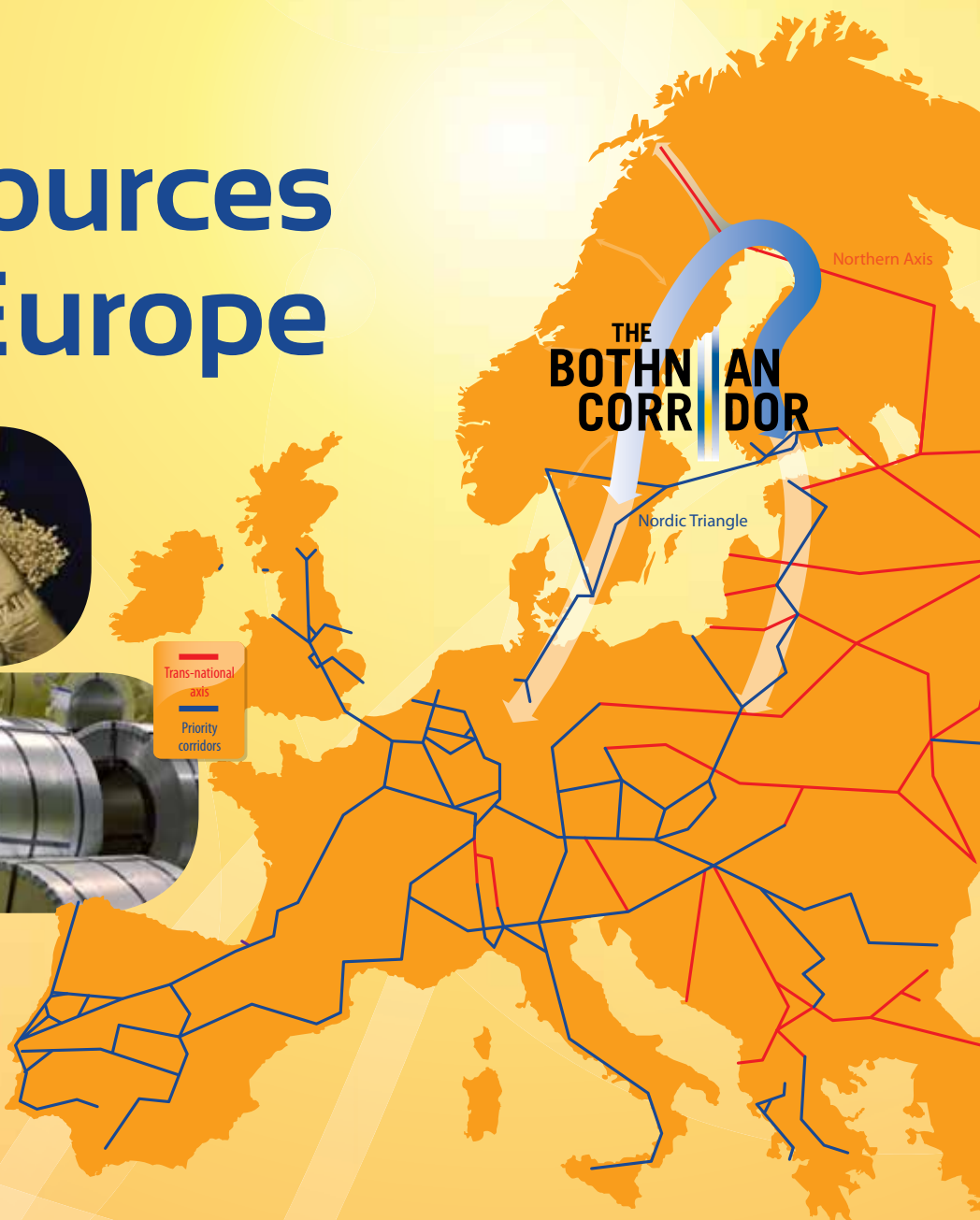


Resources for Europe



Investing in your future



EUROPEAN
UNION
European Regional
Development Fund

March 2011

Contents

Summary	3
The European Union.....	6
Resources	14
The Surrounding World	32
The Bothnian Corridor.....	38
Economy	48



Summary

European strategies

In 2010 the EU adopted a strategy for smart, sustainable and inclusive growth. It shows the way ahead for Europe for dealing with short term problems like financial crises as well as long term challenges like climate and sustainable growth in a globalized world.

The European single market for goods depends on the existence of a seamless, flexible and efficient logistics and transport system. Today it is fragmented and often it is an obstacle to free movement of goods, because of administrative or technical barriers resulting in “bottle-necks” to mobility within Europe.

In the rail sector, track gauges, voltage and signalling systems differ from one Member State to another. For the creation of a functional single market it is necessary to overcome lack of inter-operability and infrastructure gaps reducing the efficiency and weakening the global competitiveness of the European industry.

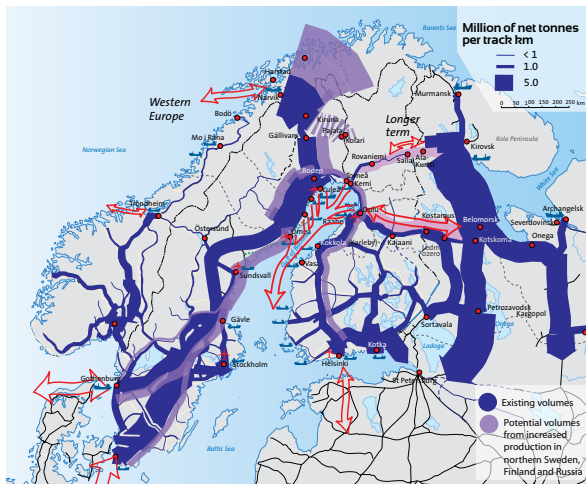
The European Regional Development Fund, which aims to support economic and social cohesion within the European Union, is one of many funding sources for improved growth and competitiveness. It can also be used as a complement for strengthening the transport infrastructure. For major investments, a combination of different funding is often necessary, such as regional and national funds, TEN-T, structural funds and other sources.

