

3.5 Tourism

An important and growing economic factor

The tourism industry is a multi-billion Euro industry. It generates economic growth and provides important benefits, such as differentiated labour markets and increased quality of life in particular for the younger population.

To give an example: the tourism industry in northern Sweden has a turnover of 0.8 billion Euro.⁵² The tourism industry creates an important complement to the large portion of heavy industry in the Barents region. Additionally, the tourism industry has generated almost 27,000 new full time jobs in Sweden since year 2000.⁵³

Northern Europe offers a significant range of attractions and activities, which every year attract a great number of visitors from all around the world. Overall, the unspoiled natural environment in the entire region is a very important asset for a tourism industry increasingly oriented towards adventure and experience. The nature reserves are large and there are several world heritage sites in the region. The arctic elements are important assets in the region. A harsh climate, the northern lights, the dark winters illuminated by the snow and the warm summers with the midnight sun offer many exotic elements within a few hours of travel time from the big population centres in Europe.

Nordkap, Lofoten, the Ice Hotel in Jukkasjärvi, boat cruises in Lofoten, skiing and hiking in Narvik/Riksgräns and in Hemavan/Tärnaby, glacier and summer climbing courses and golf under the midnight sun, are some of the many activities available during winter as well as summer time.

Northern Finland offers skiing in Levi/Ylläs, Santa Claus Village in Rovaniemi, hunting, fishing and snowmobile safaris in the Finnish-Russian border land and many other activities. The tourism infrastructure in northern Finland has developed a lot during the last 20 years and the region has a large number of international visitors every year.

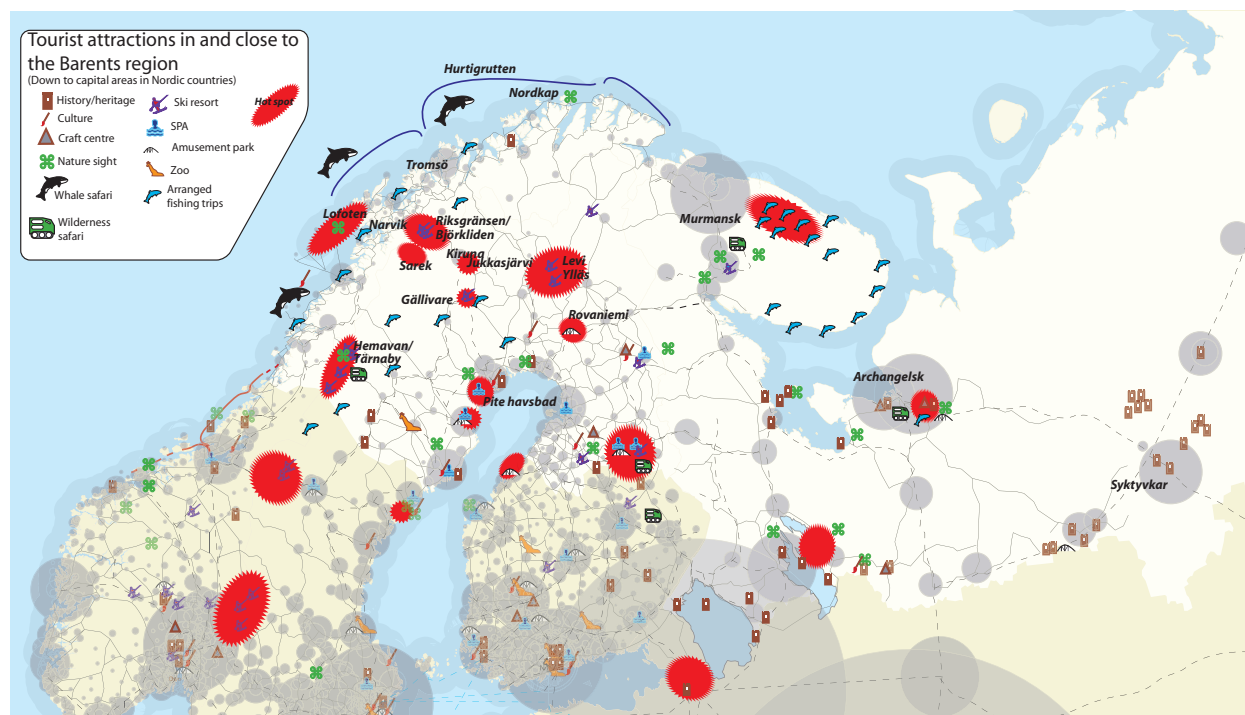


Figure 3.5:1 *Tourist attractions in the Barents region.*
Source: Public tourist information, modified by ÅF Infraplan

Many world-class fishing locations are available at the Kola peninsula. The vast area of the northwestern part of Russia also offers beautiful scenery and a wide variety of potential attractions, e.g. many world cultural heritage areas, skiing resorts and historical war sites.

Year round attractions are important in order to achieve sustainable economic conditions for the tourism industry. The Barents region can offer both winter and summer tourism, with a climate that occasionally offers temperatures of +30 degrees Celsius and midnight sun in the summer and long lasting winter darkness with temperatures down to 40 degrees below zero. This combination already contributes to the economy and has a potential to be further developed.

Future development of the tourism industry in the Russian part of the Barents faces special challenges. The language barrier is still a big hindrance to entice foreign tourists, for example low training levels among employees and a low percentage of signs in western letters. The shortage of information in the region, combined with a limited existing tourism infrastructure leads to a false image of the area as unfavourable for tourism.⁵⁴

52 Länstransportplan 2010-2021, Norrbottens län 2008
53 SCB Statistics Sweden

54 Source: Development Strategy for Cross-Border Tourism 2015 - Finnbarrens

Commercial nights spent

The tourism industry creates significant economic impact on a regional as well as local level. Furthermore, tourism provides job opportunities, in particular for women and young people.

