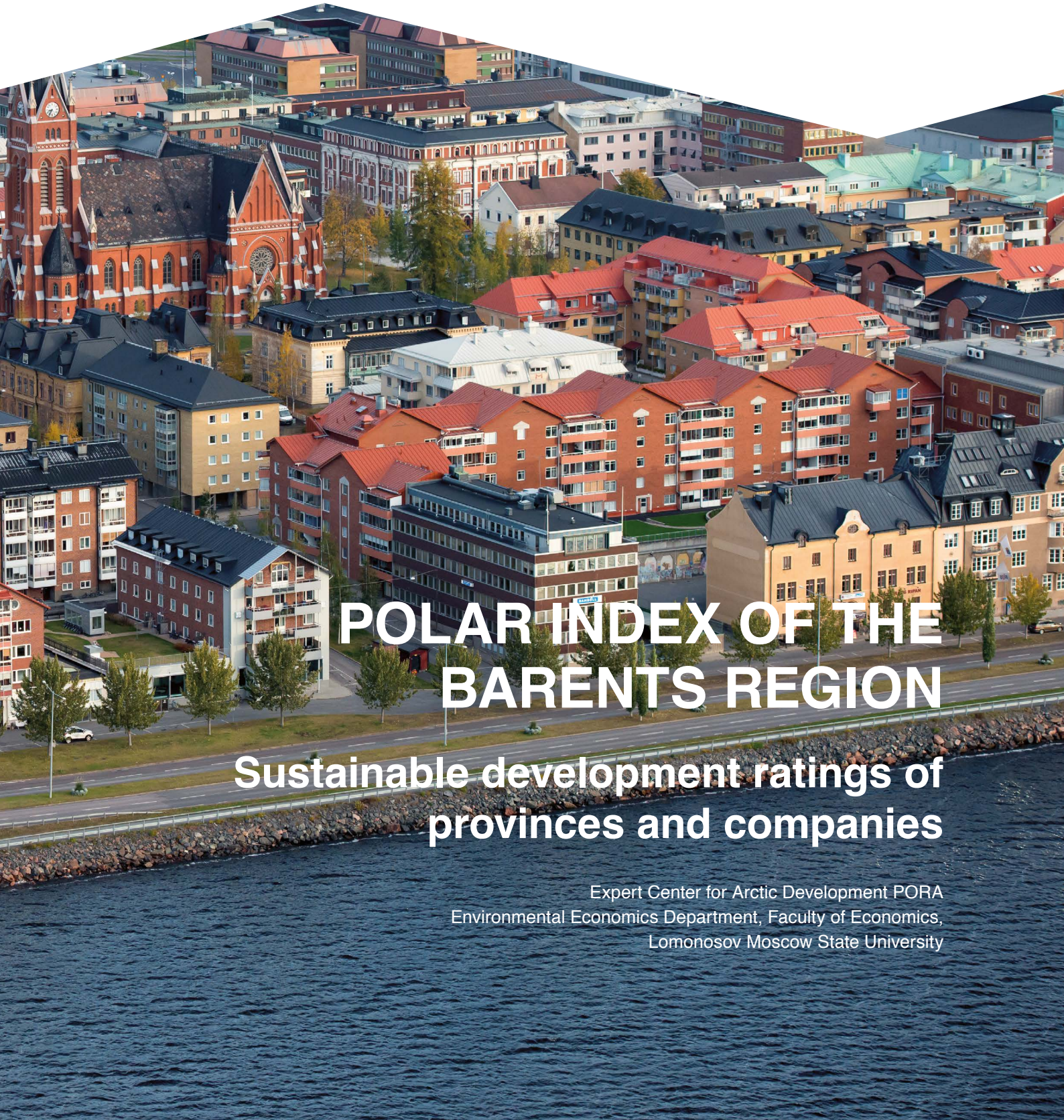
Moscow
2019

Polar Index



POLAR INDEX OF THE BARENTS REGION

Sustainable development ratings of provinces and companies

Expert Center for Arctic Development PORA
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The first two sustainable development ratings of the Arctic, Polar Index: Companies and Polar Index: Regions, made an important impact not only in Russia but also abroad. Almost immediately, the ratings and their findings drew a lot of attention from our foreign colleagues, including those from the Nordic countries.

It is evident that advancing balanced and sustainable development in the Arctic is an international challenge that cannot be addressed within one country or one sub-region. Russia's neighbors in the Arctic are Finland, Sweden and Norway. Several provinces of our countries make up the so-called Barents Region, the largest interregional association in Europe.

Despite the fact that northern territories face common challenges, each country follows its own path with respect to sustainable development in the Arctic. As a result, in some areas, certain provinces are more advanced than the neighboring ones, while lagging behind in some other aspects. This makes the task of comparing the Barents provinces and large companies operating there in terms of sustainable development even more challenging and interesting.

I believe that the Polar Index of the Barents Region project will serve as a yet another proof of Russia's profound interest in implementing the principles of sustainable development and making its economy greener.

The Polar Index of the Barents Region project aims at adding an international dimension to assessing the sustainable development of the Arctic. Within its framework, two ratings were composed, one for provinces and the other for companies operating in the Barents region.

The first one ranks provinces of the four countries concerned based on a range of internationally accepted indicators. Despite the fact that the Scandinavian countries are ahead of Russia in many ways, in some aspects Russia is faring better than its neighbors. For instance, Russia's Arctic regions did better than the respective Scandinavian provinces in terms of environmental footprint and satisfaction with life.

The second rating ranks 26 major companies operating in the Barents region. Multinational corporations demonstrate an increasing interest in relying on the philosophy of sustainable development. Large businesses pay growing attention to the environment, as going green adds an important competitive edge to their strategies, and contributes to improving profitability.

In terms of sustainability, Russian and Scandinavian companies function in different operational environments. Scandinavia-based businesses had much more time to familiarize themselves with the sustainable development ideology than their Russian counterparts who turned to adopting its principles only recently. Nonetheless, many Russian companies successfully compete with Scandinavian ones. While our neighbors enjoy better starting conditions, Russian companies demonstrate a stronger ability to adapt, which enables them to quickly catch up or even take the lead in some areas.

Introduction

In 2018, the Expert Center for Arctic Development PORA and the Environmental Economics Department of the Lomonosov Moscow State University launched a joint project named Polar Index with a view to promote the principles of sustainable development in the Arctic.

Initially, as part of the project, two independent, although methodologically interconnected sustainable development ratings were designed, one for Russian Arctic provinces, and the other for companies doing business there.

Presented in June 2018, the Polar Index: Companies became the first specialized sustainability rating of businesses operating in the Arctic Zone of Russia. The following five companies topped the rating: PJSC Lukoil, PJSC Sibur Holding, PJSC MMC Norilsk Nickel, PJSC Rosneft and PJSC Alrosa.

The second rating produced under this project, Polar Index: Regions, made public in September 2018, assesses the sustainability of development in the Russian Arctic at the macro-scale. The rating covers all regions that are administratively part of the Arctic Zone of the Russian Federation. The following regions made the top 3: the Murmansk Oblast, the Republic of Sakha (Yakutia) and the Arkhangelsk Oblast.

As the next step, the joint project went international with launching the Polar Index of the Barents Region.

! *The Barents Euro-Arctic Region (or Barents Region for short) is the Europe's biggest interregional association established on 11 January 1993. It encompasses 13 Norwegian, Russian, Finnish and Swedish administrative provinces located in geographical proximity of the Barents Sea.*

Under this initiative, two ratings were composed, one for provinces and the other for companies working in the region. The international scope of the ratings allows to address the sustainable development of the High North at the macro-scale while taking into account both the common objectives and the contradictions existing between various Arctic nations.

The Barents Region was chosen as the object of study since Finland, Sweden and Norway border Russia, being its immediate neighbors in the Arctic. All these countries share the same High North climate and geography, and face similar environmental issues. Both Russian and Scandinavian Arctic provinces have access to the Barents Sea basin, which is known for its considerable economic and geostrategic value.

! *The Barents region serves as an important platform for cooperation in this part of the Arctic. At the same time, regional players compete for the access to its natural riches. The region sees the introduction of cutting-edge methods of economic management and technological advances, including those in the field of extraction and processing of natural resources.*

Both the Russian and the international dimensions of the Polar Index project aim to achieving its major goal of raising awareness of and promoting sustainability, the concept allowing for harmonious and balanced development of corporate and/or territorial entities based on perspective thinking and investment. The ratings are supposed to offer a stimulus for both companies and provincial authorities to adopt a more proactive approach towards the implementation of the sustainable development principles.

In addition, such ratings encourage companies and provinces to put a greater emphasis on openness and communicate with the public thus contributing to increasing the corporate and governmental transparency, which ultimately benefits all stakeholders concerned such as government agencies, businesses and, most importantly, residents of the Arctic.

