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Sami identity in the face of climate change

Introduction

Global warming is a fact. One may only debate the importance of the elements that are catalysing this phenomenon. There are also extreme theories that glacial and interglacial periods are part of the natural rhythm of the Earth's life, and those presumptions that claim that current climate change is typically anthropogenic. However, most climatologists agree that, historically, the climate of our planet is variable and quasi-periodic, and the mechanisms of the current changes may be divided into those that are independent of humans (variable solar activity, changes in the parameters of the Earth's orbit around the Sun, the volcanic activity of the Earth) and those that are anthropogenic (changes in the composition of the atmosphere, changes in water retention, changes in land use). The feedback related to all of the factors is most relevant to contemporary climate change. The increasing concentration of carbon dioxide in the atmosphere is not only the result of its emissions resulting from the burning of fossil fuels, but also due to the reduced possibility of binding this gas by the vegetation resulting from the predatory exploitation of forest resources (Kundziewicz, Juda-Rezler, 2010: 69).

In the context of social sciences, it is important to note that even short-term weather anomalies may trigger not only social but also global political change. The events initiated by the eruption of the Indonesian Tambora volcano on April 10, 1815 may serve as an example here. The eruption released so much ash into the atmosphere that the global temperature dropped by more than 3°C in the following year. This caused a destruction of most crops in almost the entire northern hemisphere followed by famine. This resulted in massive social unrest and migrations (Klingaman, Klingaman, 2013: 23-24). Some even hold that the eruption of the Tambora volcano contributed greatly to Napoleon's defeat in Waterloo on June 18, 1815 (*1816. Rok, w którym nie było lata*, 2020).

Applying the historical approach and taking into account the contemporary methods of modelling climate change, it may be hypothesized that the current global warming will cause social and political changes throughout the world; the geopolitical situa-

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tion will change. According to Alexander Verbeek, an expert on international security and adviser to the Ministry of Foreign Affairs of the Netherlands, the most disturbing aspect of the changes taking place in the man's natural environment is the lack of social awareness of this phenomenon and its consequences. Verbeek notes that, very frequently, the topic of climate change evokes emotions equal to those observed when worldview issues are raised (Verbeek, 2019).

It seems that for most societies in Europe or North America, global warming remains a purely abstract concept. However, since the beginning of the 21st century, this phenomenon seems to be having an increasing impact, especially on the inhabitants of subpolar regions, including the northern part of the Scandinavian Peninsula (Lapland), populated among others by the Sami: Europe's only representatives of indigenous peoples. Their cultural identity, traditional lifestyles and even languages were shaped by the harsh subpolar climate and nature. A special place in the culture of the Sami (especially those living in the interior) is occupied by reindeer, which are many times more numerous than people in Lapland. These animals have long provided for many of the Sami people's needs: from food to clothing and transport. In many respects, the life of today's reindeer herders has not changed for centuries, although technological advances have made their work noticeably easier. Skis are now often replaced by snowmobiles and smartphones reduce the sense of isolation. However, on a day-to-day basis, a prevailing majority of the Sami people's activities still revolve around reindeer, the seasons of the year and nature (Siemasko, 2014).

However, the rhythm of the reindeer's life and of the lives of Sami who are closely related to these is being disrupted by the exploration and exploitation of Lapland and by an increase in average temperatures resulting from climate change. The development of transport infrastructure, mining, energy industry and the exploitation of forest resources are causing the Sami, like most indigenous peoples in the world, to fear losing the land they occupy and being deprived of their cultural identity. At the same time, as a result of global warming, growing seasons and weather conditions are changing, and the transitional seasons characteristic of northern areas are disappearing. Summer droughts are no longer an anomaly, and winter precipitation is becoming more intense (Räsänen, 2020). Climate change is seen as one of the greatest social, economic and environmental threats. The increased frequency of extreme weather events poses a real threat to the functioning of societies and states. The inhabitants of Arctic areas and, in Europe, those of Finnish Lapland, among others, are particularly vulnerable.

Climate change and its impact on Lapland's natural environment

Since the mid-19th century, the average global temperature has risen by ca. 0.8°C; in Europe, there has been a rise of 1°C (European Environment Agency, 2016). There are simulations indicating that by 2024 the global average temperature could rise by at least

another 0.7°C in relation to the pre-industrial era (Institute of Meteorology and Water Management, 2020).