Tourism expenditures include travel costs to an area as well as money spent within the area. The number of commercial nights spent at hotels, camping sites, holiday dwellings and other establishments is a good indicator of the positive economic impact of tourism within a region.

The well developed tourism and transport infrastructure in the western parts of the Barents region strengthens the accessibility to northern Norway, Sweden and Finland. Of a total of 14 million commercial nights spent in the Barents region 2008, 11 million nights were spent in the Norwegian, Swedish and Finnish parts of the region. 3 million nights were spent in the Russian part of the region⁵⁵.

Safari tours and fishing trips in the vast wilderness of the Kola peninsula and Archangelsk tundra are difficult to include in statistics regarding nights spent. This may indicate that tourism in the Russian parts of the Barents region are somewhat better developed than the official statistics presented in figure 3.5:2 illustrates. The nights spent in the tourism industry in the Russian part of the Barents region are equal in number to other parts of the Russian Federation, with the exception of St. Petersburg and Moscow areas.

Substantial market potential in tourism

Tourism is a growing industry in the Barents region. More and more people earn their livelihood from visiting tourists. European interest in the north increases. Extensive investments are planned to take place in the tourism industry within the next ten years. In northern Sweden only, these investments amounts to approximately 0,3-0,5 billion Euro.⁵⁶ Cross-border cooperation is an important potential and EU funding is available to develop easier access regardless of country.

Year round attractions are important in order to achieve sustainable economic conditions for the tourism industry. Alpine skiing is available in several parts of the Barents region and new resorts can still be constructed, especially where there are high mountain ranges close to major population areas.

⁵⁵ Eurostat & Russian Federal State Statistics Service
⁵⁶ Regional systemanalys, de fyra nordligaste länen. 2008

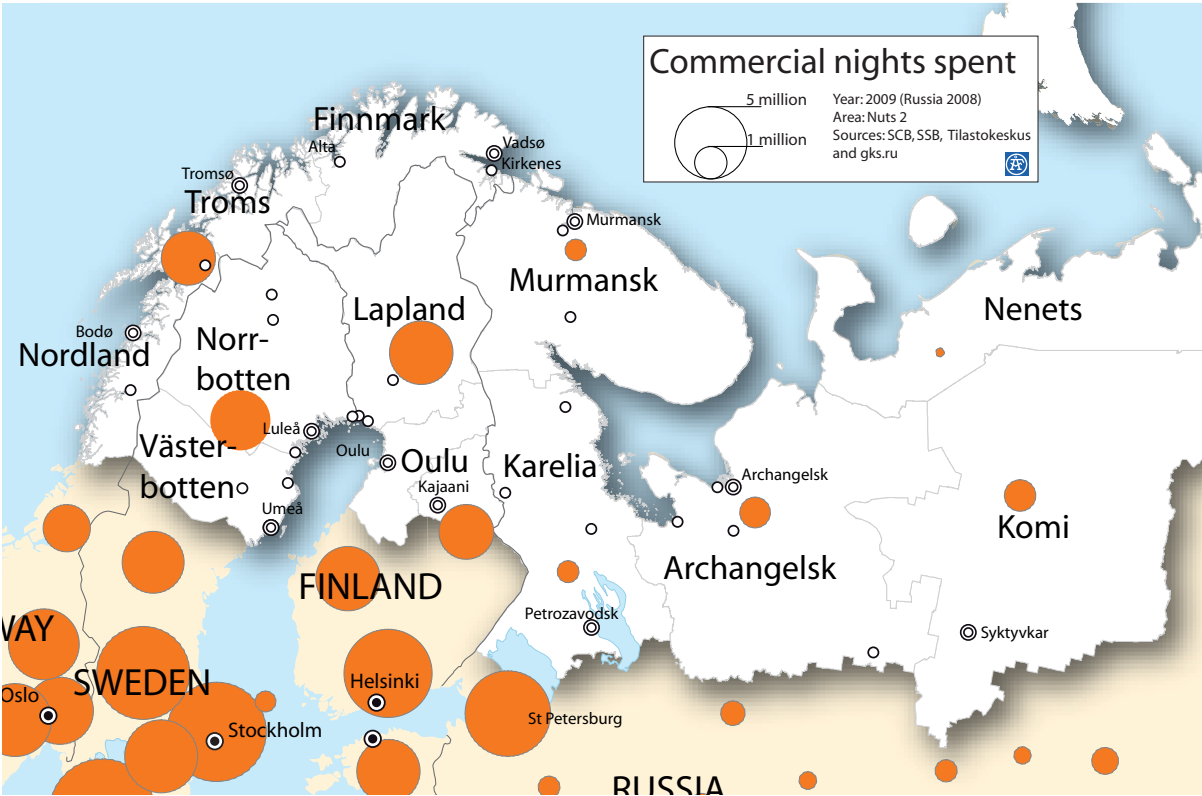


Figure 3.5:2 Commercial nights spent in the Barents region.
Source: Eurostat, SCB and GKS, adapted by ÅF Infraplan

	Nights spent	
	2008	2009
Murmansk Oblast	450,000	data not available
Republic of Karelia	465,000	data not available
Arkhangelsk Oblast	915,000	data not available
Republic of Komi	962,000	data not available
Nenets	77,000	data not available
Northern Finland	4,785,000	4,641,000
Northern Sweden	3,458,000	3,475,000
Northern Norway	2,827,000	2,801,000
Barents region	13,900,000	

3.6 Other natural resources

Fish and fish products

Norway's fish exports in 2006 amounted to about 6 percent of the world's total fish exports, putting Norway in second place - behind China - on the list of the world's largest fish exporters in terms of value.