Barents Euro-Arctic region

The Barents Euro-Arctic Region (BEAR), or the Barents Region for short, encompasses 13 provinces or their equivalents located alongside the Barents Sea coastline, namely:

Russian Federation: Murmansk Oblast (Region), Arkhangelsk Oblast (Region), Nenets Autonomous District, Republic of Komi, and Republic of Karelia

Norway: Finnmark, Troms and Nordland

Finland: Lapland, Northern Ostrobothnia and Kainuu

Sweden: Norrbotten and Västerbotten

The Barents Region covers some 1.9 million square kilometers, and its population numbers 6 million people.

The Barents Regional Cooperation was predated by the North Calotte Committee, an international regional organization established by Finland, Norway and Sweden in 1962, and joined by the Murmansk and Arkhangelsk regions as observers in 1992.

The present-day Barents Regional Cooperation was launched with the signing of the Declaration of Cooperation on 11 January 1993 in the City of Kirkenes, Norway. The establishment of this platform may be seen in the general context of the all-encompassing process of reformatting the international relations in Europe.
In parallel, a range of new international fora emerged in Europe such as the European Union, the Council of the Baltic Sea States, and other European cooperation and integration mechanisms. Initially, seven provinces became members to the BEAR.

The goal of the organization was to expand horizontal ties between the public, local authorities, institutions and businesses of the countries concerned so as to achieve maximum synergy in pursuit of the sustainable development objectives. The members cooperate in such areas as economy, trade, science and technology, environment, infrastructure, education and cultural exchanges, tourism, as well as the implementation of projects aimed at improving the situation of the indigenous population of the High North.

The member countries alternately preside the organization, which functions in two dimensions, the intergovernmental and the regional ones. At the intergovernmental level, it is managed by the Barents Euro-Arctic Council, which includes foreign ministers of four member countries. At the regional level, the leading role is played by the Barents Regional Council, which unites governors of 13 member provinces and a representative of the indigenous peoples.

The countries of the Barents Region share a long coastline along the Norwegian Sea, the Barents Sea, the White Sea and the Gulf of Bothnia. The Barents sea, being of key importance in transport, military and economic terms, acts as the region's geographical focal point.

The Barents Sea, the southwestern part of which is free of ice, is an integral part of the Northern Sea Route that interconnects Northern Europe with the Far East. The region's major port is that of the City of Murmansk, the fourth largest in Russia by cargo volume. Other important ports in the region are Teriberka, Indiga, Naryan-Mar (Russia), Vardo, Vadso and Kirkenes (Norway). For Russia, the Barents Sea Region is also important in strategic terms, as it is where this country borders the NATO, and where its major military assets including the nuclear and naval ones are deployed.

Economically, the Barents Sea is a ground for competition over the region's natural riches. Its basin is one of the most explored in the High North, and is rich in shelf deposits of oil and gas. The region sees the introduction of cutting-edge methods of extraction and processing of oil and gas. The Barents sea is also rich in aquatic resources.

Despite the historical record of conflicts and territorial disputes in the region, it is currently a zone of peace and cooperation. It is noteworthy that the intra-regional relations did not suffer much from the 'sanctions war' between Russia and the European Union.

RATING METHODOLOGY OVERVIEW

As is the case of the Russian Polar Index, the ratings of the Barents Region provinces and companies are methodologically based on the so-called triple score concept: sustainable development is interpreted as a balance of its economic, environmental and social components.

Visually, this model can be represented as a triangle, a geometrical figure with interdependent vertices. Changing somehow the coordinates of one vertex inevitably influences the other two ones, i.e. modifying one factor transforms the whole system.

This triangle model represents the relationship of mutual dependency between the sustainable development components as follows:

long-term economic development is impossible without a responsible approach to the use of natural resources.	only a strong and technologically-empowered economy can afford implementing eco-friendly approaches.	finally, both economic and environmental progress require changes in human mentality allowing for development of human creative potential.

Fig. 1. Components of sustainable development

In terms of this triple score concept implemented under the Polar Index project, the sustainability in the Arctic is seen as a multilevel model based on the nested doll principle.

At the first (basic) level, the sustainability of the companies operating in the Arctic was evaluated in three dimensions, namely in the economic, environmental, and social ones.

On the scheme below (fig. 2, p. 8), companies are represented by a small triangle located inside a larger one close to the vertex named “Business”. Each company contributes its sustainability performance to that of the province. Thus, any company is an important primary player in terms of sustainable development.

In the context of the Barents region, this approach was implemented as part of the rating The Polar Index of the Barents Region: Companies, which assessed the sustainability of large companies operating in the Barents Region as per the three sets of criteria mentioned above.

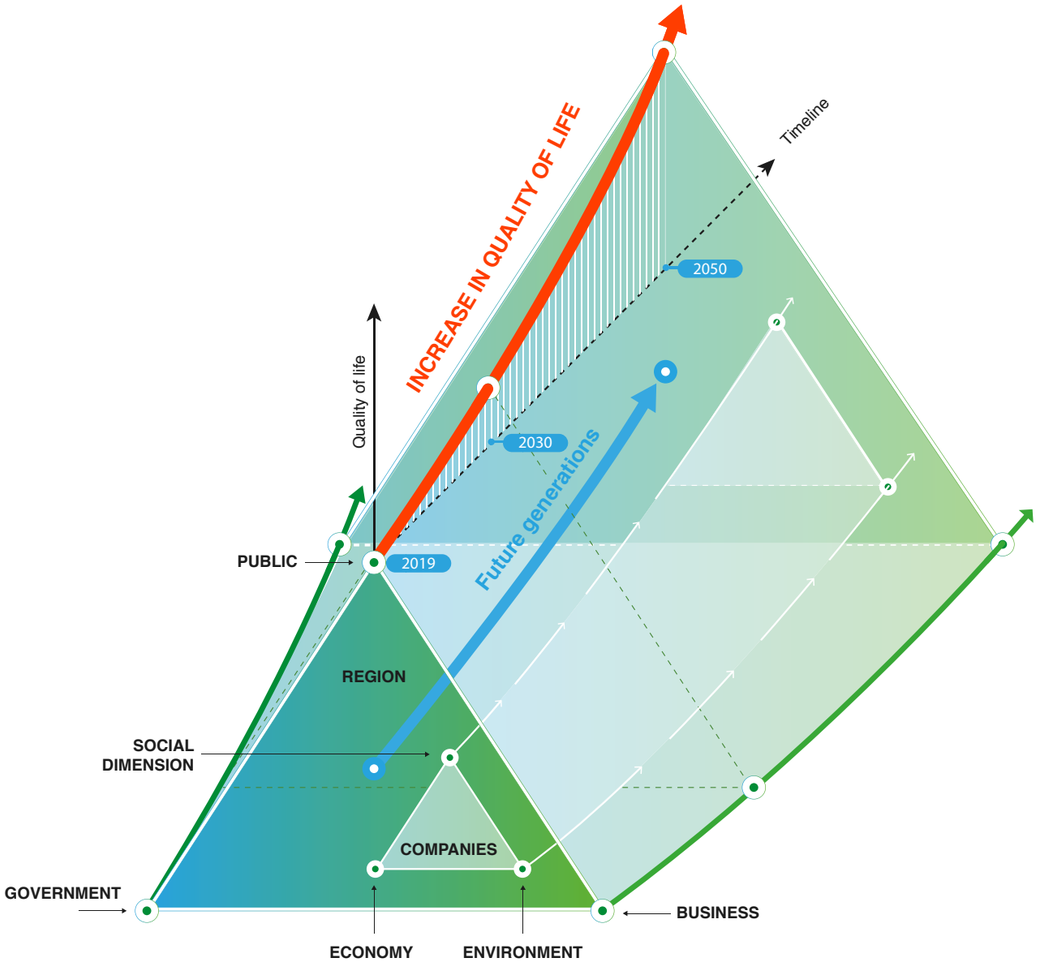


Fig. 2. Model of sustainable development

At the second (broader) level, we evaluated the sustainability of the Arctic regions (provinces) under three sets of criteria: ecological and economic, social and economic and social and ecological. On the diagram, these are represented by the vertices of the large outer triangle.

These pairs of criteria represent the relationships between three key players: government, business, and society, and reflect the interdependence of all these players.