A new Core Network

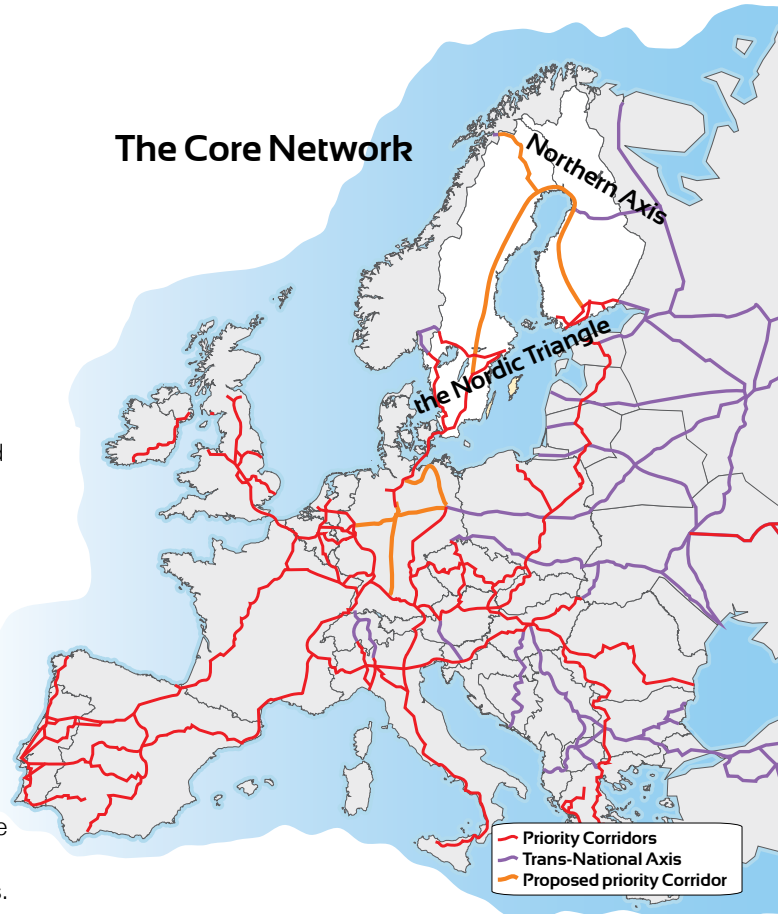
The Trans-European Transport Network which has existed since 1996 is currently revised and the European Commission will present a proposal for new TEN-T guidelines and financial regulation in 2011. The former 30 priority projects will be extended to a Core Network, identifying the most important intermodal links and nodes.

The inclusion of the Malmaban line (the Ore railway) and the Bothnian Corridor in the core network, both in Sweden and Finland is strongly motivated by the European added value of high volumes of goods from northern Europe. The mining and forest sectors in this area are already now exporting most of its production to the European and global markets. In the near future a huge expansion of the exploitation of natural resources in this area is foreseen.

The governments of Sweden and Finland promotes the inclusion of the Bothnian Corridor in the TEN-T Core Network. The Bothnian Corridor is strategic also because it is operating within the European Union, and protect future transports from the dependence on third countries.

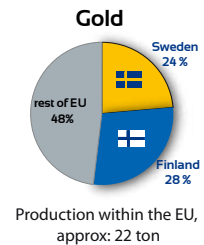
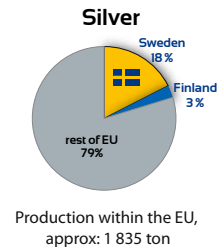
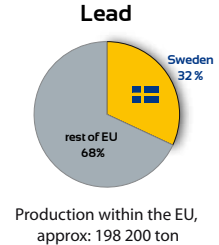
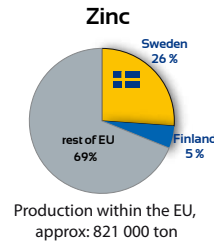
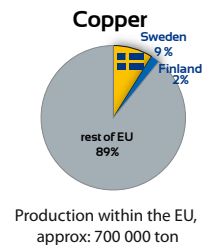
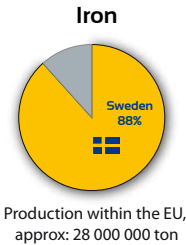
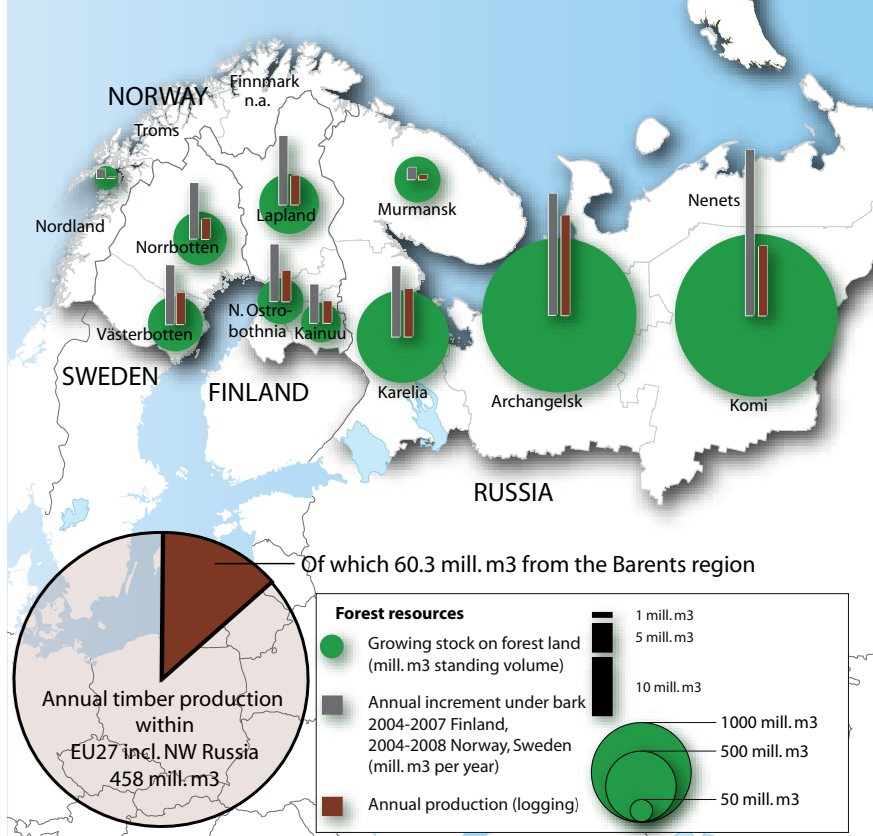


