

Module „Contemporary Issues in the Circumpolar North“, BCS135X, Assignment No. 1, Submitted by Oliver Becht, student number 351087, October 1st 2021

Question: 'Discuss the changes that are taking place in the Arctic region. What are their impacts on populations, economies (including sectors such as fishing, shipping, oil and gas development etc.), security and international relations in the Arctic?'

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The Arctic experiences an era of rapid change. Change itself is nothing special – unfamiliar is the pace and extent of current transformations¹ that faces Arctic communities with a range of acute challenges. The present essay will deal with this situation and follow a two-part structure: First, the central changes and development processes are characterized, and second, impacts on populations, economies, security and international relations will be discussed. Research aim is to draw a sharp picture of current forces affecting the Arctic region. If not otherwise stated, the widely-used term “Arctic” refers to the region north of the Arctic Circle. In focus is the Arctic region as a whole - against the backdrop of the essay’s length, it is not possible to discuss spatial differences due to the Arctic’s nature as highly “heterogeneous region”² in depth.

What are the main changes taking place in the Arctic? First, the consequences of anthropogenic climate change are in the game. Between 1971 and 2019, the annual mean surface temperature increase was three times higher (3,1 degrees) than the global average³, June snow cover extent declined by 13.4% per decade⁴, permafrost warmed by 2–3°C and coastal erosion is accelerating with some of the highest rates on Earth⁵. At the same time, the number of days with extreme high temperatures and the vulnerability to forest fires is increasing⁶. Actual climate scenarios project that “annual mean surface air temperatures in the Arctic will rise to 3.3–10°C above the 1985–2014 average by 2100”⁷ and “the first ice-free September in the Arctic could occur as early as the 2040s”⁸.

Demographically, and this is the second type of processes described here, the Arctic more or less already completed the transition from high birth and death rates to a (demographically) modern society with high standard of living and birth rates. Except for Russia all Arctic states have fertility

¹ Stephen, Kathrin (2012): *Societal Impacts in a Rapidly Changing Arctic*. Current Climate Change Reports Vol. 4. Page 223.

² Stephen, K. (2012) (note 1): Page 227.

³ Arctic Monitoring and Assessment Program (2021): *Arctic Climate Change Update 2021: Key Trends and Impacts. Summary for Policymakers*. AMAP Secretariat, Tromsø, Norway. Page 2.

⁴ Intergovernmental Panel on Climate Change (2019): *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate. Summary for Policymakers*. Geneva, Switzerland. Page 6.

⁵ AMAP (2021) (note 3): Page 5-6.

⁶ Klimenko, Ekaterina (2019): *The Geopolitics of a changing Arctic*. Stockholm International Peace Research Institute, Background Paper. Page 5.

⁷ AMAP (2021) (note 3): Page 3.

⁸ AMAP (2021) (note 3): Page 7.

rates at or below replacement level, high levels of life expectancy, and ageing populations⁹. While global population is still growing, the population of the Arctic is “projected to have little change with a projected population increase of just 1%” until 2050¹⁰. Nevertheless, migration works as factor for population changes at national scale and will impact both growing and declining regions¹¹. A “dominating pattern” in Arctic countries is urbanisation, which is “observed in all regions except in Sweden over the 1975-2015 period”¹² - populations are increasingly concentrated in regional centers where jobs, access to education, health and consumer goods are available.¹³

Third, the Arctic - that is decisively characterized by its indigenous populations - is heavily influenced by globalization. In line with the spread of technological progress, transport systems and communication platforms, a “adoption of western cultural norms”¹⁴ can be observed. The Arctic comes in contact with “new and adapted technologies that have the potential to be extremely beneficial to the North” - for example artificial intelligence or advanced robots¹⁵. Economically, the Arctic (simplified) experiences a transition from a “traditional hunting and gathering economy” to a globalized and industrialized economic system¹⁶. Beginning in the 19th century, the Arctic is affected by the increasing exploitation of resources, new transportation systems, rationalisation of industry processes, global demands and new technologies¹⁷. In the long run, Arctic countries are integrated into global economy¹⁸ and more and more “under the influence of economic forces based outside the region”¹⁹. A sector that gets increasingly important is tourism: Due to “easier accessibility, increasing awareness, and an increased demand for so-called last chance tourism”²⁰ the Arctic becomes as new and expanding vacation destination. Further important changes with regard to business are a growing role of tertiary and quaternary sectors²¹ and the establishment of “large-scale, concentrated production sites”²², which is in line with the urbanization processes described above.

⁹ Heleniak, Timothy (2020): *The future of the Arctic populations*. Polar Geography. Page 4.

¹⁰ Heleniak, T. (2019) (note 9): Page 16.