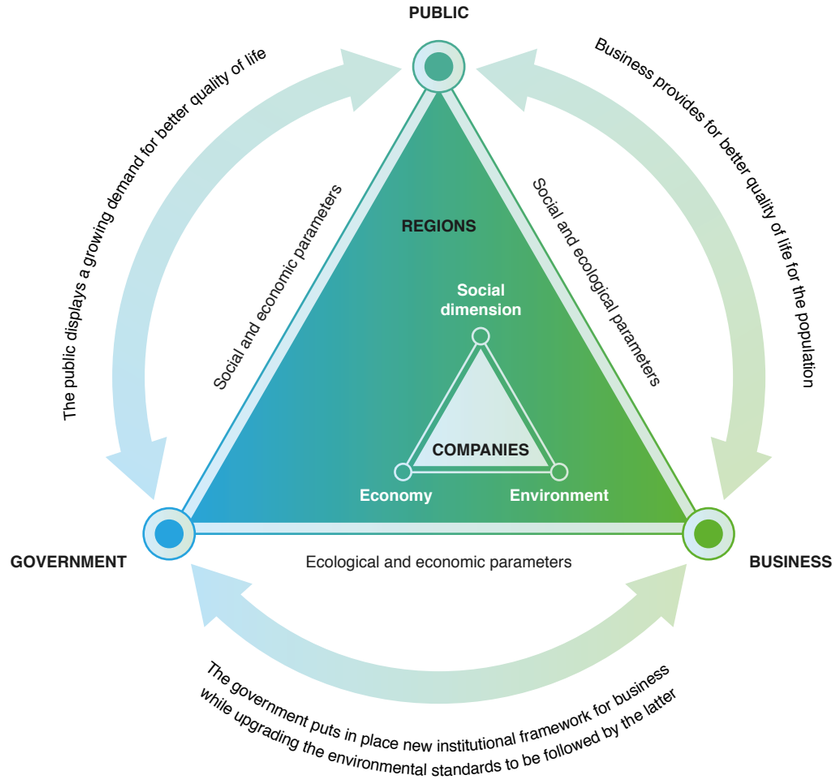


Fig. 3. Interactions between sustainable development players

Social and economic parameters

Synergic interactions of the government and the public. With the societal progress, the public makes the government aware of its growing demand for better quality of life. Such demand displayed by future generations will be higher than the present-day demand.

Ecological and economic parameters

Synergic interactions of the government and the business. The government establishes new institutional framework for business while upgrading the environmental standards to be observed by corporate players.

Social and ecological parameters

Synergic interactions of the business and the public. The business ensures constant progress in standards of living of the population by creating new jobs, developing social infrastructure, and adopting environment-friendly practices.

Sustainable development balances the mentioned three groups of parameters, thus ensuring a harmonious relationship between the public, the government and the business.

This relationship is reflected in the rating entitled The Polar Index of the Barents Region: Provinces presented in this report that assesses 13 BEAR provinces under the parameters grouped into three mentioned blocks.

In turn, if such balance shifts, and the sustainable development triangle becomes scalene, the sustainability vector changes its shape, and the progress slows down. As a result, the demand of future generations for a better life quality cannot be met.

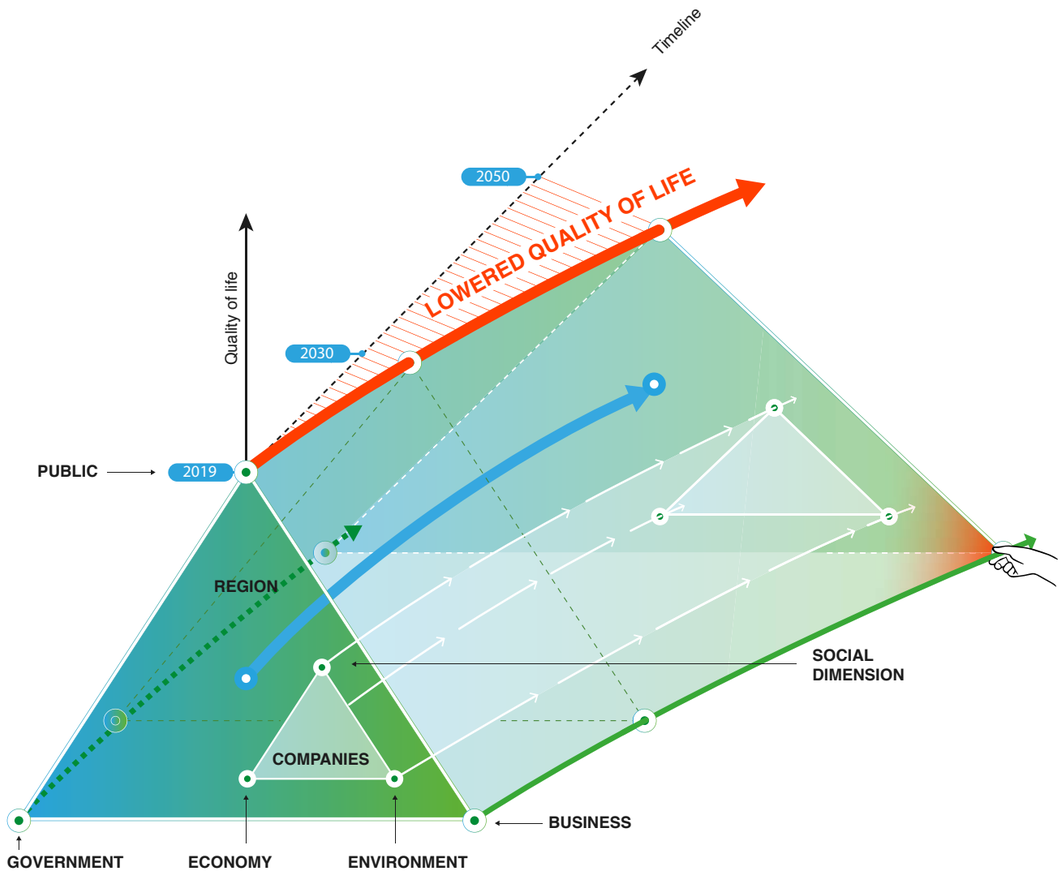


Fig. 4. Unsustainable development

Thus, the growing demand of future generations for a better quality of life can be fully met only if the principles of sustainable development are observed.

METHODOLOGY FOR CALCULATING BARENTS REGION INDICES

To calculate the Barents Region provincial and corporate ratings, we applied a range of parameters used internationally, including in the BEAR countries. These parameters feature the basic components of sustainable development.
Each integral indicator includes a number of specific indicators bearing on various aspects of the economic, social and environmental development of provinces and companies.

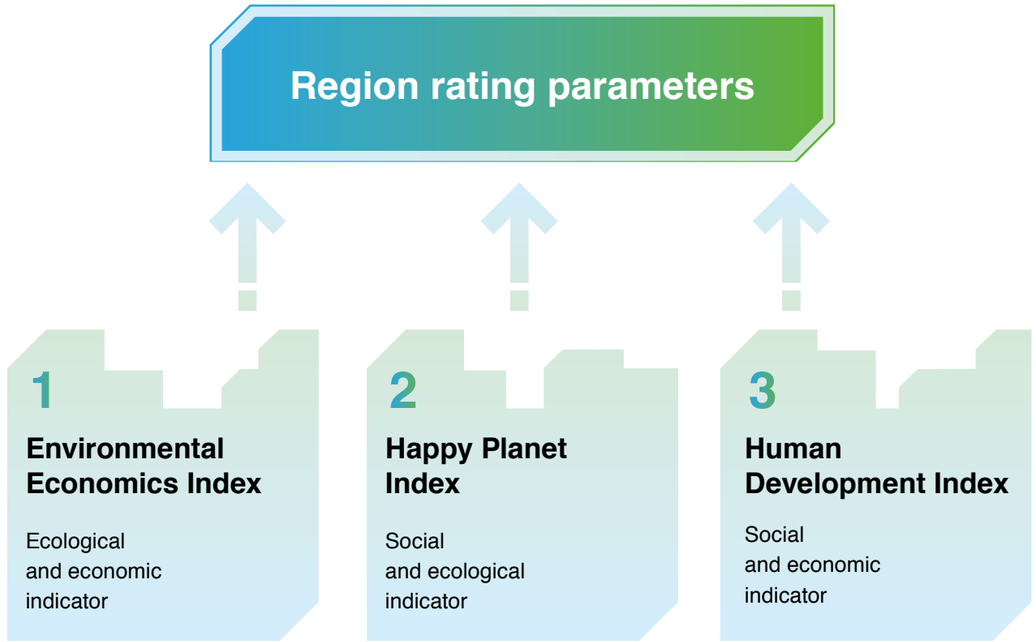


Fig. 5. Parameters for the rating of provinces.
The rating calculation method is based upon three integral indicators.

1 Ecological and economic indicator

This indicator is based on the Environmental Economics Index (EEI) that aggregates adjusted environmental and economic indicators[1] such as:

- adjusted net savings (% of gross national income)
- energy efficiency (GDP per unit of energy)
- share of fossil fuels (% of total amount)
- share of renewable energy sources (% of total amount)
- carbon dioxide emissions per capita (tons)
- urban pollution (mg per m³)
- depletion of natural resources (% of gross national income)
- wooded areas (% of territory)
- satisfaction with environmental protection (% satisfied)
- ecological footprint

*

[1] The index is based on the adjusted net savings index as per the method by Professor S.N. Bobylev et al.