In Finland, the average annual temperature increased by about 2.3°C between 1847 and 2013, which is about 0.14°C per decade. However, the growth rate of the average annual temperature has increased since the late 1960s and it fluctuates between 0.2°C and 0.4°C per decade. The average temperatures of November, December and January and those of spring months (i.e., March, April and May) have increased by more than the annual average. The warming observed in Finland is almost twice as great as the global temperature increase, which is consistent with the view that warming is greater at higher latitudes. The effect of the warming is a delayed formation of stable ice and sooner thawing of ice on Finnish lakes, and a sooner onset of the growing season. An increased growth rate of boreal forests and a northward shift of their boundaries have also been observed (Mikkonen, Laine, Mäkelä, Gregow, Tuomenvirta, Lahtinen, Laaksonen, 2015). Out of the many climate changes already observed, the following are predicted to be of particular importance for Finland's environment:

- longer and more frequent heat waves,
- an increased intensity of summer precipitation,
- an increase in the number of days with precipitation in winter,
- reduced periods of snow remaining on the ground,
- a decrease in the ground frost depth and the maximum ice thickness on lakes,
- less sunshine in winter due to an increase in cloud cover,
- increases in wind speeds in autumn and winter (Climate ADAPT, 2017: 180).

Climate change is affecting the entire Finnish natural environment, but the most dramatic changes can be observed in Lapland, where there are many animal species that depend on winter that is long, cold and snowy enough to survive. Herbivores reach their food by digging through snow. However, winter rains cause the snow cover to become glaciated, making it difficult or impossible for them to reach their food. On average, warming causes some bird species to start their breeding season one day earlier every two years. This, in turn, may create a problem of food shortage for chicks. Some of those animal species that require a cold climate are moving north, but the northern part of Lapland is unable to provide them with adequate shelter. With increasingly mild winters, some birds do not migrate south seasonally. Increasing water temperatures in rivers and lakes cause the population of cold-loving fish to decline. Warming also makes it much easier for invasive plant and animal species to spread (*WWF: Finnish wildlife already feeling the burn from climate change*, 2016).

A reduction in the population or a disappearance of any plant or animal species may bring about a chain reaction followed by irreversible changes to the natural environment in Lapland, which the region's inhabitants depend on.

Climate change cannot be halted, let alone reversed. It is only possible to reduce the rate of these changes, although taking this possibility into account also seems to be merely wishful thinking (Jędrak, 2019).

The economy of Lapland and the employment structure of its inhabitants

Lapland is the northernmost region of Finland and of the entire European Union, one that is situated mostly north of the Arctic Circle. It has a population of ca. 177,200 and it covers almost a third of the total area of Finland. Most of the population (ca. 60%) live in the three largest urban centres, i.e., Rovaniemi (63,000), Tornio (21,600) and Kemi (20,700). There are approximately 70,200 jobs in Lapland, 65% of which are found in the private sector, 29% in local government entities and 7% in government administration. The region is home to 12,500 companies, most of which with fewer than five employees. A total of 75% of all the jobs are related to the service sector (public or private), 20% to processing (industry, construction, mining, and extraction) and only 4% are related to primary production (mainly reindeer herding). In the service industry, most jobs are connected with healthcare and social care, tourism and trade. The most characteristic source of income in the region is reindeer husbandry (Nordregio, 2017).

Developing industries include mainly tourism, services and export-oriented mining and industrial sectors. Creative sectors related to IT and media are also developing in the region. The fastest growing industry in Lapland is tourism and the services that support it. In tourism, the demand for employees is the highest during winter and spring seasons. Investment in tourism infrastructure translates into demand for workers in the construction industry. Export-oriented industry with supplier networks is also developing in Lapland. Most industrial companies are located in the Kemi-Tornio region. The main industrial sectors include metallurgy (Outokumpu Oyj in Tornio), paper products (Stora Enso and Metsä Fiber in Kemi), motor vehicles and trailers (BRP Finland in Rovaniemi) as well as processing of lumber and wood products. Another important employer is logistics (road and rail transport, ports in Kemi and Tornio and five airports). In addition to the three metal ore mines already operating in Lapland (chiefly chromium and gold), further mineral exploration projects are to be conducted. Directly or through subcontracting, contract work and the public sector, the mining industry in Lapland provides employment for several thousand people (European Commission, 2020).