Norwegian exports of fish and fishery products in 2007 was about 2.2 million tonnes, reaching a value of approximately 5 billion Euro. Exports to the EU countries accounted for 63 percent of the export value.

Reindeer industry

The Sami, Nenets and Komi are three indigenous peoples working with reindeer husbandry in the Barents region. The country of the Sami is called Sápmi and covers major parts of northern Norway, Sweden and Finland. The Nenets and the Komi live in the Russian part of the region and a big part of the indigenous population here is integrated in Russian society.⁵⁷

Reindeer breeding is an important part of the cultural heritage of these indigenous peoples, but few of them are still engaged in the profession. Reindeer breeding is exercised almost over the entire surface of the Barents region. In Norway and Sweden, reindeer herding is more important as a revenue-generating business than in the rest of the region, but even in Norway and Sweden it is of relatively low economic importance.⁵⁸

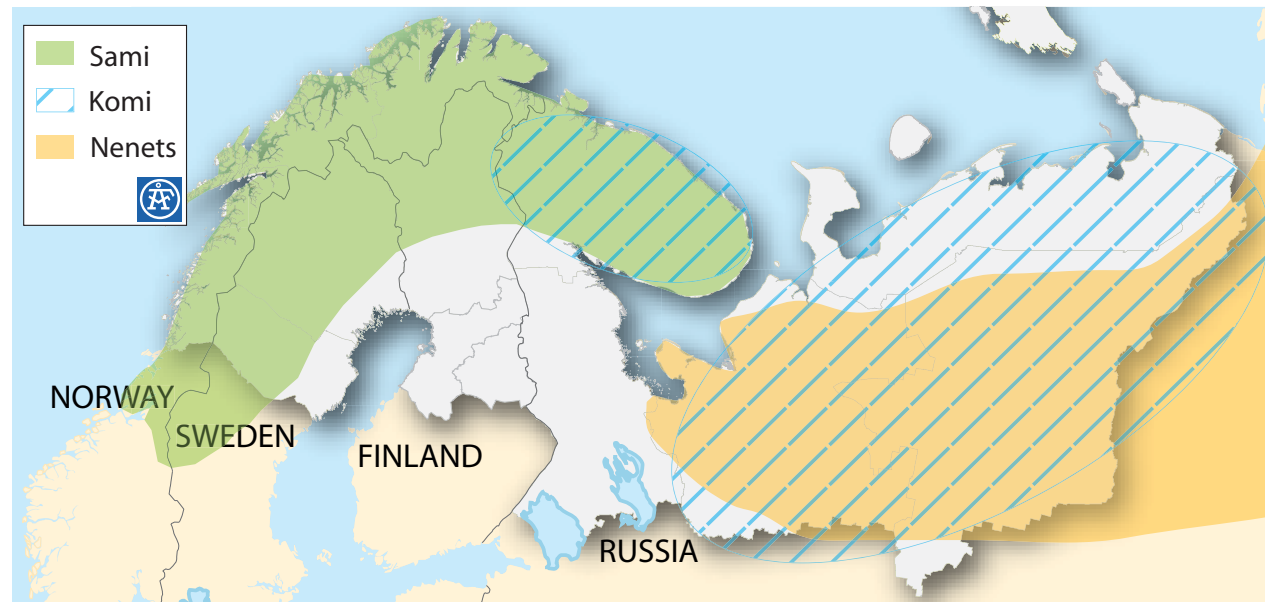


Figure 3.6:1 Land of the Sami, Nenets and Komi peoples and areas of interest for reindeer breeding.
Source: Barents info, adapted by ÅF Infraplan

⁵⁷ Sápmi <http://www.samer.se>

⁵⁸ www.barentsinfo.org

4 Transport systems

4.1 Overview

Northern Europe is peripheral in relation to the large markets and its transport infrastructure is to a large extent divided along the many national boundaries of the area. The population and commodity-based industry of the region is separated in a few, largely national, clusters that are far apart and inaccessible from each other. The general situation for industries and firms is that the markets are far away and that long

distances result in high transport costs. These conditions are amplified by the operation of the transport infrastructure in mainly separate, national transport systems.

Today, the transport systems function relatively well within each country, however, mainly in the north-south direction. Freight flows are dominated by raw materials and refined products transported in the north-south direction,

primarily by sea and rail⁵⁹. The north-south transportation routes are therefore the most developed, but particularly in the case of the railway, major bottleneck problems have arisen due to the gradual increase of flows to the densely populated parts of the EU.

The crossways and cross-border transportation are currently limited, partly due to deficiencies in the infrastructure but also because of some administrative obstacles⁶⁰.

Deficiencies in the infrastructure cause difficulties in integrating the fragmented overall structure. In addition, the deficient transportation system makes the development of economic activities in the Barents region more difficult. This is particularly true across the border between the Nordic countries and Russia.

