently depending on the type and purpose of the research. Geographically,Arctic is most often defined as area set North of the Arctic Circle, that is 66°34'N, or lying beyond the tree line or the area where average summer temperature does not exceed 10° C (AMAP, 1998) (fig. 1).

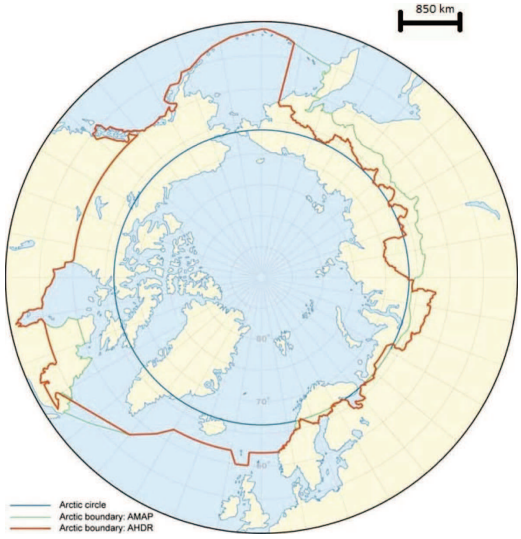
Fig. 1. Arctic delimitation – different approaches



Source: AMAP, 1998, AMAP Assessment Report Arctic Pollution Issues, AMAP, 1997, Arctic Pollution Issues: A State of the Arctic Environment Report, CAFF, 2001, Arctic Flora and Fauna: Status and Conservation (http://www.amap.no/documents/doc/amap-assessment-report-arctic-pollution-issues/68)

One of the mostly widely used delimitation is provided by Arctic Monitoring and Assessment Program (AMAP). This delimitation was delivered in AMAP report in 1998 and is still widely used in the Arctic research. This delimitation goes beyond Arctic Circle border. It includes areas of Canada, the Kingdom of Denmark (Greenland and the Faroe Islands), Finland, Iceland, Norway, the Russian Federation, Sweden and the United States, including associated marine areas. In the marine environment, the 'AMAP area' includes northern seas that extend as far south as 51.1° North (James Bay, Canada) (AMAP, 1998). Additionally, Arctic Human Development Report (AHDR) treats the Arctic a bit broader than AMAP as it encompasses all of Alaska, Yukon, Northwest Territories and Nunavut in Canada with northern Quebec and Labrador, all of Greenland, the Faroe Islands, and Iceland and the northernmost counties of Norway, Sweden and Finland, [in Russia] the Murmansk Oblast, the Nenets, Yamalo-Nenets, Taimyr, and Chukotka autonomous okrugs, Vorkuta City in the Komi Republic, Norilsk and Igsrka in KrasnoyarskKrai, and those parts of the Sakha Republic whose boundaries lie the closest to the Arctic Circle(AHDR, 2004, p. 17-18) (fig. 2). AMAP delimitation was used in this study, with references to AHDR, where its incorporation, due to administrative boundaries, was necessary.

Fig. 2. Arctic delimitations within AMAP and AHDR



Source: AHDR, 2004, Arctic Human Development Report, Nordic Council of Ministers

The accepted delimitation covers the area of 8 mln km^2 and is inhabited by 4 mln people. Within such boundaries many forms of tourism are present. Just in terms of different tourists motivations, 5 types of tourists can be distinguished in the Arctic (UNEP, 2007):

1. Mass tourists, attracted to sightseeing within the pleasurable surroundings of comfortable transport and accommodations.
2. The sport fishing and hunting tourists.
3. The eco-tourists, seeking to observe wildlife species in their natural habitats, and experience the beauty and solitude of natural areas.

4. The adventure tourists.
5. The culture and heritage tourists, who seek interaction with the lives and traditions of native people.