The Core Network



Rail routes of great importance

Large volumes of goods are currently being transported on the rail and road networks and through ports in northern Europe. The transport flows are predominant in the north-south direction, and the infrastructure has been developed accordingly. The Malmaban Line has a crucial role in ore shipments. Depending on administrative, cultural, linguistic and infrastructural factors there has been a low demand for east-west transportation, but the demand has gradually increased during the last two decades.



Huge assets of raw materials

For Europe, the supply of natural resources from the northern parts is necessary in order to reduce the dependence on raw material imports. The northern parts of Sweden and Finland, along with Poland, are the main mining regions in Europe, with high value added in subsequent processing steps. **Over 90 percent of the iron ore mining in the EU takes place in northern Sweden.**

Northern Sweden and Finland also contribute to **significant parts of the European production of gold, silver, zinc and copper.** Furthermore, chrome production in Kemi in northern Finland has great significance for the production of **stainless steel.**

Steel production in the region:

- Steel products: 5 million tonnes/year
- Stainless steel products: 1 million tonnes/year

Sweden and Finland are the **world's second and third largest exporters of pulp, paper and sawn timber** in terms of volume. A fifth of the EU27 countries' consumption of sawn timber was produced in Sweden.

Sweden exports relatively larger shares of sawn timber and paper, while Finland exports relatively larger volumes of paper. The paper consumption in Europe was 90 million tonnes in 2007, of which paper deliveries from Sweden and Finland corresponded to 9 percent and 10 percent respectively.

The European Union



Europe 2020

In 2010 the EU adopted a strategy for smart, sustainable and inclusive growth. It shows the way ahead for Europe for dealing with short term problems like financial crises as well as long term challenges like climate and sustainable growth in a globalized world. The strategy will be realized through seven flagship initiatives, one being “A Resource Efficient Europe” and another “an Industrial Policy for the Globalization Era”.

A Resource Efficient Europe

Natural resources is a prerequisite for the economy and quality of life. Increasing resource efficiency is key to securing growth and jobs for Europe. It will bring major economic opportunities, improve productivity, drive down costs and boost competitiveness.

The flagship initiative concerns actions and policies for climate change, energy, transport, industry, raw materials, agriculture, fisheries, biodiversity and regional development. The action plan was presented by the European Commission in COM(2011) 21 final, in January 2011.

The key components of the long-term framework will be presented in the form of a series of coordinated road maps for achieving the climate goals, creating a low-carbon energy system and improving the transport systems. In the field of infrastructure and transports the next step is to present a vision for a low-carbon, resource-efficient, secure and competitive transport system by 2050 that removes all obstacles to the internal market for transport, promotes clean technologies and modernises transport networks.

Industrial Policy for the Globalization Era

This flagship initiative was presented by the European Commission in COM(2010) 614. The commission proposes an approach to industrial policy that will put the EU economy on a dynamic growth path strengthening EU competitiveness, providing growth and jobs, and enabling the transition to a low-carbon and resource efficient economy. The action plan presents measures for improving the framework conditions for industry, strengthening the internal market, strengthening innovation and modernizing the industry.

The commission stresses that *“The competitiveness of European industry crucially depends on the quality and efficiency of the energy, transport and communication infrastructure services. The upgrading and modernisation of these networks is essential. Transport networks need to be improved to overcome bottlenecks and improve cross-border connexions.”*



Internal market

The functioning of the European internal market has been analysed in the report *“A New Strategy for the Single Market at the Service of Europe’s Economy and Society”*, by Mario Monti, presented to the European Commission in May 2010. Professor Monti points out that *“the full potential of the single market for goods cannot be released without the support of a modern standardisation process, a seamless and efficient logistics and transport system and an effective and accessible regime for the protection of intellectual property.”*

The single market for goods depends on the existence of a seamless, flexible and efficient logistics and transport system. Today it is fragmented and often it is an obstacle to free movement of goods, either because of administrative or technical barriers resulting in “bottle-necks” to mobility within Europe. He claims that there is in practice no single market for maritime transport, due to customs formalities. In the rail sector, track gauges, energy supply and signalling systems differ from one Member State to another. The creation of a modern single market requires tackling the lack of interoperability

and the infrastructure gaps that reduce the efficiency and weaken the global competitiveness of the EU logistics industry.