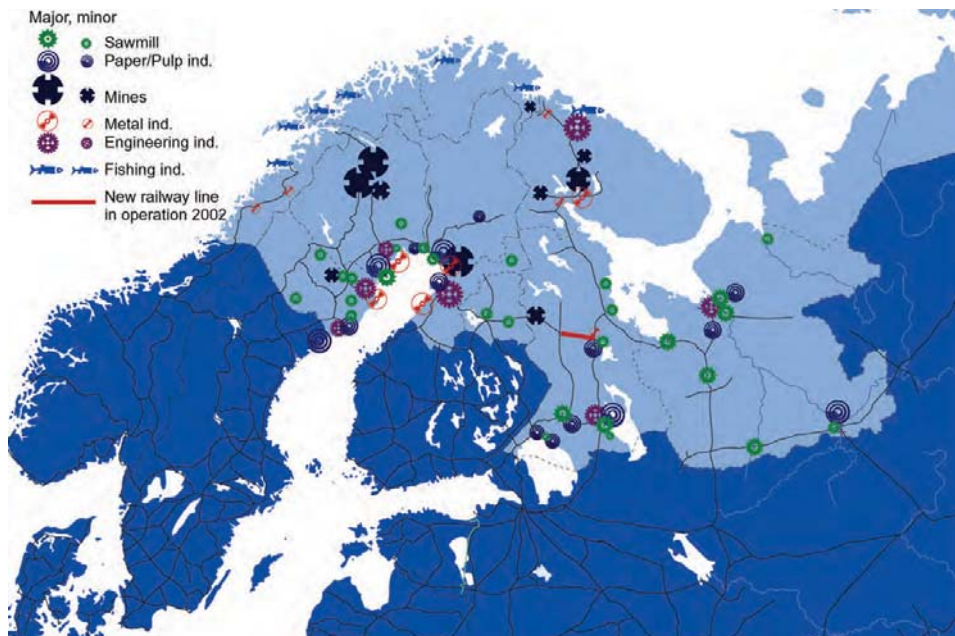


Figure 4.1:1 Large and medium-sized companies in different fields in the Barents region.
Source: New Railway Umeå-Haparanda. 2003.

59 The North Bothnian Line: Freight Transport Study, 2005. ÅF Infraplan
60 Nordkalotten, Facts and Vision 2025, 2009. ÅF Infraplan



Figure 4.1:2 The Barents region has great potential to develop intermodal transport solutions with railway system as an important basic structure.

Source: Regional systemanalys för de fyra nordligaste länen, STBR Barents Railway Network.

4.2 Key nodes and links

Large volumes of goods

Large volumes of goods are currently being transported on the rail and road network and through ports in the Barents region. The transport flows are predominantly in the north-south direction, and the infrastructure has been developed accordingly. The low demand for east-west transportation depends on administrative, cultural, linguistic and infrastructural factors, which have gradually improved during the last two decades.

The main product groups for transports are:

- raw materials like ore, forestry and fishery products exported from the Barents region
- goods that are produced and further processed in the Barents region
- consumer goods that are imported into the Barents region

As the industry in northern Norway, Sweden, Finland and Russia contributes to large shares to the exports of each of these countries, the southbound transport flows are twice as large as the northbound flows for both rail and sea transports⁶¹. The share of road transport is significantly lower in northern Sweden, northern Finland and northwest Russia, with road transport flows slightly higher in the northbound than in the southbound directions. The transport volumes are large both in volume and in terms of heavy weight.

The increase in goods flows that supply the EU with strategic raw materials and products have resulted in the development of critical bottlenecks. Shipping and railways, often in combination, are transporting vast volumes.

Heavy rail routes

The railway system is very important to the export intense industries in northern Europe.

The most important rail routes are:

- The Malmbanan line: Luleå-Narvik: Primarily iron ore pellets on the routes Kiruna-Narvik port and Malmberget-Luleå. In addition, copper Gällivare-Skelleftehamn, inputs for mining from the port of Narvik as well as fish are transported on the line. Furthermore, timber is transported to coastal industries on the line.
- Further south through Sweden, along the Swedish main lines constituting the “Bothnian Corridor”, very large amounts of cargo, mainly steel, copper materials, forest-based products and fresh fish (from northern Norway) are transported.
- The Finnish main line provides the major ports and industries with rail transport, and connects the coastal towns of Tornio, Kemi, Oulu, Raahé and Kokkola with southern Finland. The line Vartiuss-Kontiomäki-Oulu also has extensive freight traffic.
- From the Kola Peninsula in northwestern Russia, large flows of ore and mining-based products are headed for St. Petersburg and Moscow for further processing. Karelia provides with large flows of both forest-based products and mining products. When the relatively new east-west rail link Kotskoma (by the Murmansk railway) to Ledmozero (at Kostamuksha near the Finnish border) is fully developed, regarding for instance the signalling system, the east-west flows will grow.