2 Social and ecological indicator

This indicator is based on the Happy Planet Index (as improved by Prof. S.M. Nikonorov and Prof. K.V. Papenova[2]).

To calculate this score we multiply the numbers of:

- life expectancy
- inequality (Gini coefficient)
- life satisfaction

which are further divided by the ecological footprint score.

3 Social and economic indicator

This indicator is based on the Human Development Index calculated as per the UN methodology as an aggregate of:

- life expectancy
- expected duration of training
- average duration of study
- gross national income per capita

Based on the calculation, each of the provinces concerned is assigned an aggregate sustainable development index ranging **from 0 to 1, where**

1 = maximum sustainability

0 = minimum sustainability

*

[2] Instead of 'wellbeing', the method considers the 'satisfaction with life' parameter featuring not only statistical indicators but also wellbeing experiences as reported by individuals.

Fig. 6. Company rating parameters.
The method of calculating corporate scores is also based on three internationally accepted aggregate indicators

1 Economic indicator

This indicator is based on financial performance of companies as per the International Financial Reporting Standards (IFRS).

2 Social indicator

This indicator represents a measure of corporate social responsibility (CSR) weighted based on reporting by the companies concerned.

3 Environmental indicator

This indicator represents a measure of the environmental resource management (ERM) performance.

Based on the calculation, each of the companies concerned is assigned an aggregate sustainable development index ranging from **0 to 1, where**

1 = maximum sustainability

0 = minimum sustainability

POLAR INDEX OF THE BARENTS REGION: PROVINCES

The Polar Index of the Barents Region: Provinces is the first specialized rating targeting the northern territories of the Scandinavian countries and Russia. The rating covers 13 administrative entities of Russia, Finland, Sweden and Norway, which are part of the Barents Region.

The rating evaluates the sustainability of five provinces of Russia, three provinces of Norway, three provinces of Finland and two provinces of Sweden.

The methodology for calculating the rating was designed by the project team of the MSU Environmental Economics Department led by Prof. S.M. Nikonorov (D.Sc. in Economics) based on the generally accepted triple score concept.

Each province's score (the Province Sustainable Development Index, or PSDI) is calculated using a special method considering a number of sustainability parameters broken down into three blocks: social and economic, social and environmental, and environmental and economic. In terms of weight, all blocks are equal.

The provinces of the Barents Region were ranked as follows:

Rank	Region (province)	Country	Polar index
1	Norrbotten	Sweden	0.969
2	Västerbotten	Sweden	0.968
3	Murmansk Oblast	Russia	0.965
4	Republic of Karelia	Russia	0.905
5	Troms	Norway	0.902
6	Komi Republic	Russia	0.887
7	Nordland	Norway	0.886
8	Finnmark	Norway	0.881
9	Arkhangelsk Oblast	Russia	0.760
10	Northern Ostrobothnia	Finland	0.755
11	Kainuu	Finland	0.754
12	Lapland	Finland	0.752
13	Nenets Autonomous District	Russia	0.751

The top five includes two provinces of Sweden (Norrbotten and Västerbotten), two Russian regions (the Murmansk Oblast and the Republic of Karelia) and the Norwegian province of Troms.

* The rating of provinces is visually presented at Fig. 5, pp. 18-19

Rated: **2**
Polar Index Score: **0.968**
Västerbotten

Rated: **7**
Polar Index Score: **0.886**
Nordland

Rated: **1**
Polar Index Score: **0.969**
Norrbotten

Rated: **5**
Polar Index Score: **0.902**
Troms

Rated: **8**
Polar Index Score: **0.881**
Finnmark

Rated: **3**
Polar Index Score: **0.965**
Murmansk Oblast

Rated: **12**
Polar Index Score: **0.752**
Lapland

Rated: **9**
Polar Index Score: **0.760**
Arkhangelsk Oblast

Rated: **6**
Polar Index Score: **0.887**
Komi Republic

Rated: **13**
Polar Index Score: **0.751**
Nenets Autonomous District

Rated: **10**
Polar Index Score: **0.755**
Northern Ostrobothnia

Rated: **11**
Polar Index Score: **0.754**
Kainuu

Rated: **4**
Polar Index Score: **0.905**
Republic of Karelia

Province rating score
1
2
3
4
5
6
7
8
9
10
11
12
13

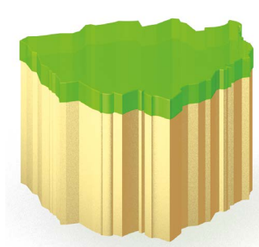
Tromsø
Bodø
Vadsø
Luleå
Umeå
Rovaniemi
Murmansk
Oulu
Kajaani
Petrozavodsk
Arkhangelsk
Naryan-Mar
Syktyvkar

Fig. 7. Rating of provinces on the Barents Region map

Norrbotten

#1
in Polar Index

Sweden



*Area: **98,911 km²***
*Population: **251,080 people***
*Population density: **2.6 people/km²***
*GRP: **$ 12.6 billion***
*GRP per capita: **$ 50.2 thousand**[3]*

The northernmost province (län) of Sweden, Norrbottens län, occupies almost a quarter of the country's territory but is relatively sparsely populated, with only 251 thousand people living there. This number includes the Finnish and Sami minorities who have preserved their culture, customs and traditional way of life. A significant part of the district lies to the North of the Arctic Circle.

From the Gulf of Bothnia coast where the City of Luleå, the regional capital, is located terrain gradually rises to the Scandinavian mountains, which are home to several national parks situated in the vicinity of the Norwegian border. The highest mountain in Sweden, Kebnekaise, which is 2,106 meters high, is located there.

Few floral species can survive there, while forests grow at a slow rate. The region is rich in deposits of iron ore and non-ferrous ores (such as copper, lead, zinc, and silver). Luleå is home to large steelworks and one of three technological universities in the country.

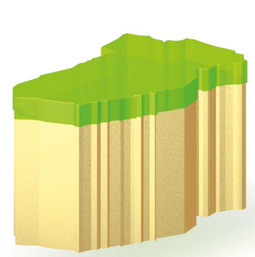
*

[3] Hereinafter, the data as of 2017 are given if available; in some cases, due to the lack of current data, the data of 2014-2016 are used. GRP and GRP per capita are approximate, since when drafting the report we converted the figures in national currencies into those in US dollars at conversion rates relevant as of April 2019.

Västerbotten

#2
in Polar Index

Sweden



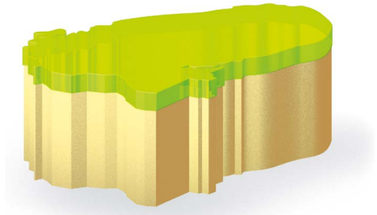
*Area: **55,186.2 km²***
*Population: **268,067 people***
*Population density: **4.9 people/km²***
*GRP: **$ 11.2 billion***
*GRP per capita: **$ 42 thousand***

The Västerbotten province (län), which is located in the northern part of Sweden, like the neighboring Norrbotten län, has a rather low population density with 260 thousand people living in the region. Most population is concentrated in the eastern part of Västerbotten along the coast of the Gulf of Bothnia where the largest cities of the region, Umeå and Skellefteå, are located. Since Umeå hosts the largest university in Sweden, about one third of the city population are students. In the north-west of the region are the Scandinavian Mountains, the source of many rivers flowing through that province to the Gulf of Bothnia. Numerous lakes can also be found in the region. In the mountainous part of the län, there is a number of popular ski resorts. Forests occupy a significant part of Västerbotten, the woodworking being one of top industries in the region. The province is rich in non-ferrous ores and gold.