The main reason for traveling to the Arctic are its natural resources (Lemelin and Johnston, 2008). There is also historic and cultural tourism, related to human activities in those areas. Organization of tourism can differ depending on whether it is a cruise tourism, that is most popular form of travelling to the Arctic, or the land-based tourism. Hence, there is much regional variability in organization of tourism, its structure and trends, depending on endogenous features of a given area that influence type of tourists and tourism. At the same time, comparative statistical analysis between countries and regions is difficult due to differences in available data. Not only there is lack of comparable indicators, but also regular reporting. Alaska and Canada collect data on total numbers of visitors on macro-regional level. Scandinavian countries follow monthly trends on regional level. There is not regular and precise data regarding tourism in Russian Arctic. The statistical assessment based on available public statistical data is presented in tab. 1.

Tab. 1. Assessment of tourism traffic in the Arctic

	Region / country	Country	Number of tourists (2013)
1	Nordland	Norway	592318
2	Troms	Norway	498546
3	Finnmark	Norway	271835
4	Svalbard	Norway	107000
5	Norrbotten	Sweden	2152202
6	Lapland	Finland	978318
7	Iceland		807000
8	Greenland		81000
9	FaroeIslands		112000 (2012)
10	Yukon	Canada	345510
11	North-West Territories	Canada	76400
12	Nunavut	Canada	33378 (2008)
13	Newfoundland and Labrador	Canada	63632
14	Alaska	USA	1932600
15	MurmanskOblast	Russia	636 (only Russian Arctic National Park)
16	Yamalo-NenetsAutonomousOkrug	Russia	no data
17	KrasnoyarskyKray	Russia	no data
18	Sakha Republic	Russia	no data
19	ChukotkaAutonomousOkrug	Russia	no data

Source: own illustration, based on available public, nationalstatistic data

European Arctic

At the beginning of Arctic tourism exploration, main destinations were located in the European Arctic. However, even there numbers of visitors were relatively small and tourism infrastructure not developed. In '30 XX c. first flights over the glaciers started to be organized and in Finland the road crossing Arctic Circle was built. But it was not until II half of XX c., when Scandinavian countries accelerated economic growth, that tourism experienced real development. And nowadays European Arctic is best developed market with majority of visitors concentrating in this part of the Arctic (fig. 3). It covers Scandinavia, Svalbard, Greenland, Iceland and Faroe Islands.

Most visitors are reported on the continent that is in Norway, Sweden and Finland – from 200000 (Finnmark, Norway) to 2000000 (Norbotten, Sweden) annually. There is nature-based tourism present, as well as winter sports or city tourism occurring as well. On Iceland, number of tourists doubled since 2000 and reach 807000 in 2013, including the growth from 27000 cruise passengers in 2000 to 95000 in 2013 (Statistics Iceland, nd.). In the same year on Svalbard 107000 visitors were reported (Reiselivsstatistikk for Svalbard, 2013) and 81000 on Greenland (Statistics Greenland, nd.). Additionally, around 112000 tourists visit Faroe Islands (Kibsgaard, 2012). In European Arctic occurs both land tourism (hiking, sports, wildlife watching) and cruises. Cruise tourism encompasses both more adventurous expedition cruises, as well as big conventional ships.

American Arctic

American Arctic is rather new tourism market, despite a long history associated with the exploration of Alaska. Alaska has become a popular destination among Americans in the early XX c. During this time traveling to Europe was considered 'unpatriotic' and Alaska as 'the last frontier' attracted travelers. But it was in 1915, when short trips beyond the Arctic Circle started to be organized, and the number of visitors to Alaska started to grow significantly only in the early '90 s.

Nowadays, Alaska holds the record in cruise traffic numbers. The biggest growth occurred there between 1997 and 2008 – from 500000 to more than 1000000 tourists(CLIA, nd.). During the summer season of 2014, Alaska was visited by around 1660000 tourists, with around 1000000 on boards of ships(McDowell Group, 2014). But typically Arctic adventures, that is beyond Bering Strait are still relatively rare. In 2011, they constituted around 2% tourist traffic and each year only 1-2 expedition ships visit those areas (Hayes et al., 2013).