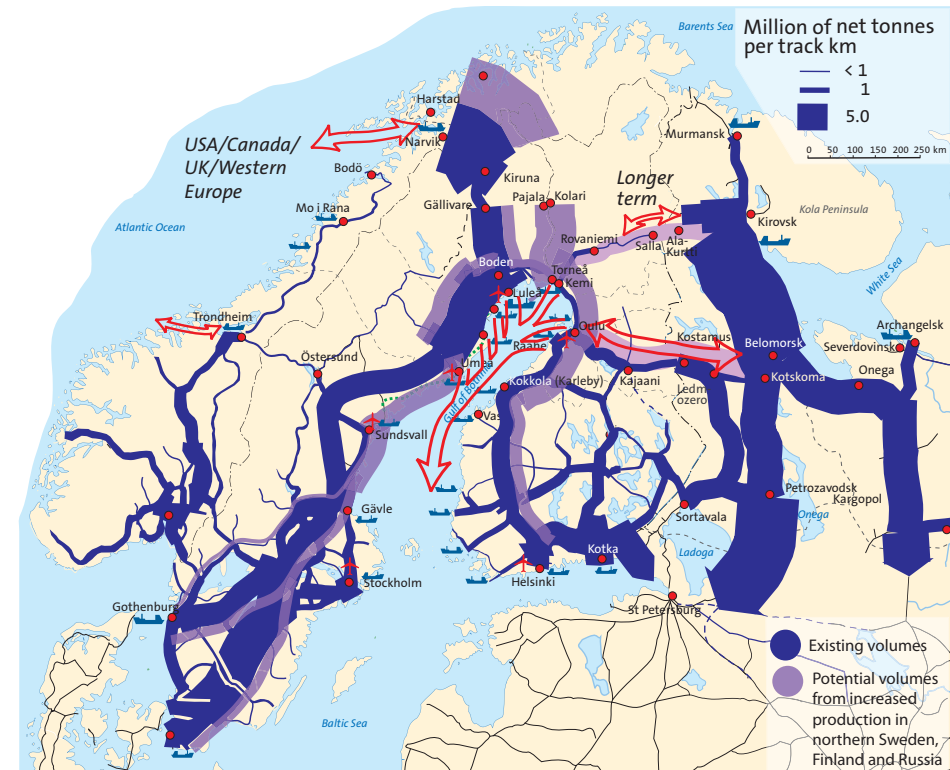


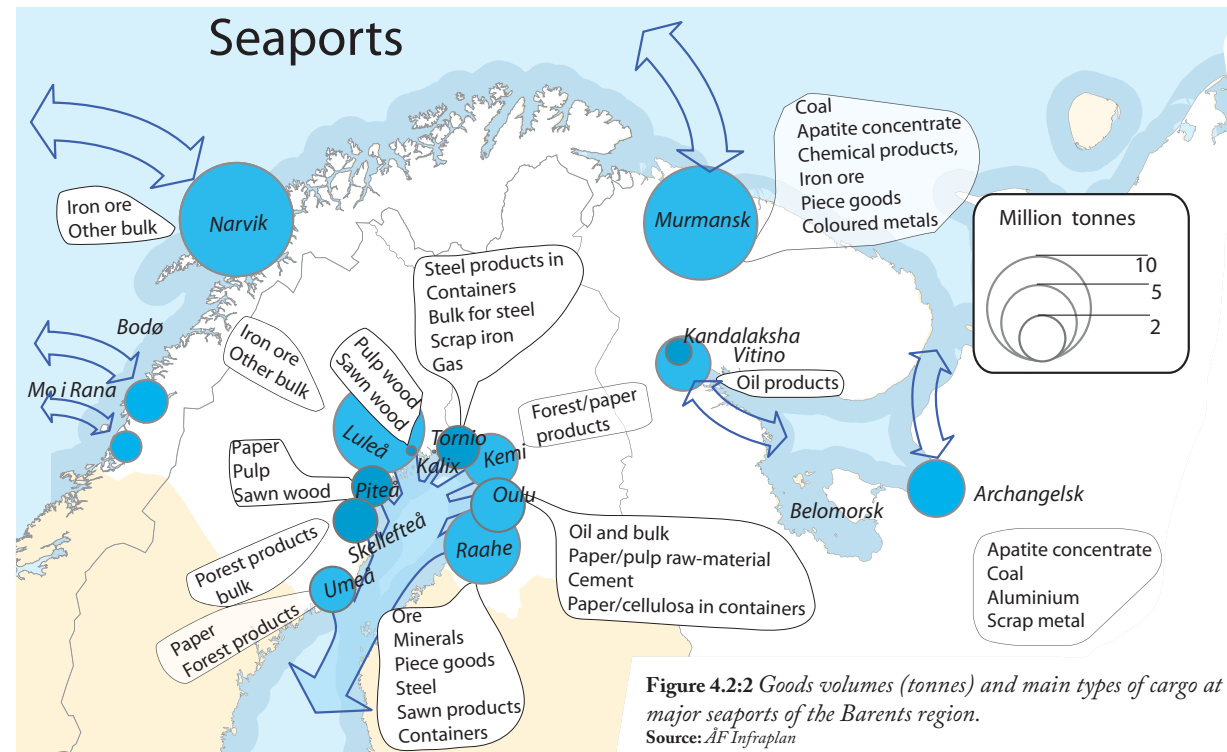
Figure 4.2:1 Freight volumes on the railway system in the Nordic countries and northwestern Russia. Existing and estimated volumes. Source: ÅF Infraplan

- The Haparanda line Kalix-Haparanda is now constructed as 50 km new railway, (investment costs for Sweden: 0,3 billion Euro) which will be an important precondition for border crossing flows Russia-Finland-Sweden-Norway/southern Sweden and the densely populated parts of the EU.
- So far only few freight cars with limited capacity operate on the railway across the Swedish-Finnish border at Haparanda/Tornio. The main reason is the still unsolved terminal problem to shift between the different rail gauges. There are great potentials for the transfer of goods from lorry to rail as well as for vast extended transport volumes, based on new mines, timber imports from northwest Russia, commodities to northwest Russia etc.
- With four (and possibly more) new mines in Pajala and Kolari the importance of the Kolari line will increase substantially. The upgrading of the Tornio-Kolari line and the building of a new link with Finnish gauge Kaunisvaara (Northwest of Pajala) -Äkäsjokisu (Northwest of Kolari) are planned.