Murmansk Region

#3
in Polar Index

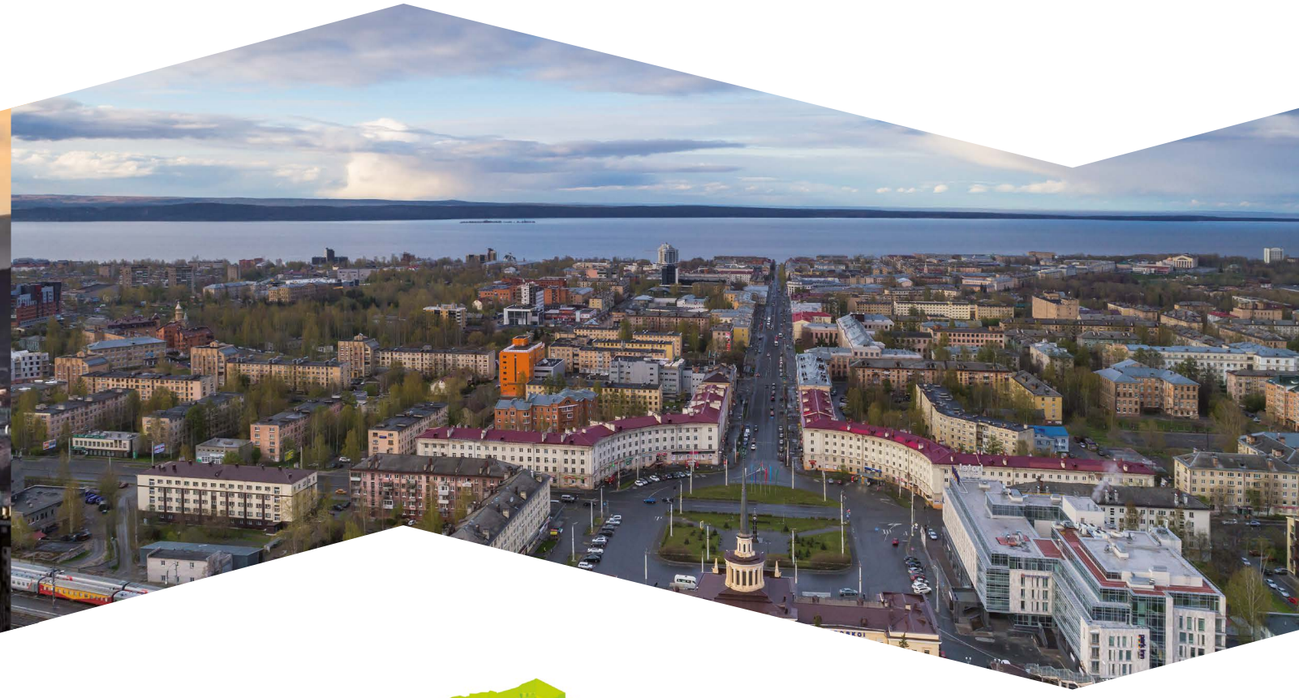
Russia



*Area: **144,902 km²***
*Population: **748,099 people***
*Population density: **5.16 people/km²***
*GRP: **$ 6.5 billion***
*GRP per capita: **$ 8.6 thousand***

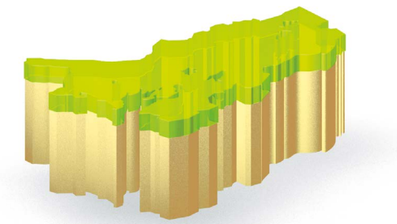
The Murmansk Oblast (region) borders Finland and Norway and is bound by the White and the Barents Seas. Most of the region lies beyond the Arctic Circle. The province is rich in minerals such as apatite and many others, as well as non-ferrous and rare-earth metals. Many minerals mined there cannot be found outside the region. Rich deposits of oil and gas have been discovered on the shelf of the Barents Sea, including the Shtokman gas field, one of the largest in the world. Shelf oil is being drilled at the Prirazlomnoye field in the Pechora Sea. The largest port in the Russian part of the Arctic is located in the City of Murmansk. Owing to the warm North Atlantic Current, all-year navigation is carried out in the Arctic seas adjacent to this province.

Karelia



#4
in Polar Index

Russia



*Area: **180,520 km²***
*Population: **617,920 people***
*Population density: **3.42 people/km²***
*GRP: **$ 3.6 billion***
*GRP per capita: **$ 5.6 thousand***

The western border of Karelia is also that between Russia and Finland. In the northeast it is bound by the White Sea. Most of Karelia is covered with hilly plains, with the land gently rising into the West Karelian Upland in the west. Mineral resources such as iron ore, non-ferrous metals, and raw materials used in the construction and ceramic industry are abundant in this region. Uranium ore is also mined there. Forests are one of Karelia's major resources. Almost one third of the regional industrial sector is accounted for by the timber industry, with three country's largest pulp and paper producers operating there. In Karelia, there are about 27 thousand rivers. Owing to the high hydropower potential, more than a dozen hydroelectric power plants operate in the region.

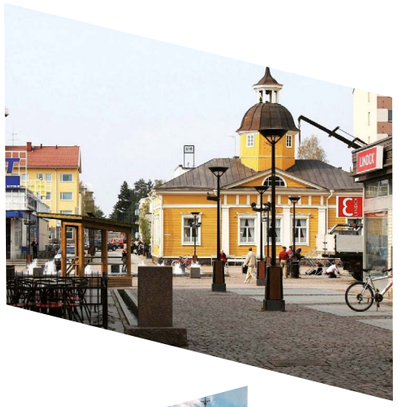
Troms

#5
in Polar Index

Norway

*Area: **25,877 km²***
*Population: **162,771 people***
*Population density: **6 people/km²***
*GRP: **$ 8 billion***
*GRP per capita: **$ 49.5 thousand***

Troms is one of the northernmost provinces of Norway. In the south it borders the Swedish län of Norrbotten and the Finnish province of Lapland. The entire province is in the Arctic. Due to its remote location, Troms is one of the least polluted areas in Europe. Most of the province is covered with mountains, while the coast of the Norwegian Sea is cut up by beautiful fjords. Tromsø, the administrative center of Troms, is home to the most northern university in the world, known for its research into the aurora borealis phenomenon. The commune of Harstad is the commercial center of the province; it is there that the head office of Equinor, the country's largest energy company, is located.



Polar Index
of the Barents Region

POLAR INDEX OF THE BARENTS REGION: COMPANIES

The Polar Index of the Barents Region: Companies is the first specialized rating of business entities operating in the Barents Euro-Arctic Region. It ranks 26 large international and local companies.

Numerous large public companies operate in the Barents Region, with their production facilities concentrated in the north of the Scandinavian Peninsula and in the neighboring regions of Russia. While in Finland and Sweden these are mainly gold mining and metallurgical companies, in Russia and Norway the big business invests into oil and gas, metallurgy, chemical industry etc. The Polar Index of the Barents Region: Companies covers 26 corporate entities operating in the provinces that are part of the Barents region, including nine Russian and nine Norwegian companies, and eight Swedish, Finnish and jointly owned Swedish-Finnish corporations.

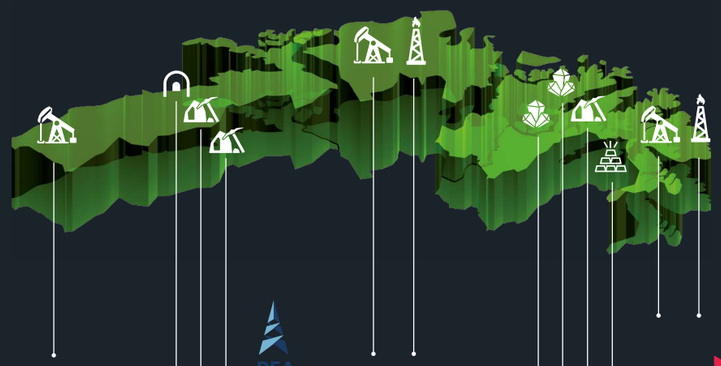
Each company's score (the Corporate Sustainable Development Index, or CSDI) is calculated using a special method considering a number of corporate sustainability parameters broken down into three blocks: economic, social, and environmental. All blocks are equally weighted.

Barents Region Companies Rating:

Rank	Company	Country	Polar index
1	Equinor	Norway	0.9
2	Rosneft	Russia	0.851
3	Alrosa	Russia	0.801
4	Lukoil	Russia	0.801
5	Boliden Group	Finland Sweden	0.767
6	Agnico Eagle Mines	Finland	0.765
7	Norilsk Nickel	Russia	0.762
8	DEA Norge	Norway	0.75
9	PhosAgro	Russia	0.731
10	Severstal	Russia	0.728
11	Nordic Mining	Norway	0.714
12	Nenets Oil Company	Russia	0.684
13	Gazprom	Russia	0.665
14	LKAB	Sweden	0.601
15	Sydvaranger Gruve	Norway	0.599
16	Concedo	Norway	0.595
17	Leonhard Nilsen & Sønner	Norway	0.566
18	Norge Mineral Resources	Norway	0.533
19	Dragon Mining	Sweden	0.521
20	First Quantum Minerals	Finland	0.4
21	Aurion Resources	Finland	0.366
22	Nussir	Norway	0.364
23	Skaland Graphite	Norway	0.339
24	Beowulf Mining	Finland Sweden	0.337
25	Sunstone Metals	Sweden	0.303
26	Rusal	Russia	0.272

The top ten include Equinor and DEA Norge, the Norwegian oil and gas companies operating in Finland and Sweden, the mining company Boliden Group, and the Canadian-based gold producer Agnico Eagle Mines whose facilities are located in northern Finland. Russia is represented by Rosneft and Lukoil, two oil and gas giants, the metallurgical companies Norilsk Nickel and Severstal, the diamond mining company Alrosa and the chemical holding PhosAgro.