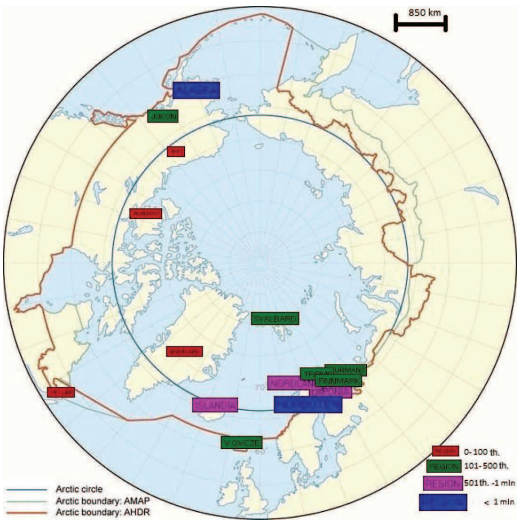
The breakthrough in the far North American tourism was first commercial cruise through the North-West Passage by MS Explorer in 1984. Since then 1 to 3 vessels were crossing the Passage. Gradually, cruises included Baffin and Ellesmere Islands, Hudson Bay and Inuit settlements around the Passage. In 2006 there were already 22 tourism vessels (Stewart and Draper, 2008). Nowadays cruises are the basis of tourism in the Arctic Canada. These are only expedition cruises up to 100-300 passengers and private vessels, so tourism numbers in the area are relatively small, however they are expected to grow in the near future(Stewart et al., 2013).

Russian Arctic

Despite the growing tourism interest, Russia remains on the peripheries in Arctic tourism development. However, Snyder and Stonehouse (2007)state that tourism in Arctic Russia is the biggest geographic expansion of the sector and World Tourism Or-

ganization ranks Russia among countries of biggest eco-tourism potential(Sevastiyanov et al., 2014). Even though, it was not until 2007 that Russian transport minister opened some of the Russian Arctic ports for foreign cruise ships an in 2009 Russian president announced establishment of Russian Arctic National Park, covering 1,5 mln ha in the Barents region. In the first season, there were 11 cruises reported in the park with 865 tourists. In 2012 there were already 1005 visitors, 636 in 2014 and 738 in 2014 (AECO, nd.). The Russian Arctic has been only recently opening to tourists, among others, by improving routes and cross-border cooperation mainly in the Barents region. The potential for future development could be an increase in the availability of transit of the North-East Passage. The first commercial cruise through this transition took place in 2008. For now, most cruises take place in the Barents region (Novaya Zemlja, Franz Josef Land, as well as expeditions to the North Pole from Murmansk) and Chukchi Sea (including cruises from Alaska).

Figure 3. Arctic delimitations within AMAP and AHDR



Source: own illustration, based on AHDR 2004 Arctic map and available public statistic data (national and regional statistics, no data for Russia)

Methodology

The ontological starting point of this analysis is a positivistic worldview in which the reality is perceived independent and observed facts, such as tourism traffic, can be measured and quantitatively described (Silverman, 2008). However, specific character of geography, which is set between earth science and humanistic arts (Wilczyński, 2011, Johnston, 2006), calls for more individual and object-based understanding. Therefore, the psychophysical paradigm was chosen for further evaluation (Taylor et al., 1987). In this paradigm tourism endogenous factors are seen as influencing humans, which are seemed passive but their actions are reflected e.g. by tourists' numbers. Statistics, thus, represent aesthetic values of general public (Taylor et al., 1987). Properties of the space are here outside the tourists, hence they exist independently and as such can be evaluated. The presence of endogenous features and their intensity was measured using available quantitative data and their contribution to tourism activities was assessed qualitatively based on researchers' knowledge and experience in the Arctic.

Threecategories of endogenous factors were selected based on previous literature review, that is: tourism resources, accessibility and tourism infrastructure. Sub-categories and specific units of evaluation were chosen by researchers based on their knowledge and literature review, that were found crucial for generating or not tourism traffic. Each category was described and evaluated with focus on having or not factors favorable for tourism. Regions and countries with highest qualities were further identified and results compared with tourism statistical data. The evaluation had descriptive character with reference to quantitative data, however by comparing regional differences between the regions with tourism statistics, exploratory conclusions on the relation of analyzed features with tourism traffic were possible.