⁶¹ The North Bothnian Line: Freight Transport Study, 2005. ÅF Infraplan

Major seaports

- The port of Narvik is a strategically important node in the EU's designated trans-national transport corridor, "The Northern Axis" and the NEW-corridor. The port is LKAB's main embarkation and disembarkation port mainly for iron ore pellets and filler material for pellet production to and from Kiruna.
- The port of Murmansk is significant for northwest Russia's businesses. The port is an important embarkation and disembarkation port for inter alia coal, iron ore and chemical products.
- The port of Luleå handles large volumes of bulk cargo, mainly iron ore pellets from Malmberget, and incoming coal.
- The port of Umeå handles oil and bulk, paper, pulp, cement etc.
- The port of Raahe handles large volumes of bulk cargo, including iron ore from Gällivare going out via the port of Luleå, and other minerals, steel products, sawn wood products, etc.
- The port of Piteå handles mainly forest products, kraft liner and pulp.
- The port of Skellefteå handles mainly bulk, forest products, melting materials and finished products to and from the Rönnskär smelter and slabs, scrap and lumber.
- The port of Umeå handles primarily forest products (half the volume) and general goods (about 25 percent of the volume). The ferry connection over the Kvarken strait to Vaasa in Finland is important both for freight and passenger traffic
- The port of Kemi so far handles primarily forest products. The port is currently planned to also handle shipments for the initial phases of mining operations in Pajala/Kolari and perhaps also for the long term.
- The port of Tornio handles mainly steel products and inputs for the steel industry.



Intermodal nodes

There are ten identified intermodal nodes in the Nordic part of the Barents region:

- Raahe
- Kemi/Haparanda/Tornio
- Piteå
- Narvik
- Umeå (Port of Umeå and Nordic Logistic Center)
- Oulu
- Luleå
- Gällivare
- Mo i Rana

The degree of containerisation is low at the intermodal nodes in the Nordic part of the Barents region, except for Umeå, mainly due to a lack of co-ordination, fragmentation on a large number of transport operators and difficulties in finding return freights⁶².

The export intense industries create larger southbound transport volumes than northbound. This leads to better economic circumstances and profitability for container ports in the south since they can achieve more balance between in and out transports. However, there is potential for increased containerisation and competition in the north, but it requires more co-operation and co-ordination between ports and terminals with complementary functions.⁶³

⁶² The North Bothnia Line: Freight Transport Study, 2005. ÅF Infraplan
⁶³ Efficient east - west logistics in Nordkalotten. 2003

Ice-breaking capacity

The Baltic Sea region is highly dependent on sea transport. During the winter, when the northern parts of the Baltic Sea are covered with ice, efficient ice-breaking services are required to ensure accessibility to the ports. Year-round accessibility to the ports in the region is of vital interest not only for the Baltic Sea states but for all countries in the EU. Swedish and Finnish icebreakers have for many years formed a joint force serving the industry on both sides of the northern part of the Baltic Sea.

There is an agreement from 1961 concerning certain matters of how the Baltic Sea countries will cooperate in the ice-breaking collaboration. Sweden and Finland has a highly developed cooperation and is currently working on how this ice-breaking collaboration between the two countries should be enhanced and improved even more.

Winter and ice are obstacles that require a functioning ice-breaker service and that ships operating in the area are built and equipped to cope with the climate. Ice capacity ships tend to be slower or less fuel-efficient than ordinary ships⁶⁴, which implicate higher transport costs and therefore has a certain impact on trade and on the competitiveness of the industries in the region. Finland and Russia are considered to have the worlds best expertise on construction of ships with ice-breaking capacity. The development of the polar gas fields in the Barents Sea has lead to a rapid development of new ship designs to cope with the extreme ice-conditions.

Passenger transport by railway

Due to the lack of a coastal railway, the passenger train services in northern Sweden are mainly limited to night train services⁶⁵. Some limited daytime rail services operate on the Malmaban line Narvik-Kiruna-Gällivare and Luleå-Boden, but the long travel times on this line limit the possibilities for commuting.

The Haparanda line today lacks passenger traffic but the ongoing construction of a new 50 km long link will improve the conditions in particular for freight but also for passenger transports. The investment costs for Sweden of the new link amount to 0,3 billion Euro.

In northern Finland, there is a wide range of rail traffic on the route Kemi-Oulu-Helsinki. There are a few night trains per week during the winter tourist season to and from Kolari. Kemi-Tornio is today connected by bus. There are a few bus routes on the Tornio-Haparanda route.

Northernmost Norway lacks continuous railway. There are rail services between the Bodø region and Helgeland via Trondheim to southern Norway. The region around Narvik is served by the Malmaban line; Narvik-Kiruna-Boden/Luleå (-Southern Sweden).

Aviation

The long distances mean that air transport is of great importance for northern Europe's function and intercommunication, both externally and internally. The flight connections are currently mainly limited to routes to and from the respective national aviation hubs with international links (also within the Barents region) mainly with detours via the national hubs.

Since the 1990's, cross-border flights has been pursued within the Barents region, but it has been difficult to maintain endurance with the tested routes.

Aviation plays an important role for the tourism industry, especially for destinations that compete on a large geographical area. The Barents region's major tourist destinations are easily accessible by air and can be reached from central Europe on a relatively short travel time, see figure 4.2:3.