¹¹ Heleniak, Timothy (2016): *Boom and Bust: Population Change in Russia's Arctic Cities*. In: Orttung, Robert W. (editor): *Sustaining Russia's Arctic Cities : Resource Politics, Migration, and Climate Change*. Berghahn Books, New York, USA. Page 85

¹² Koffi, B.; Wilson, J.; ...; Delli, G. (2021): *Arctic population dynamics and urbanisations. Results from the GHSL products*. Joint Research Center (European Commission), Luxembourg, Luxembourg. Page 46.

¹³ Heleniak, T. (2016) (note 11): Page 78

¹⁴ Stephen, K. (2012) (note 1): Page 227.

¹⁵ Hall, Heather M. (2020): *Innovation, New Technologies and the Future of the Circumpolar North*. In: Coates, Ken S.; Holroyd, Carin (editors): *The Palgrave Handbook of Arctic Policy and Politics*. Springer International Publishing AG, Cham, Switzerland. Page 122.

¹⁶ Southcott, Chris (2010): *History of Globalization in the Circumpolar World*. In: Heininen, Lassi; Southcott, Chris (editors): *Globalization and the Circumpolar North*. University of Alaska Press, Alaska, USA. Page 51.

¹⁷ Southcott, C. (2010) (note 16): Page 44-52.

¹⁸ Young, Oran (2012): *Arctic Politics in an Era of Global Change*. The Brown Journal of World Affairs Vol. 19 No. 1. Page 169.

¹⁹ Southcott, C. (2010) (note 16): Page 23.

²⁰ Stephen, K. (2012) (note 1): Page 226.

²¹ Larsen, Joan Nymand; Petrov, Andrey N. (2010): *The Economy of the Arctic*. In: Coates, Ken S.; Holroyd, Carin (editors): *The Palgrave Handbook of Arctic Policy and Politics*. Springer International Publishing AG, Cham, Switzerland. Page 85.

²² Larsen, J.N. & Petrov, A.N. (2010) (note 21): Page 82.

Politically, the Arctic develops from a two-parted, Cold-War-dominated and heavily militarized area²³ into a region of global importance that draws interest from more and more states and actors. The reasons for this interest are more or less the consequences of actual processes discussed in the second (and following) part of this essay. In the game are “traditional players” with new interests - for example Russia, that increases its military presence in the region²⁴. Added to this, new stakeholders like China enhance their activity level because of interest in Arctic mining, natural gas and new shipping routes²⁵.

This leads straight to the second part of the essay. All these changes - climatic, demographically, economically and politically - induce far-reaching impacts with diverse characteristics. First, international relations change due to the increasing importance of the region. This growth in interest can be explained by various factors, including new business opportunities, the interconnectedness of global climate, and successful globalization. *Interconnectedness of global climate* means, for example, that “a warming Arctic is believed to impact weather and climate patterns further south”²⁶ and the Arctic’s ice reserves have the potential to raise global sea level by up to seven meters²⁷. *Successful globalization* means that, in a globalized economy, Arctic conditions may be considered as solution for specific problems or new business opportunities. A well-illustrating example is Facebook’s Lulea datacenter in Sweden, that uses outdoor air for cooling servers and may be the “most energy efficient computing facility ever built”²⁸. Like stated in the first part, these factors lead to “an increasing number of actors (...) involved in transformations in the Arctic”²⁹ - besides USA, Russia and China also countries like Brazil, India, Korea, Japan and Singapore³⁰. Relations between these states might become more tensed as competing interests and competition for non-renewable resources are in the game. Relations between Arctic countries itself may become more intensive as they deal with the same problems like climate change consequences or Westernization - a fact that should support agreements like the Arctic Council.

Second, the discussed changes lay out new prerequisites for some central economies. Due to changing sea ice, precipitation, snow regimes and temperatures, changing availabilities of different marine species will be the result³¹. As the timing of phytoplankton blooms is shifting and Arctic net primary production has increased in recent decades³², higher catches are a realistic scenario for the fishing industry. Furthermore, aquaculture is expanding northwards and creates “additional

²³ Young, O. (2012) (note 18): Page 166.

²⁴ Klimentko, E. (2019) (note 6): Page 9.

²⁵ Klimentko, E. (2019) (note 6): Page 10.

²⁶ Stephen, K. (2012) (note 1): Page 229.

²⁷ Heininen, Lassi; Exner-Pirot, Heather; Barnes, Justin (2020): *Climate Change and the Arctic: Global Origins, Local Responsibilities?* In: Heininen, Lassi; Exner-Pirot, Heather; Barnes, Justin (editors): *The Arctic Yearbook*. Page 507.