Tourism resources in the Arctic

Arctic is rich in tourism resources, favorable for both, mass tourism and specialized tourism and eco-tourism (Dolnicki and Gawor, 2012). The attractiveness of this region is mainly built by natural attractions, that is elements of natural environment (Lemelin and Johnston, 2008). Historic and cultural attractions, as less significant, were not included in the analysis. Natural attractions of the Arctic can be divided into two categories (Kożuchowski, 2005): inanimate elements, such as geomorphology, geology, hydrology or snow and ice cover, as well as climate. Animatenature comprises of flora and fauna, e.g. tundra formations and wildlife spots.

Maher and Meade (2007) identified that main reasons for tourists visiting the Arctic were polar bears (11% indications), flora and fauna in general (10,8%), whales (10,5%) and glaciers (10,3%). Glaciers are one of the most characteristic landscape features of the Arctic, where there are over 1600 glaciers bigger than 10 km^2 (NSIDC, nd.). Among 100 biggest Arctic glaciers 40 are in Greenland, 23 in Canada, 14 in Norway with Svalbard, 13 in Russia, 6 on Alaska and 3 on Iceland. The biggest Arctic glacier (8089 km^2) is located on Iceland, and the second biggest one on Alaska (2190 km^2). Additionally, Greenland is covered by the 1,7 mln km^2 ice sheet (NSIDC, nd.). Spectacular for tourism are tide-water glaciers, which are especially appealing from cruising perspective. Such glaciers, of the size exceeding 100 km^2, are 139 in the Arctic: 65 in Norway with Svalbard, 30 in Canada, 23 in Russia and 13 in Greenland. The less in Alaska – 8. Hence, in terms of glaciers, Norway with Svalbard, Greenland and Canada are considered most attractive.

There is however wildlife that was identified as the main tourism driver in the Arctic. There are 11 sea mammals, which can be seen as tourism attractions (Kovacs et al., 2010). Polar bears – the symbol of the Arctic – can be seen on the coasts of Svalbard, Canada, Russia, US and Greenland. IUCN/SSC Polar Bear Specialist Group (IUCN/SSC, nd.) assessed polar bears population in 2014 on 18000. The highest concentration occurs in the Barents Sea (Svalbard, Russian Arctic National Park), Foxe Basin (Canada), Davis Strait (Greenland/Canada), as well as west part of Hudson Bay (Canada). Svalbard and Hudson Bay are most often advertised as polar bear "spots".

However, there are also other unique animals attracting people to the Arctic – walrus, seals and whales, among which

three– narwhal, beluga whale and bowhead whale – are Arctic endemics. Beluga can be spotted in the Bering Sea, Northern Canada, West Greenland, as well as Northern Siberia and Svalbard, narwhals in the coast of Russia, Greenland, Svalbard, and North-east Canada, and bowhead whale around Greenland, Iceland, Barents Sea, as well as North American coast and Bering Sea (NOAA., nd.). Waters in the Barents Sea and Bering Sea, and those between Greenland and Canada are most favorable to see those sea endemics.

Considering those threeelements: glaciers, polar bears and whales, most attractive are Svalbard, West Greenland, but also Canadian Arctic and Russian Arctic in the Barents Sea and Chukotka. Southern Alaska, Iceland and Northern Scandinavia can provide many other natural features, however they lack resources usually associated with the Arctic, which are present in the above-mentioned areas.

Accessibility of Arctic areas

Accessibility of particular places in the Arctic depends, among others, on climatic and weather conditions, as well as the length of tourism season, possibilities of using different means of transport, comfort and safety.

During winter tourism traffic is minimal due to low temperatures, bad weather conditions, polar night, as well as sea ice, making sea transport difficult or impossible. The tourism traffic is intensified in the summer (June – August), where sailing season is in its highest and ships are main type of transportation in the Arctic tourism. Nowadays, due to better weather conditions, cruises occur even to the end of September (Stewart et al., 2010). It is estimated that melting sea ice would contribute to the development of Arctic cruise tourism (Dawson et al., 2007). Increase of the sea ice is observed in the Beaufort Sea region and Siberian coast. There was also a decrease in Canada, including North-West Passage (Dawson et al., 2014). In 2016 the first conventional cruise through the North-West Passage is planned. This changes indicate that Arctic regions are opening up and accessibility differences due to natural conditions are diminishing. Still, however, floating ice and changing weather conditions contribute to navigation problems (Howell et al., 2009), which can occur despite of the area and forcing changes in cruise journeys. Generally, the more southern location, the less concerns for cruising related to sea ice, hence Norwegian coast, Iceland and southern Alaska are most safe and favorable for cruising. The most difficult for navigation are currently North-West Passage and North-East Passage, hence Canada and Russia.