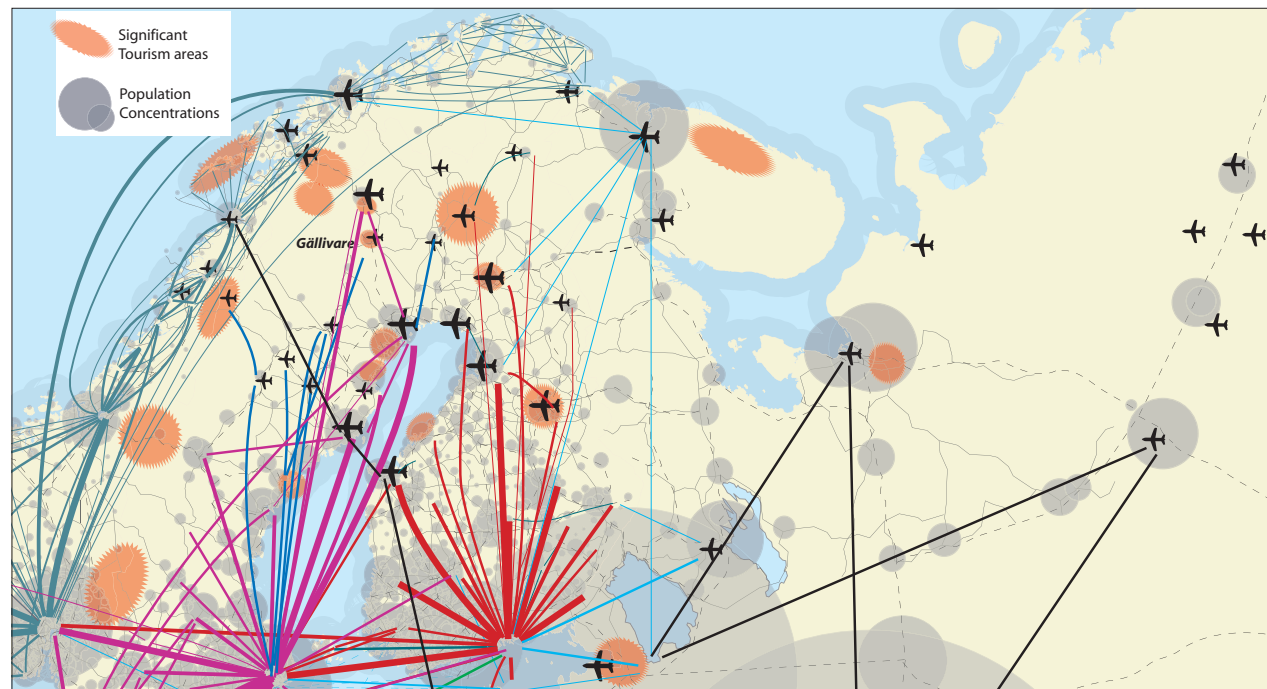


Figure 4.2:3 The long distances mean that planes are of great importance for the Barents region's function and intercommunication, both internally and externally. The flight connections are currently mainly limited to routes to /from the respective national aviation hubs with international links (also within the Barents region) mainly with detours via the national hubs.

⁶⁴ Aker Arctic Technology Inc. Helsinki

⁶⁵ The Bothnian Corridor, 2008

4.3 Transport corridors

Prioritised transport corridors and trans-national axes

In northern Europe today, only the Nordic Triangle, which links the Nordic capitals, and the Motorways of the Sea are priority projects. During 2009-2010, the EU list of 30 priority projects will be revised. Several of the projects (transportation corridors) are under completion, and the Commission is therefore open to bringing in new items. However, a prerequisite for receiving EU funding is that the items are prioritized in the national infrastructure plans.

The EU has identified five trans-national axes, which consist of a number of transport corridors linking Europe with the outside world. The northernmost of these is the Northern Axis.

The northernmost part of the Northern Axis is also a link in the NEW corridor (North America-Narvik-Haparanda/Torneå - Vartius- St. Petersburg-China). See figure 4.3:2.



Figure 4.3:1 Prioritized corridors and trans-national axes.
Source: The Bothnian Corridor, AF Infraplan

Today there is a lack of a connecting north-south corridor between these designated corridors. See figure 4.3:1.

The Bothnian Corridor, with its large and considerably growing freight flows, is a strategically important transnational link in the freight transport system in Europe⁶⁶. The corridor runs on both the Swedish and Finnish side and connects the east-west and north-south trans-national axes in Sweden, Finland, Norway and Russia. The corridor connects NEW within the Northern Axis with the Nordic Triangle. The corridor also has an important connecting systems function for the east-west transportation routes Finland-Sundsvall-Östersund-Trondheim and Vaasa-Umeå-Mo i Rana.

⁶⁶ The Bothnian Corridor, The Priority Railway Corridor of the Northern Europe, 2009



Figure 4.3:2 The Northern East West (N.E.W.) Freight Corridor is an intermodal transport corridor that links the North American East Coast to Scandinavia, Russia, China and Central Asia, via the port of Narvik and the railway system in the Nordic countries.
Source: N.E.W., UIC (International Union of Railways) 2004

Green transport corridors

The concept of green corridors that is being discussed in the European Commission's initiative to develop a greener transport policy, is to meet the climate challenge while increasing Europe's competitiveness. The Swedish government wants to contribute to the development of transport areas to be forcefully driven forward in partnership. The demonstration of effective transport solutions is a way to move forward. The freight thoroughfare Bothnian Corridor is important for the EU and conditions for a more climate friendly freight transportation system is called for.

One east-west green transport corridor being discussed is passing through Sweden to Haparanda/Tornio and to Narvik, i.e Bothnian Corridor and the western parts of NEW-corridor and the northern branch of the Northern Axis.