²⁸ Harding, Luke (2015): *The Node Pole: Inside Facebook’s Swedish Hub Near the A Circle*. The Guardian, September 25th. URL: <https://www.theguardian.com/technology/2015/sep/25/facebook-datacentre-lulea-sweden-node-pole> (last visit on September 29th)

²⁹ Stephen, K. (2012) (note 1): Page 229.

³⁰ Young, O. (2012) (note 18): Page 172.

³¹ AMAP (2021) (note 3): Page 8.

³² IPCC (2019) (note 4): Page 22.

economic opportunities”³³. Shipping is also affected by climatic changes: The long-term melting of ice opens up new transport routes through the Arctic, especially the Northern Sea Route along Russia’s northern border and the Northwest Passage through the Canadian Arctic Islands³⁴. The same story goes for oil and gas industry: Following the melting of ice, an increased accessibility and utilisation of oil and gas resources under the seabed of Arctic waters has to be expected³⁵. Added to the list could be the Arctic’s potential nature as future source of freshwater and hydropower for southern areas³⁶. All of these potential opportunities are an important reason for the activities by non-Arctic states discussed above.

Heavily influenced by actual changes - especially the climatic ones - is the security of both indigenous and non-indigenous communities. The story for food security goes as follows: Due to the changes in climate conditions and therefore marine food-webs, a lot of uncertainty arises. The same is true for the abundance and quality of berries³⁷, agricultural activities³⁸ and water availability. Against the backdrop of changes in the water cycle, a population’s access to clean water may be enhanced - but the situation also incorporates the risk of water scarcity³⁹. A rising concern are the security risks related to permafrost thaw: More than two third of Arctic villages are built on permafrost, wherefore 36.000 buildings and 13.000 kilometers of roads are at risk of damage from thawing⁴⁰. On top come the discussed process of higher extreme weather probability and increased erosion. An worldwide-famous example of the consequences is the Alaskan village Shishmaref, that is strongly affected by sea-level-rise and erosion and officially voted to relocate their town in 2016⁴¹. With regards to economic changes, potential oil spills - with a higher probability due to increased activity - are a primary concern. Last but not least, and that is important, the discussed changes won’t just *create* new risks - they are also able to reduce some. One example is the community-government-university-industry collaboration Smart ICE, that integrated adapted technology, remote sensing and Inuit Traditional Knowledge to produce maps for safe travels in the Arctic⁴² - an opportunity that is strongly related to technical progress and globalization.

All these processes discussed in this section impact the populations living in the Arctic directly or indirectly. Besides increasing uncertainties of different kinds, security risks and increasing political influences, there are also a lot of cultural consequences. The Arctic is “increasingly impacted by what

³³ AMAP (2021) (note 3): Page 9.

³⁴ Congressional Research Service (2021): *Changes in the Arctic: Background and Issues for Congress*. Washington D.C., USA. Page 59.

³⁵ Stephen, K. (2012) (note 1): Page 224.

³⁶ AMAP (2021) (note 3): Page 16.

³⁷ AMAP (2021) (note 3): Page 8.

³⁸ Stephen, K. (2012) (note 1): Page 226.

³⁹ Klimenko, E. (2019) (note 6): Page 5.

⁴⁰ AMAP (2021) (note 3): Page 9-11.

⁴¹ Kennedy, Merit (2016): *Threatened by Rising Seas, Alaska Village decides to relocate*. NPR News, August 18th. URL: <https://www.npr.org/sections/thetwo-way/2016/08/18/490519540/threatened-by-rising-seas-an-alaskan-village-decides-to-relocate?t=1632846432566> (last visit on September 29th)

⁴² Hall, H. (2020) (note 15): Page 124.

is often seen as a global entertainment culture and its values"⁴³, while traditional activities become "marginalized and devalued. Northern indigenous communities became subsumed by Western industrial society"⁴⁴. A lot of indigenous activities - hunting, fishing, travelling over ice, living in small villages - are in danger as climate change and the establishment of centralized production are proceeding. Furthermore, migration and growing cruise line industry will bring more non-locals to the Arctic. Migrating people are able to fundamentally change the structure of local populations: As for example "berry pickers may be both men and women while oil platform workers are predominantly men"⁴⁵, gender issues gain in importance and will affect the composition of specific communities.

Summed up, a lot of strong forces - ecological, political, demographic and economic - affect the Arctic region at the same time. The challenges arising from that are "intensified and aggravated when faced together"⁴⁶ - climate change impacts may for example reinforce problems with the phenomenons of ageing populations and lost of indigenous knowledge. In the 21th century, the Arctic will be well attended theatre to watch the consequences of climate change and still existing forces of globalization. History will tell how local populations can adapt to the security risks, how indigenous people will deal with the strong Western influences and physical changes of their surrounding, and which international players will use which new characteristics of the Arctic for economic purposes. The stage is set.