Tourism infrastructure in the Arctic

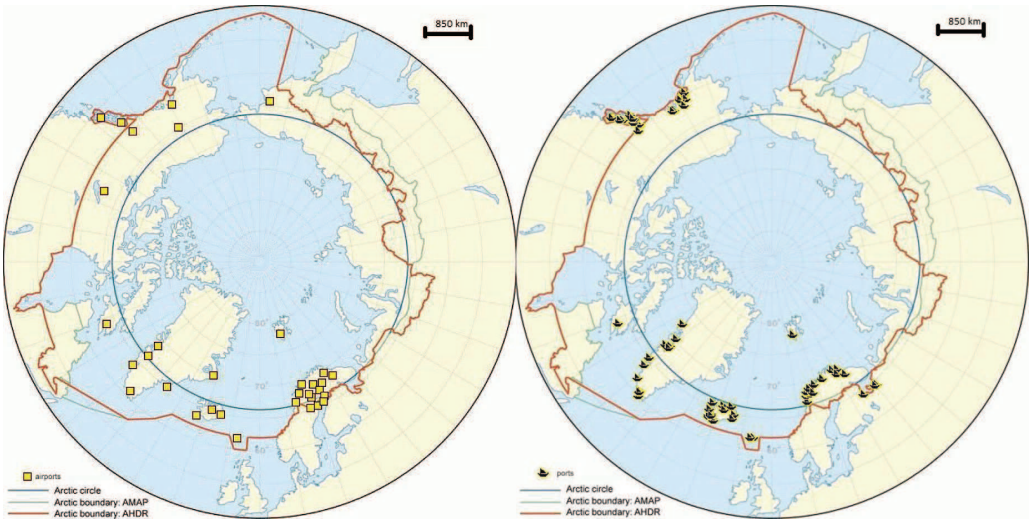
Tourism infrastructure concentrates in cities and smaller settlements across the Arctic. Cities provide transport infrastructure, accommodation and organization of different activities, however most activities usually take place in the wilderness, outside human settlements. The cities which are logistic hubs to the Arctic explorations are usually the biggest settlement in the regions: Fairbanks and Anchorage in Alaska, Whitehorse, Yellowknife and Iqaluit in Canada, Nuuk and Ilulissat in Greenland, Reykjavik on Iceland, Longyearbyen on Svalbard, Torshavn on Faroe Islands, Tromsř in Norway, Rovaniemi in Finland, Kiruna in Sweden, and Murmansk in Russia. However, over the Arctic Circle there are only 10 cities with more than 30000 inhabitants – 8 in Russia (Kirovsk, Kialaksha, Monchegorsk, Severomorsk, Apatyty, Vorkuta, Norilsk and Murmansk) and 2 in Norway (Tromsř and Bodř), from which only Murmansk, Tromsř and Bodř have tourist functions.

In the previous years there was an increase in urbanization level of the Arctic. On Iceland 94% of population lives in cities and towns, over 80% on Greenland, Sweden and Finland. In other regions, except Faroe Islands, Nunavut and North-West Territories, urbanization level exceeds 50% (AHDR, 2014). Cities perform better educational results and level of entrepreneurship, hence they are more favorable to create development on local level, including tourism. In order to compare the level of cities' development, gross metropolitan product (GMP) can be used, which is an indicator showing value of goods and services produced by cities. In the Arctic the level of GMP is highest in the US regions (ca. 47000 $), Sweden and Finland (ca. 20000 $), Norway (ca. 18000 $) and the lowest is in Canada (ca. 7000 $) and Greenland (ca. 3000 $). It should be noted that Russian GMP has extremely high value of 315000 $, but the share of services and public sector in this product is the lowest comparing to other Arctic regions (AHDR, 2014).