Norway



Concedo

A Norwegian oil company focused on exploration of the Norwegian continental shelf deposits. The company operates offshore blocks, including in the Barents Sea.

DEA Norge

A Norwegian oil and gas company, a subsidiary of DEA AG and L1 Energy owned by Russian businessman Mikhail Fridman. The company specializes in exploration, drilling and production of oil and natural gas on the Norwegian continental shelf, including in the Barents Sea.

Equinor

The largest oil and gas company in Norway accounting for about 60% of offshore hydrocarbon production in the country. In 2012, it launched a joint project with Rosneft.

Leonhard Nilsen & Sønner

The company's key business is construction of roads and tunnels. The company owns several mines and is a contractor for several mining companies. The company operates in the northern part of Norway.

Nordic Mining

A Norwegian mining company engaged in the exploration, development and marketing of high-quality minerals and metals. The company operates in the northern areas of Norway.

Norge Mineral Resources

A Swiss-based mining company operating in the northern areas of Norway.

Nussir

A mining company that owns the largest copper mine in Norway located in Kvalsund, province of Finnmark.

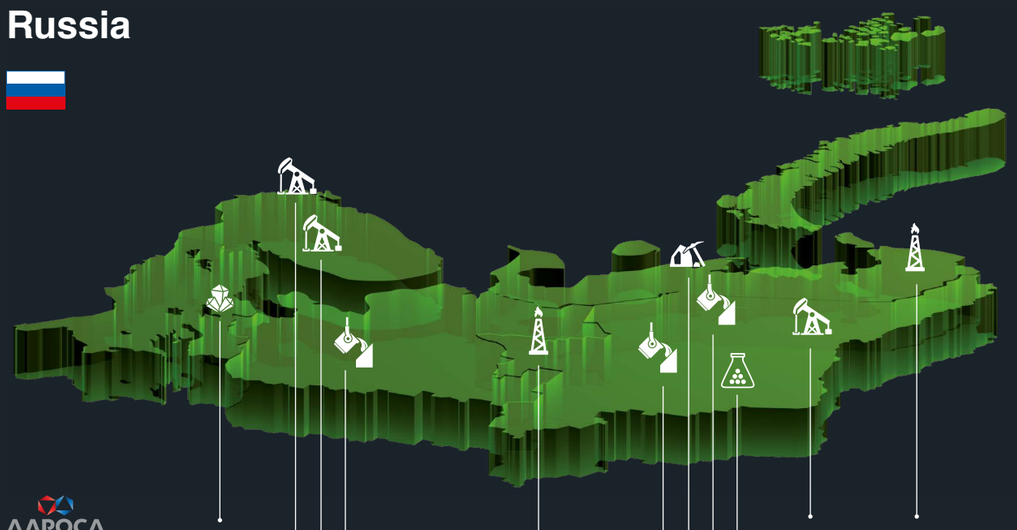
Skaland Graphite

A Norway-based supplier of crystalline graphite. The company operates across the Barents region.

Sydvaranger Gruve

A Norwegian mining company headquartered in Kirkenes, South Varanger, Finnmark.

Russia



ALROSA

A diamond mining corporation operating in North Russia including in the Arkhangelsk region.

Gazprom

A Russian multinational energy corporation that accounts for 11% of the world's and 66% of Russia's gas production.

Lukoil

The largest Russian private oil and gas company. Lukoil operates the Varandey terminal located in the Barents Sea.

Nenets Oil Company

A Russian oil company operating in the Nenets Autonomous District.

Norilsk Nickel

A Russian mining and metallurgy company. One of two company's major production sites is located in the Murmansk region.

PhosAgro

A Russian chemical holding. One of the company's key assets, the Apatit mining and refining facility, is located in Kirovsk, Murmansk region.

Rosneft

The largest Russian oil company. It is actively engaged in geological exploration in the Arctic, including on the Arctic shelf of the Barents Sea.

RUSAL

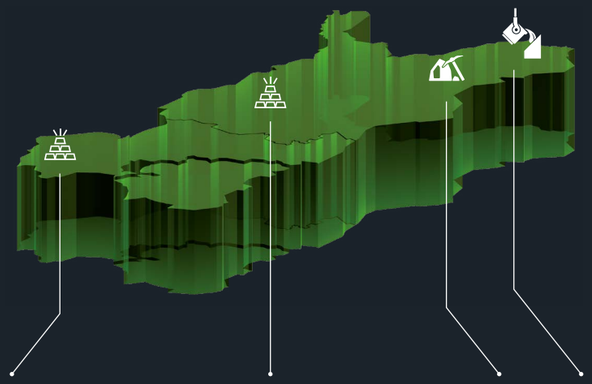
A Russian aluminum company that controls a branch operating in the Murmansk region (RUSAL Kandalaksha).

Severstal

A Mining and Metallurgy Company. Some of the company's assets are located in the Republics of Karelia, the Republics of Komi, and the Murmansk region.

Polar Index
of the Barents Region

Finland



Agnico Eagle Mines

A Canadian gold producer operating in Canada, Finland and Mexico. The company also owns assets in Lapland.

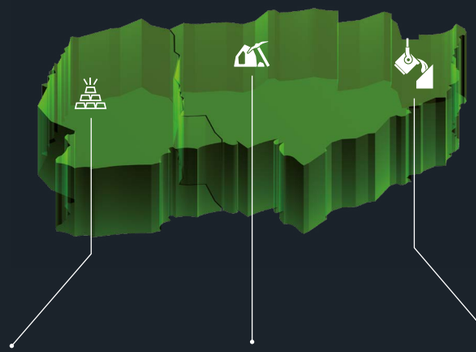
Aurion Resources

A Canadian exploration company. Since 2014, the company has been involved in prospecting and developing gold deposits in the Central Lapland Green Belt (CLGB), Northern Finland.

First Quantum Minerals

A Canadian mining company focused on exploration, development and mining of minerals. Pyhäsalmi, one of the company's six mines, is located in the southern part of Northern Ostrobothnia in Finland.

Sweden



Dragon Mining

A Scandinavia-based gold mining company operating in Sweden and Finland. The company's Svartliden mine (Västerbotten län, Sweden) is located in the Barents Region.

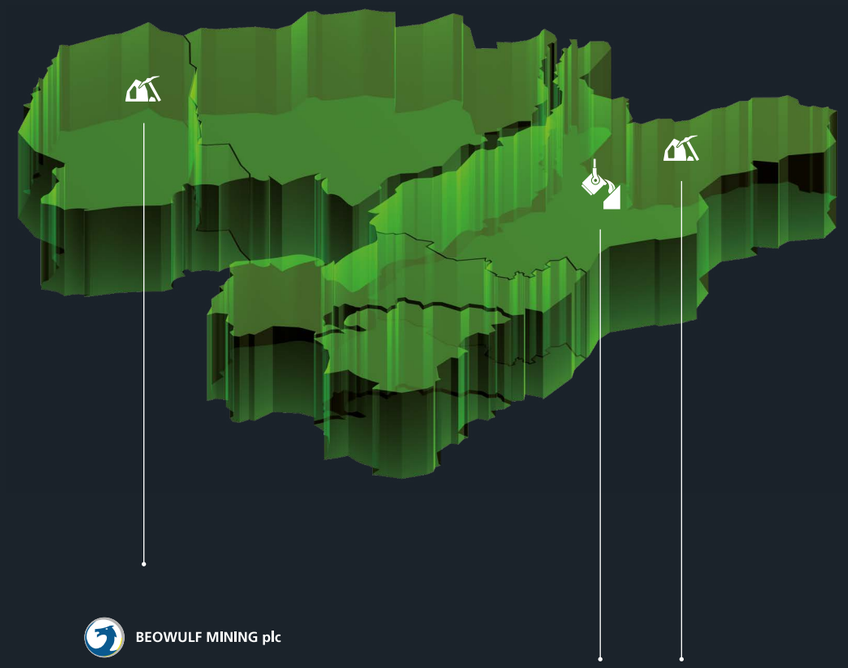
LKAB

A Swedish mining company that mines iron ore in North Sweden, in the vicinity of the cities of Kiruna and Malmberget.

Sunstone Metals

An Australian mineral exploration company. Viscaria Copper, one of the company's three assets, is located 5 km west of Kiruna, the northernmost city of Sweden.

Sweden, Finland



Beowulf Mining

A British mining company. The major company's project is that of developing the Kallak iron ore magnetite deposit in North Sweden. In Finland, the company has a portfolio of graphite projects.