⁴³ Keskitalo, Carina; Southcott, Chris (2014): *Globalization*. In: Nordic Council of Ministers: *Arctic Human Development Report. Regional Processes and Global Linkages*. Copenhagen, Denmark. Page 417.

⁴⁴ Southcott, C. (2010) (note 16): Page 52.

⁴⁵ Keskitalo, C. et al. (2014) (note 43): Page 410.

⁴⁶ Klimenko, E. (2019) (note 6): Page 3.

Bibliography

Arctic Monitoring and Assessment Program (2021): *Arctic Climate Change Update 2021: Key Trends and Impacts. Summary for Policymakers*. AMAP Secretariat, Tromso, Norway.

Arctic Monitoring and Assessment Program (2017): *Snow, Water, Ice and Permafrost in the Arctic. Summary for Policymakers*. AMAP Secretariat, Tromso, Norway.

Congressional Research Service (2021): *Changes in the Arctic: Background and Issues for Congress*. Washington D.C., USA.

Hall, Heather M. (2020): *Innovation, New Technologies and the Future of the Circumpolar North*. In: Coates, Ken S.; Holroyd, Carin (editors): *The Palgrave Handbook of Arctic Policy and Politics*. Springer International Publishing AG, Cham, Switzerland. Page 117-132.

Harding, Luke (2015): *The Node Pole: Inside Facebook's Swedish Hub Near the A Circle*. The Guardian, September 25th. URL: <https://www.theguardian.com/technology/2015/sep/25/facebook-datacentre-lulea-sweden-node-pole> (last visit on September 29th)

Heininen, Lassi; Exner-Pirot, Heather; Barnes, Justin (2020): *Climate Change and the Arctic: Global Origins, Local Responsibilities?* In: Heininen, Lassi; Exner-Pirot, Heather; Barnes, Justin (editors): *The Arctic Yearbook*. Page 1-5.

Heleniak, Timothy; Turunen, Eeva; Wang, Shinan (2020): *Demographic Changes in the Arctic*. In: Coates, Ken S.; Holroyd, Carin (editors): *The Palgrave Handbook of Arctic Policy and Politics*. Springer International Publishing AG, Cham, Switzerland. Page 41-59.

Heleniak, Timothy (2020): *The future of the Arctic populations*. Polar Geography. Page 1-17.

Heleniak, Timothy (2016): *Boom and Bust: Population Change in Russia's Arctic Cities*. In: Orttung, Robert W. (editor): *Sustaining Russia's Arctic Cities : Resource Politics, Migration, and Climate Change*. Berghahn Books, New York, USA. Page 67-88.

Intergovernmental Panel on Climate Change (2019): *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate. Summary for Policymakers*. Geneva, Switzerland.

Kennedy, Merit (2016): *Threatened by Rising Seas, Alaska Village decides to relocate*. NPR News, August 18th. URL: <https://www.npr.org/sections/thetwo-way/2016/08/18/490519540/threatened-by-rising-seas-an-alaskan-village-decides-to-relocate?t=1632846432566> (last visit on September 29th)

Keskitalo, Carina; Southcott, Chris (2014): *Globalization*. In: Nordic Council of Ministers: *Arctic Human Development Report. Regional Processes and Global Linkages*. Copenhagen, Denmark. Page 401-425.

Klimenko, Ekaterina (2019): *The Geopolitics of a changing Arctic*. Stockholm International Peace Research Institute, Background Paper. Page 1-16.

Koffi, B.; Willson, J.; ...; Delli, G. (2021): *Arctic population dynamics and urbanisations. Results from the GHSL products*. Joint Research Center (European Commission), Luxembourg, Luxembourg.

Larsen, Joan Nymand; Petrov, Andrey N. (2010): *The Economy of the Arctic*. In: Coates, Ken S.; Holroyd, Carin (editors): *The Palgrave Handbook of Arctic Policy and Politics*. Springer International Publishing AG, Cham, Switzerland. Page 79-95.

Southcott, Chris (2010): *History of Globalization in the Circumpolar World*. In: Heininen, Lassi; Southcott, Chris (editors): *Globalization and the Circumpolar North*. University of Alaska Press, Alaska, USA. Page 23-57.

Stephen, Kathrin (2012): *Societal Impacts in a Rapidly Changing Arctic*. Current Climate Change Reports Vol. 4. Page 223-227.

Young, Oran (2012): *Arctic Politics in an Era of Global Change*. The Brown Journal of World Affairs Vol. 19 No. 1. Page 165-178.