The northern part of the EU is a domestic source of raw materials. In the Raw Materials Initiative COM 2008(699) the European Commission defines the second pillar of a raw material strategy to *“set the right framework conditions within the EU in order to foster sustainable supply of raw materials from European sources”*. This aims for facilitating the exploitation of new resources, expansion and establishing of new mines, but for the efficient supply of minerals and woods to the European market the transport infrastructure is crucial. For example the EU’s consumption of iron ore products in 2007 was 177 million tonnes, while the iron ore production was only 28 million tonnes. Apparently, there is a strong need for increasing the domestic production, which is what is currently underway in the Barents region.



Cohesion

In the 5th Cohesion report, “Investing in Europe’s future”, the European Commission stresses the importance of infrastructure for regional economic growth. Though investments in infrastructure should be combined with other measures in e.g innovation systems, education and research. The transport system is important for regional economic development. It reduces journey times, both for passenger and freight transports and increases competitiveness. The report also says that, improved transport links between regions and countries facilitate access to EU-wide markets, which is likely to create new opportunities for growth.

The European Structural Funds, aim to resolve structural economic and social problems and is one of many funding sources for improved growth and competitiveness. It can also be used as a complement for strengthening the transport infrastructure. For major investments, often a combination of different funding is necessary, such as regional and national funds, TEN-T, structural funds and other sources.

The 5th Cohesion report has been subject to an open consultation. The political network for the NSPA states (Northern Sparsely Populated Area), in its response in January 2011:

“The EU cohesion policy is an important tool for regional development. A forceful and ambitious cohesion policy can help the NSPA to fully realise the areas vast potential for further contributing to the EU added value. Today, the NSPA provide the EU with world class knowledge and vital natural resources. The NSPA wants the Cohesion policy to support a further development of the natural resources such as minerals, energy resources and wood, into more competitive products and products with higher added value, and to develop more sustainable modes of production through e.g. energy efficiency, cleaner processes and a more sustainable exploitation. Important factors for a future strong export of vital natural resources are strong infrastructural connections to central markets and enhanced connectivity within the NSPA as well as between the NSPA and the surrounding world”.



A new TEN-T network

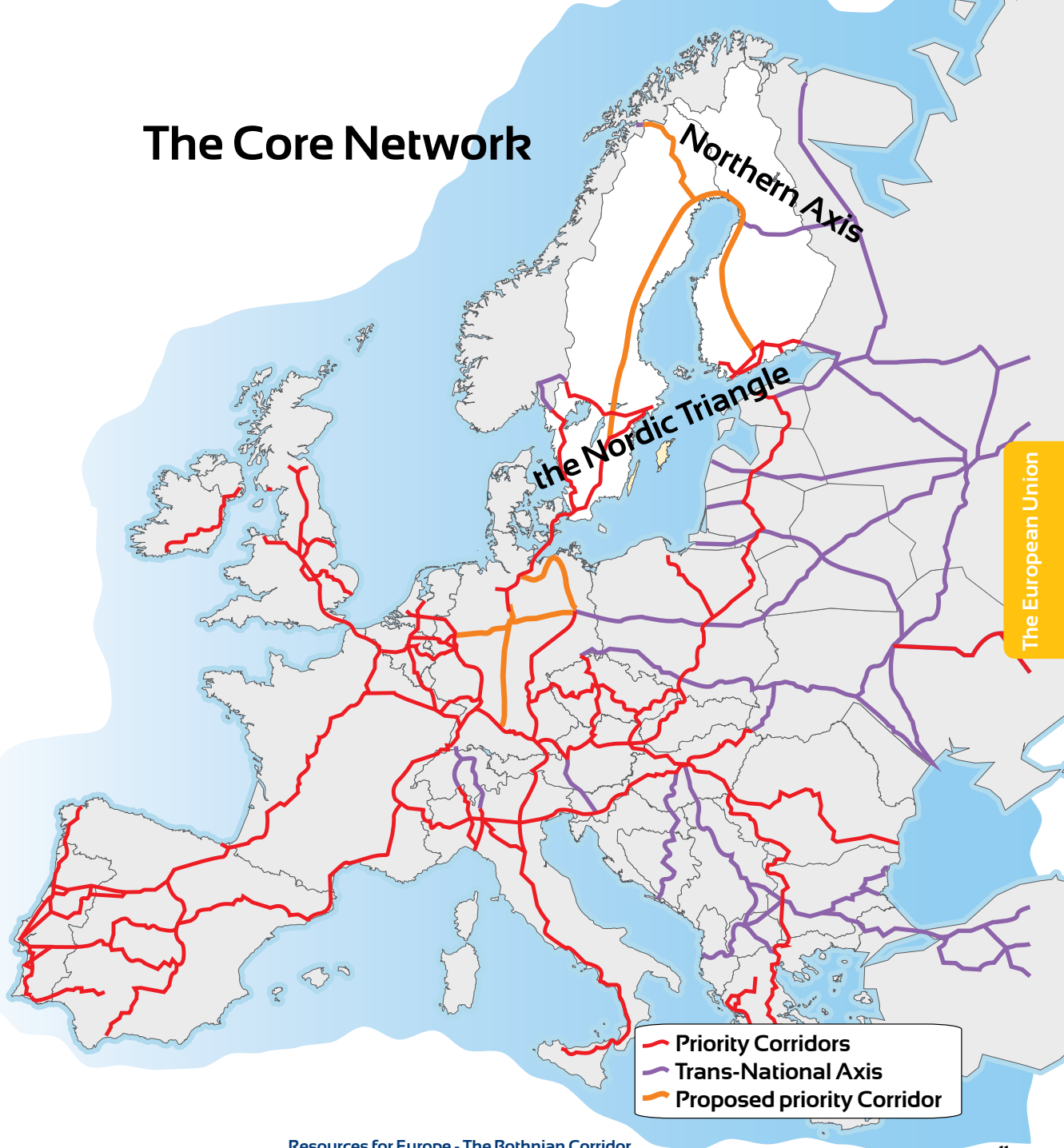
The Trans-European Network which has existed since 1996 is currently revised and the Commission will present a proposal for new TEN-T guidelines and financial regulation in 2011. The new TEN-T network will comprise of a comprehensive network covering roads, railways, waterways and airports in all member states. The former 30 priority projects will be extended to a Core Network, identifying the most important intermodal links and nodes. In practice, most of the joint TEN-T funding will be allocated to the core network, and the member states will commit to prioritize these links in their national funding schemes.