In Arctic cities especially important is transport infrastructure. Good road connections are identified only in Scandinavia and Yukon in Canada. In other areas, the presence of ports and airports is crucial for transportation. The sea ports are important considering the significant role of cruises in generating tourism traffic. Not all ofthe ports are used for tourism purposes. According to the data of Automatic Identification System (AIS), for the September 2015 the following numbers of ports served at least one passenger or pleasure vessel: Norway with Svalbard – 15, Iceland –14, Faroe Islands – 3, Greenland –12, Alaska – 19, Russia – 4 (lack of data for Canada). However, many local ports, especially in Greenland and Canada, are not able to serve increasing traffic and bigger ships (personal communication) and perform rather poor cruise capacity.

Another crucial element of transport infrastructure in the Arctic are airports. The relation to tourism traffic is observable for instance in case on Greenland where numbers of tourists started growing since 1959, when commercial flights from Denmark and Iceland started. The same was observed in Iceland, when commercial flights started in 1938 and when the airport on Svalbard was opened in 1975. Currently most tourists arrive to Greenland by air (Fay and Karlsdóttir, 2010). Similar situation is in Iceland, where in 2013 out of 807000 tourists, 781016 arrived at Keflavík airport, around 10000 at other airports and 16637 came by boat (Statistics Iceland, nd.). Most international airports are in Greenland (6), however even though some have international status, they sporadically operate international flights. Relatively well developed airport network in the Arctic have Norway (5), Sweden (4), Finland (4),Alaska (4). Svalbard has only one airport, but it is a convenient hub for visiting the archipelago. Rather weak airport network is in Canada and Russia, as well as Northern areas of Alaska. Spatial distribution of tourism – related ports and airport in the Arctic is presented in figure 4.

Fig. 4. Airport and port infrastructure in the Arctic



Source: own illustration, based on AHDR 2004 Arctic map

Summary and conclusions

Arctic tourism is spatially varied phenomenon. It is the result of interrelation of two types of tourism space – natural and socio-economic ones, which different features and their combinations determine possibilities and forms of organizing tourism.

Distribution of tourism natural resources is not even. This evaluation considered only few types of possible resources, which are most characteristic for the Arctic, but it was visible that concentration of attractions is in European High Arctic (Svalbard, Greenland). There are also other areas, such as Russia and Canada, which also have concentration of investigated resources, but are much less explored than the European parts. Most of the "Arctic" resources are typical to the higher latitudes of the Arctic. In AMAP/AHDR Arctic delimitation there are areas lying below Arctic Circle. There, the natural resources are less attractive in terms of the typically "Arctic" experience and at the same time they observe much intense tourism traffic. Only Northern Scandinavia, set over the Arctic Circle, generates significant tourism numbers. In Greenland, Northern Canada, Alaska and Russia the visitors numbers are relatively lower.

Therefore, the presence of attractive natural resources is not sufficient to explain tourism traffic. In the Arctic the crucial element is accessibility and transport infrastructure. Greater tourism traffic is observed in the regions which are relatively less attractive, but are better accessible and, thus, cheaper. Areas without settlements equipped with ports and airports, that is most in the high Arctic, generate much less tourism. They attract rather adventure and specialized tourists, who are a niche in Arctic tourism. Usual tourists, that is mass tourists, would seek unique experiences in the areas which are already explored, but are more comfortable and cheaper to travel. Therefore, southern areas of the Arctic are popular among mass tourists, who dominate Arctic tourism market.

It should be also noted that not only spatial differences, but their changes in time are also important. It was not the subject of this article, but has an influence when explaining tourism traffic distribution. Changing natural environment in the Arctic, related to e.g. climate changes, already influence attractiveness of the Arctic. Pagnan(2003) noted disappointment of tourists travelling to West Greenland because of no ice and wildlife they expected to see. Similar objections were identified among tourists in Arctic Canada (Maher and Meade, 2008). In Finland tourists travel more north afraid that there would be not enough snow in the south. It means that keeping and developing tourism attractiveness would require adaptive capacity from local and national stakeholders. Adjusting local resources and infrastructure to changing environmental conditions would be key factors explaining spatial distribution of tourism in the future.

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