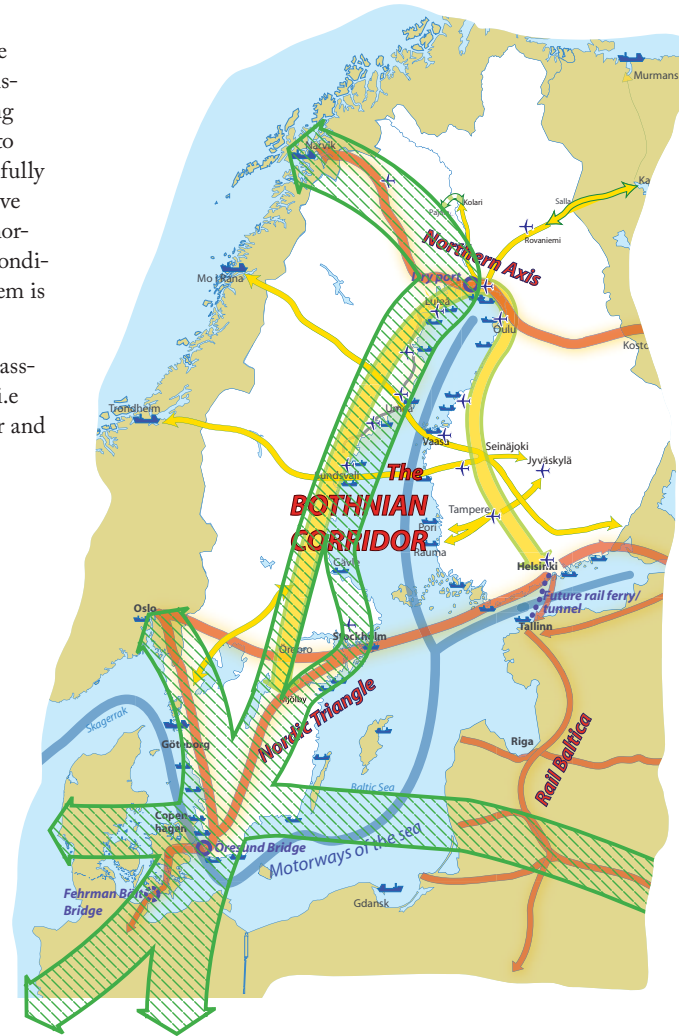


Figure 4.3:3 *The Bothnian Corridor and the Malmbanan line are essential links in the development of green transport corridors.*
Source: *The Bothnian Corridor, AF Infraplan*

4.4 The functioning of the transport system and industrial needs

Better transports are called for

The gradually extending freight flows have gradually caused capacity problems in particular within the railway system. The transports by ship need improved intermodal terminals and partly better deep-capacity in the ports. The road system within the Russian parts of the Barents region needs improvements, but also Finland, Sweden and Norway need better roads, in particular concerning bearing capacity during spring time.

Capacity problems in the rail network

Today's capacity is strained at strategic times along the Malm-banan line, the Haparanda line, the Swedish main line through upper Norrland and the Finnish main line. The high capacity utilization leads to a high sensitivity to disturbances and difficulties in resetting the system to normal operation after a disturbance. The Swedish main line through upper Norrland is expected to remain heavily congested and progressively reach maximum capacity already within 5-10 years, thus even before the planned North Bothnia line is built⁶⁷. The Finnish main line will be further congested. Planned investments in double tracks (Tornio-Oulu-Tampere) are likely to improve the capacity⁶⁸.

The border passage Haparanda-Tornio is technically complex as Finland and Sweden operate different gauges, where Sweden uses the same gauge as most of the EU. Track switching is problematic in the cold climate and inadequate technological development is limiting the development of cross-border rail traffic.

⁶⁷ In Sweden the volumes predicted for 2020 were reached already in 2006 (SIKA). The train operator Green Cargo predict that the Stambanan through upper Norrland only can handle up to 5 percent more transports unless the North Bothnian Line is built.

⁶⁸ The Bothnian Corridor -The priority Railway Corridor of Northern Europe

Taking into account the planned expansions and reinforcements of the railway, some capacity problems will be overcome, while others might occur. The route Narvik-Kiruna is estimated, with the planned extensions of the passing loops, to reach beyond 60 percent capacity utilization, which would be a significant improvement. However, it is estimated that the planned measures will not be sufficient for the route Murjek - Luleå, which already has capacity problems. The very heavy transports on the Malmbanan line is of great importance to the whole northern region, but is at the same time very sensitive to disturbances.

The new Haparanda line will have adequate capacity. A significantly larger amount of freight trains and also passenger trains, which are not currently operating on this line, will be able to traffic the route Boden-Kalix- Haparanda.

The Kolari railway is currently undergoing renovation, which is estimated to be completed in 2011, with operation starting in 2012. This renovation will allow for about 3 million tonnes of cargo per year to be transported on this line⁶⁹. The planned mining operations in the Pajala/Kolari region, however, are estimated to be able to generate around 8 million tonnes of iron ore products per year⁷⁰. This will require substantial investment in the Kolari railway in order to permit 25 tonne axle load, 12-ton load meters and 750 meter long trains. Electrification and noise mitigation are other necessary measures. Since these measures are costly and take time to implement, significant capacity deficiencies may occur.

With increased cross-border transports between Finland and Russia there is a risk that capacity problems will occur on the route Kajaani-Vartiuss. Today's planned (very limited) investments are unlikely to be sufficient for the expected traffic growth⁷¹.

Effects for the industry in the Barents region

The railway system is very important for the economy in the Barents region and in the EU as a whole. In particular, the heavy and frequent ore and slab shipments, place special demands on capacity, load-bearing capacity and allowable axle loads.

Improved transportation makes it easier for new companies to establish themselves. Their corporate markets grow geographically to include Norway, Sweden, Finland and Russia. Efficient passenger transport and freight on rail also enhances the businesses cluster interaction and increases competitiveness.

Production and export values are maintained/developed through improved transport systems, thereby allowing higher processing rates and enhanced competitiveness. The labour market becomes more dynamic and the recruitment of labour is facilitated. Enhanced and efficient passenger transport contributes to an improved skills supply within the different economic sectors and strengthening the region's collective, internationally prominent mining and forestry skills.

The tourism industry's conditions will be strengthened significantly and reduces its sensibility to harder environmental claims. Renewable energy industry will get better conditions for development.

69 Finnish Transport Agency

70 Northland Resources Inc.

71 Nordkalotten Vision 2025