The inclusion of the Bothnian Corridor in the core network, both in Sweden and Finland is strongly motivated by the European added value of high volumes of goods from the Barents region. The mining and forest sectors in this area are already now exporting most of its production to the European and global markets. In the near

future a huge expansion of the exploitation of natural resources in this area is foreseen. If the EU is to benefit fully from the significant natural resources of the Barents region, the existence of adequate and relevant transport infrastructure is a necessary prerequisite. Because of long distances and heavy cargo the emphasis would be on improving the railway infrastructure.

The governments of Sweden and Finland promotes the inclusion of the Bothnian Corridor in the TEN-T core network. Also the importance of infrastructure in this area and the strengthening of the northernmost branch of Northern Axis, with connections to Asia, has been put forward at a ministerial meeting in Haparanda in 2010 with participation from Sweden, Denmark, Estonia, Finland, Germany, Iceland, China, Latvia, Lithuania, Norway and Poland. The Bothnian Corridor is strategic also because it is operating within the European Union and transports will not be dependent on third countries.

The Core Network



Rail routes of great importance

In addition to its importance for freight transport, the Bothnian Corridor also has a vital role to play in integrating the labour markets of the region, enhancing the supply of skilled labour and improving the access of industry to research centres. It could also serve as a way of further developing climate friendly forms of tourism in the region.

The many new mines in northern Sweden and northern Finland will need an optimal transport system.

The capacity of the Malmbanan line (the Ore railway) is planned to be enhanced in order to accommodate increasing freight and passenger traffic. There is also a need to strengthen the capacity on other parts of the northernmost branch of the Northern Axis in order to cope with increasing cross-border transports. The security equipment and the electrification on the Ledmozero - Kotshkoma line which connects the Finnish and Russian railway systems needs to be completed.

In addition, ports and hinterland connections need to be developed in order to cope with the increasing use of inter-modal transports which form an essential part of many of the transport chains in the region. Intermodal terminals have been and are currently being constructed. More efficient terminals need to be built and existing terminals need to be made more efficient in order to create a more sustainable transport system.

There are different rail gauges used in Finland (1520 mm), Russia and the Baltic countries (1524 mm) and Sweden and most of Europe (1435 mm). This is an obstacle to efficient international rail transport in the region. However, this allows fluent freight transports from Norway/ Sweden, via reloading in Haparanda to Finland and further to Russian and Far East markets.

Green Corridor initiative

The Green Corridor initiative aims at developing cross-border transport corridors from northern Europe to the continent in order to increase growth and competitiveness in the EU, and contribute to a sustainable development in Europe. Climate and environmental effects should be reduced, while safety and efficiency increases.

A Green Corridor involves for instance sustainable logistical solutions, optimized use of transport modes, harmonized regulations, concentration of freight transport and innovative information systems.

One proposed pilot green corridor will be Narvik-Stockholm-Naples, including the Bothnian Corridor and parts of the Northern Axis.



Resources



Foto: LKAB

Nordic areas

The industrial structure in northern Europe is dominated by the primary industries. The processing rates are higher in the Nordic parts than in the Russian parts of the region. (STBR Barents Railway Network, 2005).