In terms of surface area, the largest areas of Lapland are inhabited by people engaged in agriculture and forestry; these are primarily the Sami. Despite the very harsh climatic conditions and the short growing season, agriculture exists in almost every part of Lapland. It is concentrated in the southern part, and it is mainly based on animal husbandry. Lapland possesses as little as 3% of Finland's arable land. Nationwide, crop production in this region is marginal and it has never been considered an important part of

Lapland's economy (Ratcliffe, 2010: 6). Crops are mainly concentrated on animal feed production. However, these are not evenly distributed throughout Lapland, and they are determined by the northern extent of cultivation. Apart from the extreme northern part of Lapland (tundra), it is only fodder crops that are grown throughout Lapland. Small-scale cultivation of other crops occurs only on the southern fringes of the region.

Impact of climate change on agriculture and forestry in Lapland

Rising average temperatures and increased atmospheric carbon dioxide concentrations lengthen the growing season and accelerate plant growth, with crop boundaries moving northwards. Higher temperatures also result in faster decomposition of organic matter and release of soil nutrients. There are views that this may have a positive short-term impact on Lapland's forestry and agriculture (Finnish Environment Institute, 2020). However, the impact of climate change on Lapland's agriculture and forestry is difficult to predict. Higher temperatures increase water evaporation, and this may contribute to longer droughts that destroy those plant species that are important for the economy. Heavy rains may have a similar effect by accelerating soil erosion and leaching nutrients from the soil.

In Finland, one of the institutions that analyze the impact of climate change on agriculture and forestry across the country is the Natural Resources Institute of Finland. It was formed in 2015 as a result of a merger of government research institutions that cover agriculture, the food industry, forestry, hunting and fishing, as well as other industries related to renewable natural resources. Researchers working for the Institute have developed a simulation of the consequences of climate change predicted in relation to the agricultural and forestry economy in Finland by increasing average temperature and annual precipitation. Besides the growing season will become longer and plant species boundaries will move north.

Increasing the rate of tree stand growth in Lapland may allow for larger volumes of wood to be harvested which, in Finland, is considered a renewable energy source. Some power plants use wood and production waste from the wood industry as a fuel. Much of this raw material is also used for heating purposes. However, the growth of the average annual temperatures and of the average monthly temperatures entails above all unpredictable and irreversible changes to the environment, and it is the environment that the identity of the Sami people is closely connected to.

Sami people in the second decade of the 21st century

According to the International Work Group for Indigenous Affairs, the number of the Sami varies from 50,000 to 100,000 depending on how the ethnic group is defined. Of these, about 20 thousand live in Sweden, 50 to 65 thousand in Norway, 8 thousand in Finland and 8 thousand in Russia (Work Group for Indigenous Affairs, 2020).

Politically, Sami are represented by three parliaments: in Sweden, in Norway and in Finland. In Russia, the Sami are organized in Non-Government Organizations (NGOs). In 2000, the Sami parliaments formed a joint council of representatives called the Sami Parliamentary Council. The Parliamentary Council of Sami should not be confused with the Council of Sami, which is a central Sami NGO that represents large national associations of the representatives of this ethnic group from all of four countries (Work Group for Indigenous Affairs, 2020).

The research findings show that impact of climate change on the environment, sources of income and culture is currently one of the greatest challenges that is being faced by the Sami people. As the Arctic region is warming twice as fast as the global average, the Sami, like other Arctic indigenous peoples, are already experiencing the environmental, health, social, cultural and economic impacts of global warming (Work Group for Indigenous Affairs, 2020).

The Sami are most frequently associated with reindeer husbandry, which is their main source of livelihood. This is due to the image of the Sami culture being promoted as a tourist attraction. In the literature on the impact of global warming on the lives of the Sami, analyses of the correlation between global warming and reindeer herding dominate. However, in reality, as little as ca. 10% of the representatives of this ethnic group are directly or indirectly involved in activities related to reindeer herding.

It is accepted that for about 400,000 years, the ancestors of the present-day Sami were nomads following reindeer herds for food, clothing, and transport. As a result of technological advances over the last few decades, the way in which reindeer herding is carried out and the lifestyle of the Sami have changed considerably. Today's reindeer herders only occasionally spend extended periods with their herds. Modern technology is used to track the herds, and now the Sami have diversified sources of income, of which tourism is becoming the most important one (Kelman, Næss, 2019: 2). Modern reindeer husbandry is characterized by the following, among other things:

- less contact between humans and animals,
- a focus on profit rather than self-sufficiency,
- the settlement of reindeer herders in towns,
- the fact that reindeer herders are regarded as paid work rather than as a way of life,
- the use of new technologies in transport and communications,
- an increased reliance on government support and supervision, including a reduction of the number of animals and reindeer herders,
- alteration of the rules for dealing with predators that hunt reindeer (Kelman, Næss, 2019: 8).