Boliden Group

A Swedish mining and metallurgical company that specializes in production of copper, zinc, lead, gold and silver. After a series of acquisitions in the 1980s and 1990s, the company acquired the mining and smelting assets of the Finnish company Outokumpu. It operates mines in the northern parts of Sweden and Finland.

Polar Index
of the Barents Region

Equinor

#1
in Polar Index

Norway

Established: ***1972***
Turnover: ***$ 78.6 billion***
Net profit: ***$ 7.5 billion***
EBITDA: ***$ 27.2 billion[4]***

Equinor is an oil and gas company established in 1972 by decision of the Norwegian Parliament under the name of Statoil (rebranded in 2018). The controlling stake belongs to the Norwegian state. Equinor is not only the Norway's biggest corporation, but also the largest oil company in Northern Europe. The company is one of major crude oil suppliers in the world market and the key natural gas supplier to the EU. Equinor accounts for about 60% of Norway's offshore hydrocarbon production, including on the Barents Sea shelf. The company formally declares its commitment to the sustainable development principles: according to Equinor, the world needs more environmentally efficient oil and gas production and a significant increase in the use of renewables. Equinor says that it is big business that should play a key role in implementing the international agenda for a sustainable future.

*

[4] Hereinafter, the data as of 2017 are given if available; in some cases, due to the lack of current data, the 2014-2016 data were used. The figures for turnover, net profit and EBITDA are approximate, as when drafting the report we converted the figures in national currencies into those in US dollars at conversion rates relevant as of April 2019.

Rosneft

#2
in Polar Index

Russia

Established: ***1993***
Turnover: ***$ 133.7 billion***
Net profit: ***$ 8.9 billion***
EBITDA: ***$ 33.1 billion***

Rosneft is one of the world's largest public oil and gas companies. Its controlling stake is owned by the Russian state. A number of the company's production facilities are located in the Arctic. In addition, Rosneft owns about 80% of offshore field licenses in the Russian Arctic. Since 2009, Rosneft has been implementing a sustainable development policy enshrined in its corporate strategy. As the strategy defines it, the company's key goals are only achievable if the high standards of environmental and industrial safety, social responsibility and corporate governance are observed. The company is increasing the scale of environmental activities and the amount of investments in environmental protection. For instance, by the end of 2016, the relevant costs amounted to about $ 1.1 billion (3% more than in 2015), of which over $ 700 million are capital investments aiming to mitigate negative environmental impact.

Polar Index
of the Barents Region

Alrosa

АЛРОСА

#3
in Polar Index

Russia

Established: ***1992***
Turnover: ***$ 4.8 billion***
Net profit: ***$ 1.4 billion***
EBITDA: ***$ 2.5 billion***

Alrosa is a Russian-based group of diamond mining companies, which is the world leader in the amount of diamond extraction. As of 2016, the share of Alrosa in world diamond production exceeded 29%. The company accounts for 95% of all diamonds mined in Russia. The company's core region being Yakutia, it also has mining assets in the vicinity of the City of Arkhangelsk. In terms of Alrosa's corporate philosophy, the company's sustainability relies on the implementation of corporate social responsibility (CSR) measures. Such key measures aim at the environmental impact mitigation, the responsible use of mineral resources, and the protection of the environment. The company invests heavily in environmental protection measures. For instance, in 2016, Alrosa spent over $ 80 million for these purposes. It is the company's practice to provide financial assistance to social institutions, local communities and municipalities. In addition, Alrosa offers various forms of support to the indigenous peoples of the North.

Lukoil

LUKOIL

#4
in Polar Index

Russia

Established: ***1991***
Turnover: ***$ 128 billion***
Net profit: ***$ 9.9 billion***
EBITDA: ***$ 17.8 billion***

Lukoil is the largest private-owned oil and gas company in Russia. In the Arctic, the company operates the Varandey oil terminal located in 22 km off the Barents Sea coast in the vicinity of the township of Varandey (Nenets Autonomous District). Lukoil publicly adheres to the sustainable development principles. The company took important steps to ensure the environmental safety of the extraction, storage and transportation of petroleum products in the Arctic. Lukoil was the first Russian company to introduce the zero discharge technology at offshore projects. The company's spill response capacity relies on a developed infrastructure, a range of technical means, and a pool of highly trained professionals. For example, the Varandey terminal is equipped with oil spill response equipment including oil collectors, oil spill booms, motor pumps etc. The budget of the company's environmental safety program for 2017–2018 amounted to about $ 2 billion.

Polar Index
of the Barents Region

Boliden AB

#5
in Polar Index

Sweden

Established: ***1931***
Turnover: ***$ 6.04 billion***
Net profit: ***$ 829 million***
EBITDA: ***$ 1.605 billion***

Boliden is a Swedish mining and metal company involved in production of copper, zinc, lead, gold and silver. It owns mines in the north of Sweden and Finland, and is expanding its activities in the High North including through securing licenses for the development of new deposits. The company's priority is conducting business in an environmentally and socially responsible manner. To this end, Boliden invests in modern technology and development of sustainable and environmentally friendly processes for the extraction and processing of raw materials. As part of this effort, the company has introduced a technology enabling extraction of silver from zinc concentrate that helps reduce waste and minimize emissions. The company processes lead scrap, used electronics, and other waste. With view to contribute to rehabilitating the affected ecosystems, the company has been implementing a program for remediation of disposal areas. As part of this program, the rehabilitated areas are to be monitored for 30 years upon the end of restoration activities.

Agnico Eagle Mines

#6
in Polar Index

Finland

Established: ***1953***
Turnover: ***$ 2.191 billion***
Net profit: ***$ -327 million***
EBITDA: ***$ 754 billion***

Agnico Eagle is a Canadian gold producer with operations in Lapland. The Kittilä mine, the largest in Europe, is the company's major gold mining asset with significant expansion potential. Agnico Eagle is committed to economic sustainability, including through active exploration and development of new deposits. The company's strategy being focused on securing control of gold reserves exceeding its annual production by 10-15 times, Agnico Eagle manages to meet these parameters owing to a considerable portfolio of exploration projects. Agnico Eagle puts an emphasis on social sustainability. Through automation and implementation of safety programs, the company has achieved a steady reduction in accidents at mines. In 2016, Agnico Eagle was ranked 14th out of 92 oil, gas and mining companies on the rights of indigenous peoples in the Arctic compiled by the Norwegian Institute of International Relations.

Polar Index
of the Barents Region

Norilsk Nickel

#7
in Polar Index

Russia

Established: ***1989***
Turnover: ***$ 11.7 billion***
Net profit: ***$ 3.05 billion***
EBITDA: ***$ 6.2 billion***

Norilsk Nickel is the largest Russia's and one of the world's biggest companies engaged in production of precious and non-ferrous metals. It tops as the producer of palladium, and is one of key suppliers of nickel, platinum and copper. The company is keen on the efficient use of energy, reducing emissions, and protecting biodiversity. The closure of the oldest company's processing facility, the Nickel Plant, along with modernization and reconstruction of other facilities, made it possible to reduce SO_2 (sulfur dioxide) emissions in Norilsk by 30%. On completion of the ongoing company's initiative involving constructing filtering facilities by 2023, SO_2 emissions in the industrial region of Norilsk are expected to drop by 75% as compared to 2015. Norilsk Nickel takes steps to introduce the social responsibility principles into corporate practices. In autumn 2016, Norilsk Nickel joined the United Nations Global Compact, the flagship UN initiative on corporate social responsibility and sustainable development.