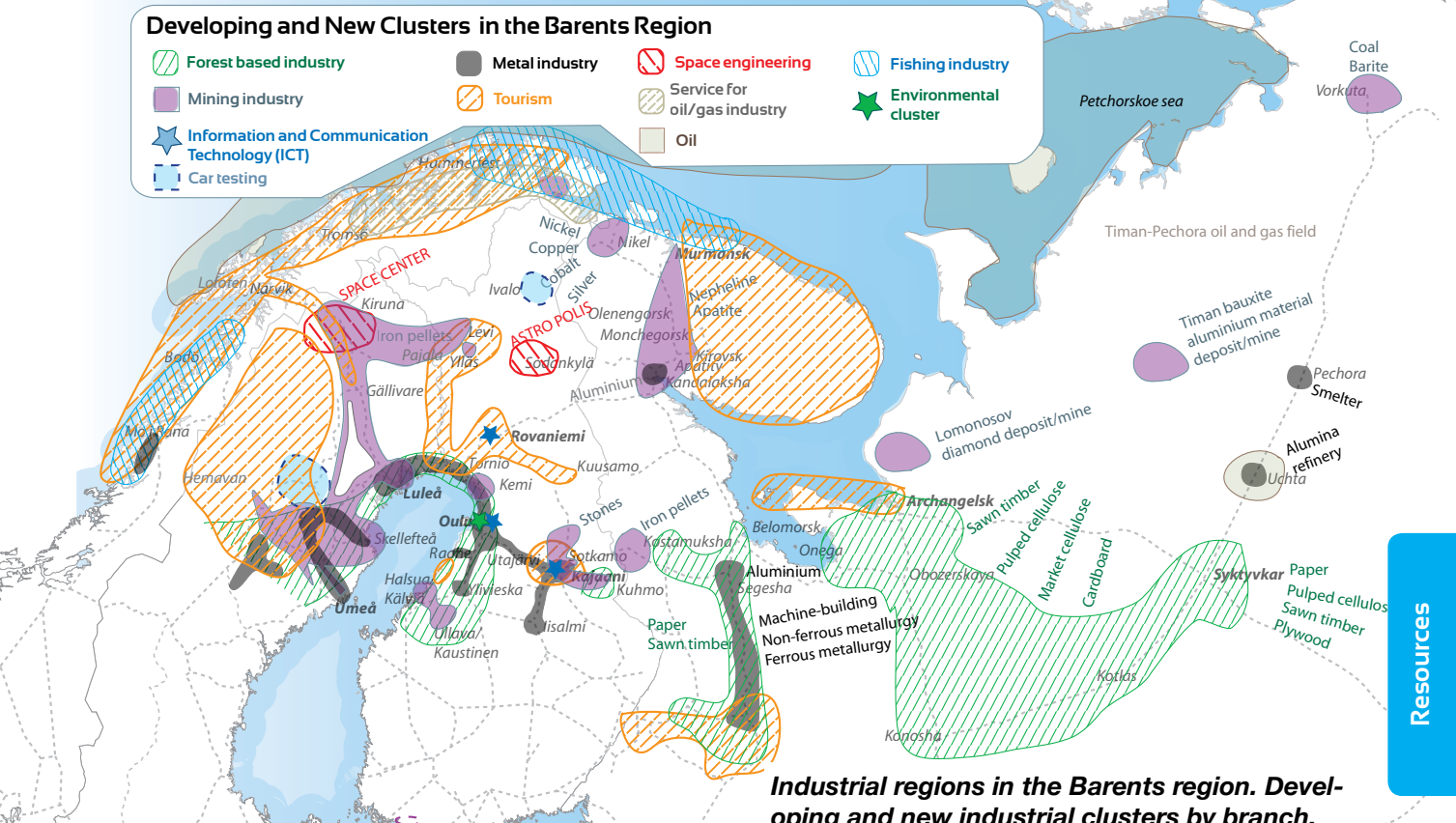
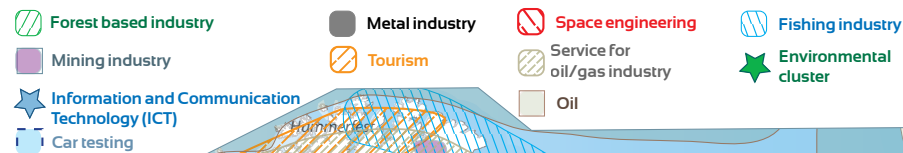
Northern Finland has large shares in the wood, paper and metal industries. Extraction of minerals is increasing. Tourism has increased dramatically in recent decades and has further potential for expansion.

The industry in northern Sweden consists to a large degree of mining, metallurgy, mechanical industry, forest based industries (wood, paper and pulp), hydro power

and specialized services. Northern Sweden also has a significant tourism industry with further potential for expansion.

The industry in northern Norway is dominated by the extraction of oil and gas (especially at Hammerfest), hydro power, fishing and fish processing industry. In the Helgeland area in southern Nordland county, there are also major steel, aluminium, and chemical industries. Tourism is also significant for northern Norway (particularly around the Lofoten islands).

Developing and New Clusters in the Barents Region



Industrial regions in the Barents region. Developing and new industrial clusters by branch.

Source: ÅF Infraplan

Russian areas

The Murmansk Oblast (the Kola peninsula and the area immediately south of it) has large resources of minerals, oil, gas and industries related to metallurgy, energy, food and chemistry. Some parts of the Kola peninsula also have excellent fishing waters, and increasing tourism.

The Republic of Karelia's economy is dominated by forest, paper and energy industries, iron ore mining, extraction of minerals and food production.

The industry in Archangelsk Oblast is dominated by forestry, sawmills and pulp industries. Archangelsk Oblast has a large and increasing export surplus. In the Republic of Komi industry is dominated by oil, gas, coal and forestry.

EU's main mining region

Accounting for only a small share of the world production of mineral ores, the EU is highly dependent on the import of mineral raw materials. The EU's consumption of iron ore products in 2007 was 177 million tonnes, while the iron ore production was only 28 million tonnes.