In the 21st century, the culture and lifestyle of the Sami people look different compared to 30 or 40 years ago. No one has a completely traditional lifestyle anymore, and the everyday life of most of the indigenous people of Lapland is modern. At the same

time, there is a growing interest in the Sami languages, traditional singing, yoiking, and traditional costumes and customs.

Activities aimed to preserve the Sami languages and culture

The result of the accelerating global warming followed by changes to Lapland's natural environment is that the areas traditionally inhabited by the Sami people are being transformed. As a result, some of the nature-related elements of their cultural identity are disappearing. These changes seem irreversible. It is quite probable that reindeer husbandry and grazing will start to disappear in the future. It is impossible to predict in which direction tourism will develop in Lapland, bringing the highest income in the winter period. The Sami people's traditional relationship with nature will start to diminish. The only elements of the Sami identity that may survive seem to be their languages and culture, and these constitute the heritage of the whole of Europe.

Since the accession of Finland and Sweden to the European Union, preservation of the Sami identity has become one of the elements of the European cohesion policy. The first EU-funded projects implemented in Lapland aimed to protect the Sami identity by improving the quality of life for the inhabitants in the region and halting its depopulation. Funding was provided for areas such as tourism, the creation and development of infrastructure and digitalization. However, these measures did not prove to be successful (Finnish Institute for Health and Welfare, 2021). Therefore, the actions of the European Union in cooperation with Norway and Russia focused primarily on the preservation of the Sami languages (European Parliament, 2014).

In the period from 2015 to 2018, the Giellagáldu Project was implemented. Under this project, the Nordic Resource Centre to Promote Sami languages was established. The investment was implemented from August 1, 2015 to May 31, 2018 as part of collaboration between the Sami Parliaments in Finland, Sweden and Norway. Its chief objective was to obtain permanent funding for the Nordic Sami Language Resource Centre. The total investment was 1,846,199 Euro, of which 922,439 Euro came from the European Regional Development Fund through the Interreg VA Nord Operational Programme for the 2014-2020 programming period. The remaining funds came from the Norwegian province. The total budget of the Giellagáldu Project was 3,062,052 Euro. The funding came from the EU Interreg V Nord programme, the Lapland Regional Council, the Norwegian province of Tromsø and the Sami Parliaments in Norway, Sweden, and Finland. The project implementation activities were coordinated by the Sami Parliament in Finland (European Commission, 2019; Sami Parliament of Finland, 2021).

The objectives of the Nordic Sami Language Resource Centre include research into the languages, their standardization and development of new terminologies, promotion of the Sami languages on the Internet, using primarily such social media as Facebook (Giellagáldu Project, 2020).

Conclusions

The effects of the global warming are being particularly experienced in the Arctic areas, and they are posing a threat to the identity of the indigenous peoples. In Europe, it is the inhabitants of the northern part of the Scandinavian peninsula (Lapland), including the only representatives of indigenous peoples on the old continent, the Sami, who are most affected by climate change. Due to their small numbers and dependence on natural conditions, their identity may be lost. It may be hypothesized that in the long term, the traditional lifestyle of the reindeer herders may disappear. Without adequate support from governments and supranational institutions, the Sami identity could be forgotten. However, the Sami, and especially their language, are part of the cultural legacy not only of Finland and the other Nordic countries, but of the whole of Europe. Owing to Lapland's sustainable development policy and numerous aid programmes, the Sami culture is becoming increasingly well-known. Nevertheless, climate change is inevitably leading to the disappearance of the natural conditions that have shaped the Sami people. For this reason, efforts aimed to preserve part of their identity in the coming decades focus primarily on the Sami languages.

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Abstract: Global warming is accelerating, thus irreversibly changing the human environment, and most of the measures taken to halt this phenomenon seem to be the result of wishful thinking. Policies meant to combat climate change fail to bring about the desired effect. Arctic indigenous peoples are particularly vulnerable to climate change, and their cultural identity is under threat. However, owing to the actions taken by state authorities and European Union institutions, there is a chance that the Sami languages will be preserved.

Keywords: global warming, Finland, Lapland, Sami, European Union, indigenous peoples

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