DEA Norge

#8
in Polar Index

Norway

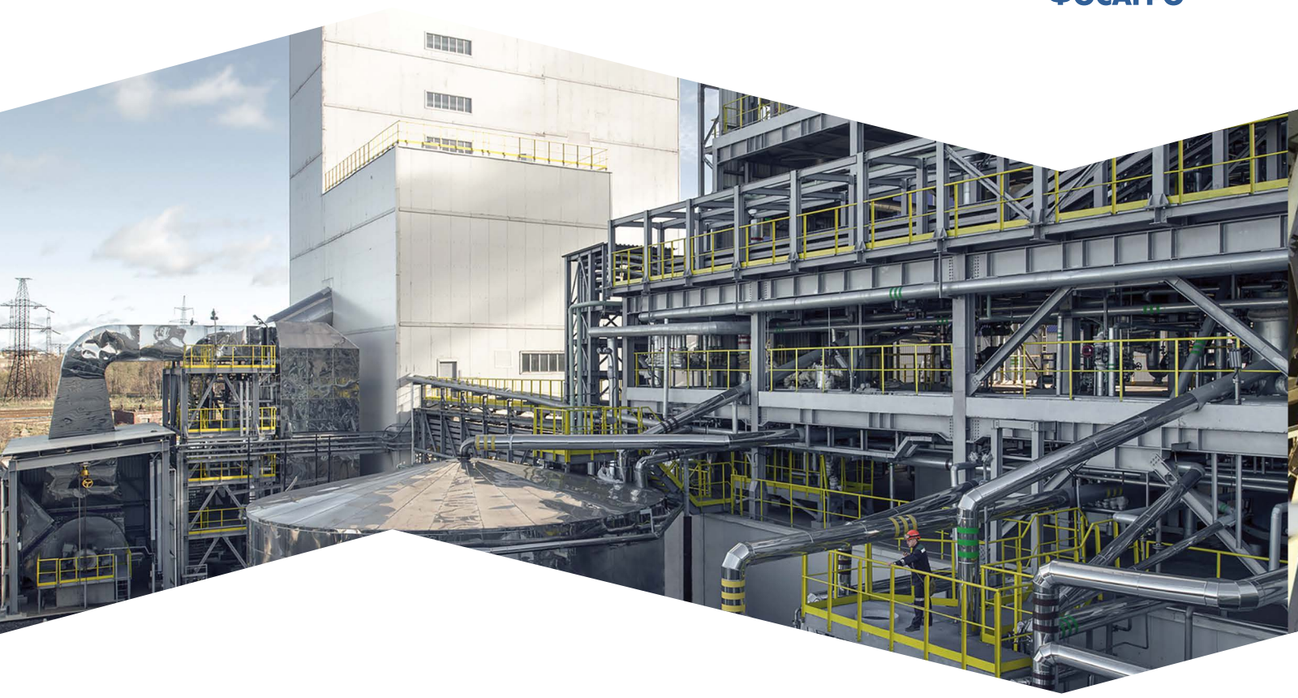
Established: ***1973***
Turnover: ***$ 1.638 billion***
Net profit: ***$ 23.7 million***
EBITDAX [5]: ***$ 1.047 billion***

DEA Norge is a Norwegian oil and gas company, a subsidiary of DEA AG and L1 Energy controlled by Russian businessman Mikhail Fridman. It specializes in exploration, development and production of oil and natural gas on the Norwegian continental shelf. The company owns a large license package, which includes shares in 51 shelf licenses. The company regards as promising the development of sites in the Barents Sea where over a half of Norway's undiscovered shelf resources are concentrated. Overall, DEA Norge co-funded drilling 28 prospecting boreholes and accounts for 10 discoveries in the Barents Sea. The company strives to maintain a balance between commercial interests and environmental commitments, and pays attention to a wide range of environmental and occupational safety issues.

[5] EBITDA plus exploration expenses

Polar Index
of the Barents Region

PhosAgro



#9
in Polar Index

Russia

Established: ***2001***
Turnover: ***$ 3.4 billion***
Net profit: ***$ 318 million***
EBITDA: ***$ 1.08 billion***

PhosAgro is a Russian vertically integrated company. It is the largest producer of phosphate fertilizers in Europe, as well as the world's biggest manufacturer of apatite concentrate, a high grade phosphate rock used for the production of phosphate-based fertilizers. The Apatite Mining and Processing Plant, one of the key company's assets, is located in the City of Kirovsk, Murmansk region. The company takes steps to ensure a high level of environmental and industrial safety. PhosAgro, together with UNESCO and the International Union of Pure and Applied Chemistry (IUPAC), launched Green Chemistry for Life, a project aimed at developing relevant safety technologies. As part of the project, the company funds research in such fields as environment and health, food, energy efficiency, and sustainable use of natural resources.

Severstal

#10
in Polar Index

Russia

Established: ***1955***
Turnover: ***$ 8.58 billion***
Net profit: ***$ 2.05 billion***
EBITDA: ***$ 3.14 billion***

Severstal is one of the world's major steel and mining companies. In the Arctic, the company operates the Olenegorsky Mining and Processing Plant (Olkon), the northernmost producer of iron ore in Russia. Severstal publicly declares its adherence to the principles of responsible mining and sustainable development in the long run. As part of the corporate environmental strategy, the company aims to reduce the environmental impact, as well as to increase energy efficiency and sustainability performance. The company is focused on improving the social climate in the areas where it operates, and invests into infrastructure, education, culture, and sports. Severstal takes steps to eliminate industrial injuries, and in particular to reduce the Lost Time Injury Frequency Rate (LTIFR).

Polar Index
of the Barents Region

POLAR INDEX TEAM

Expert Center
for Arctic Development
PORA

The Expert Center for Arctic Development PORA is a Russia-wide platform for communication between government, public and business entities interested in sustainable development in the Arctic. The PORA's mission is to raise public awareness of social, economic and environmental aspects of human activities in the Russian North.

FACULTY OF ECONOMICS
Lomonosov Moscow State University

The Environmental Economics Department was established in 1979 as part of the Economics Faculty at the Lomonosov Moscow State University to replace the Environmental Economics Laboratory founded in 1971 by T.S. Khachaturov, Member of the Academy of Sciences. The Department is the Russia's leading think tank in the field of environmental protection and stewardship at the global and regional scale. The research by the Department played a major role in introducing the concept of sustainable development in Russia.

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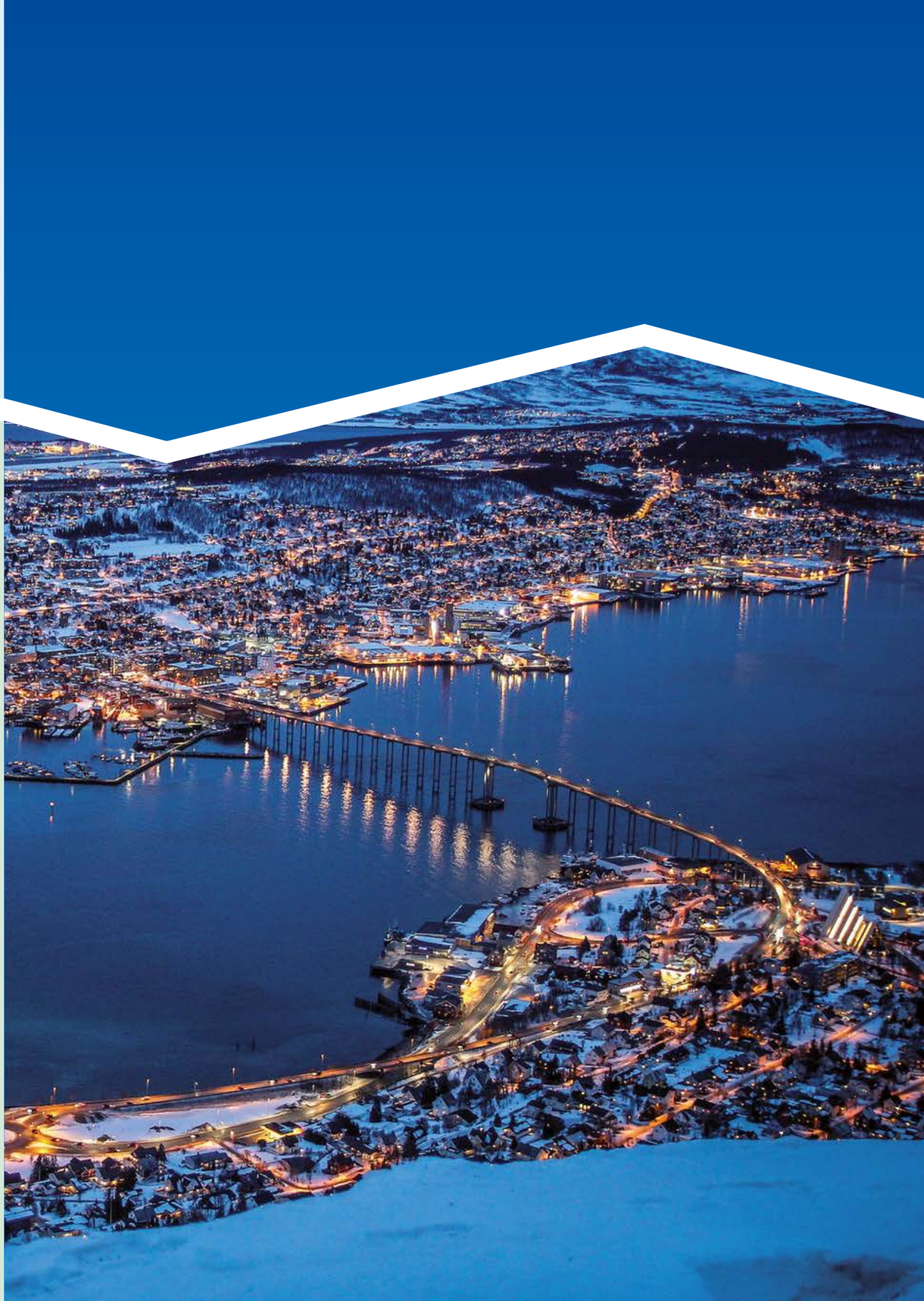

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