The northern parts of Sweden and Finland, along with Poland, together constitute the EU's main mining region, with high value added in subsequent processing steps. **Over 90 percent of the EU's iron ore mining takes place in northern Sweden.**

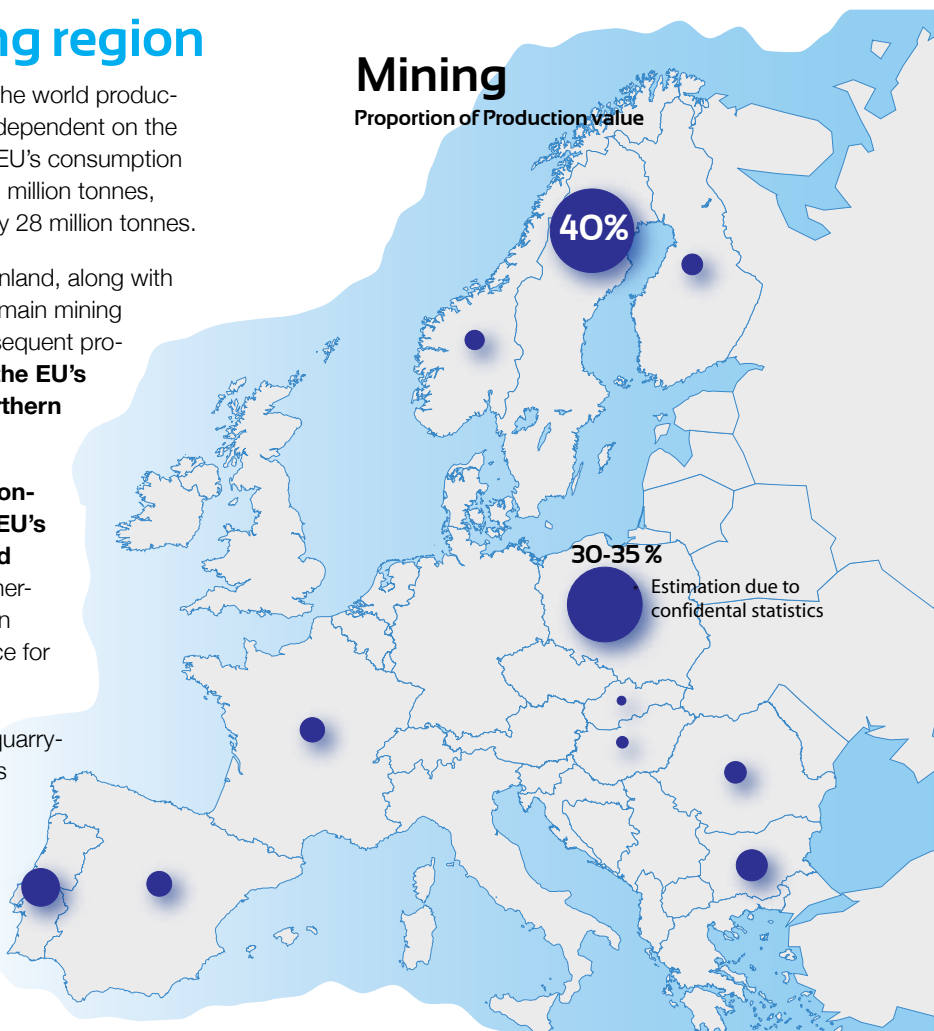
Northern Sweden and Finland also **contribute to significant parts of the EU's production of gold, silver, zinc and copper**, see figure on page 17. Furthermore, **chrome production** in Kemi in northern Finland has great significance for the production of **stainless steel**.

The production value of mining and quarrying in the Swedish part of the Barents region was more than 2.5 billion euro (2008). (Statistics Sweden). This is equivalent to 2/3 of Sweden's total production in mining and quarrying. In Finland, the production value amounts to 1.6 billion euro (2008), (SNI 2002, Statistics Finland).

Furthermore, there is a great potential for the development of new mines in the region.

Mining

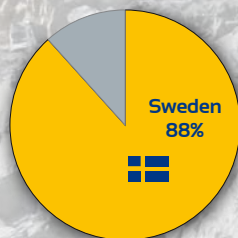
Proportion of Production value



Northern Sweden represents an essential part of the ore and metal production in the EU.

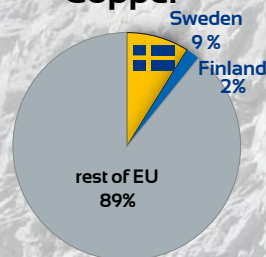
Source: SGU/ÅF Intraplan.

Iron



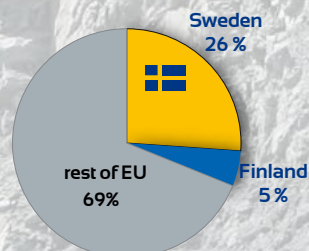
Production within the EU,
approx: 28 000 000 ton

Copper



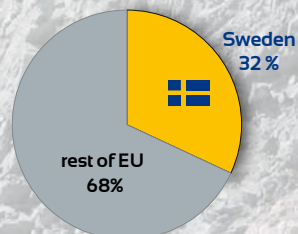
Production within the EU,
approx: 700 000 ton

Zinc



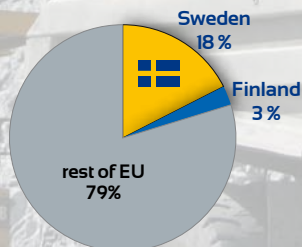
Production within the EU,
approx: 821 000 ton

Lead



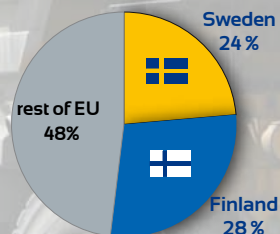
Production within the EU,
approx: 198 200 ton

Silver



Production within the EU,
approx: 1 835 ton

Gold



Production within the EU,
approx: 22 ton

Sweden's and Finland's contribution to the EU supply of ore and mineral goods, 2007. 2008-2010 The financial crisis 2008-2010 has reduced demand for ores, but has also meant that Sweden's interests in a number of metals has increased during the period.

Sources: SGU and GTK



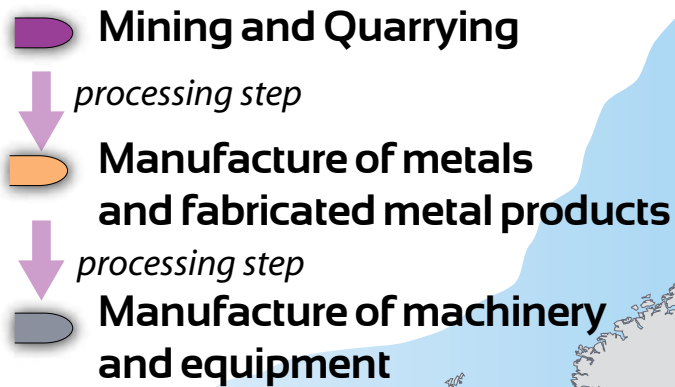
The main basis for processing industry

Raw material production in the north is the main basis for the processing industry in other parts of Sweden and Finland and in the rest of the EU. Based on Swedish ore and metals, products for approximately 55 billion euro are produced in the Swedish industrial system and in Finland for approximately 38 billion euro.

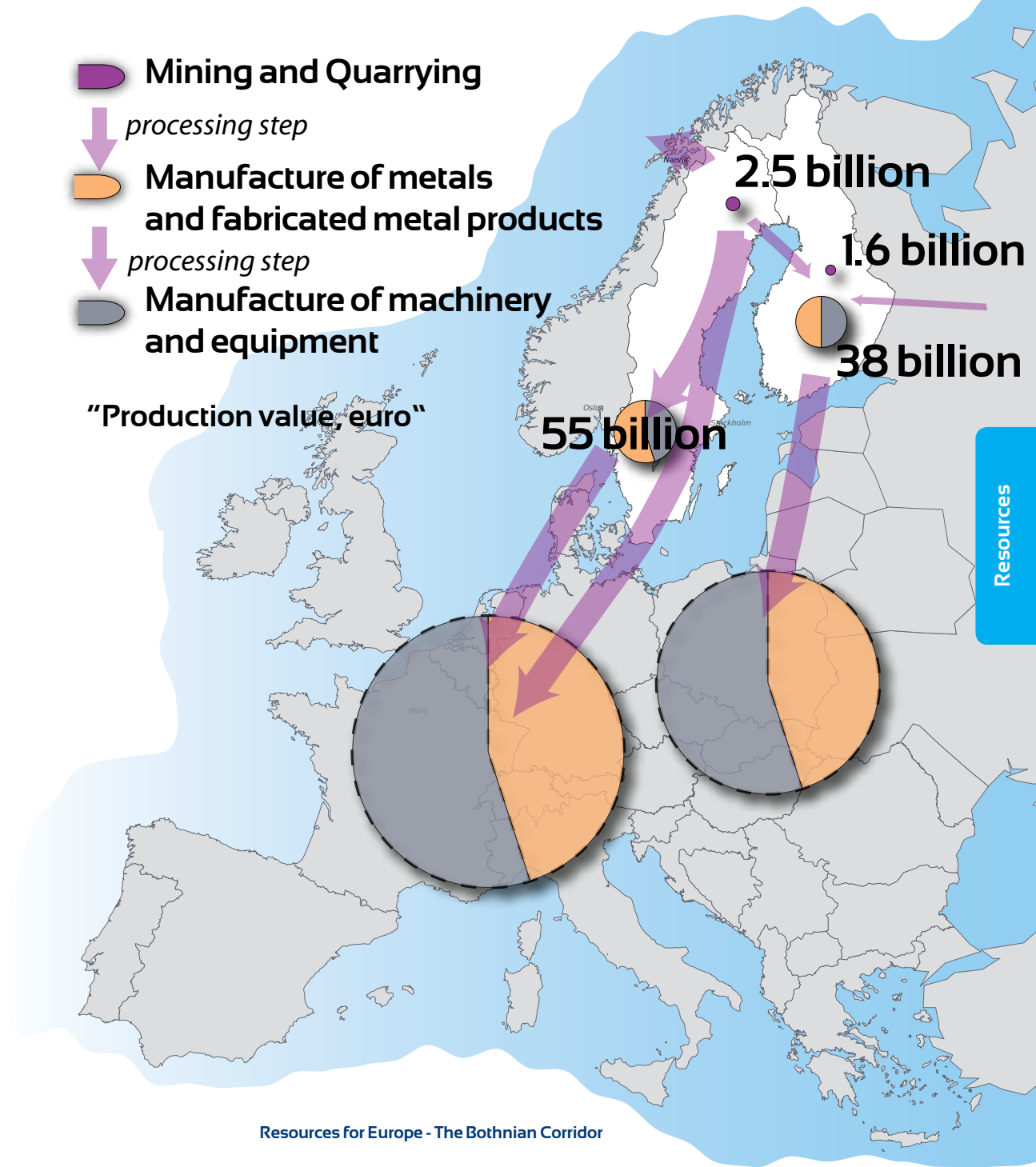
Mineral-based products are essential in many areas that are important for the national economies in Sweden and Finland. Although the direct contribution of mining to the overall European GDP is rather modest, the economic impact of value added industries is considerably greater.

The EU estimates that the production based directly and indirectly on the minerals sector accounts for approximately 40 percent of GDP in the EU.

Transports and logistics is a prerequisite for competitive advantages for the industry in northern Europe. Transports account for a large proportion of the total production costs for the basic industries. Logistics is a key component in the whole value chain from raw material procurement via manufacturing to reaching the end customer.



"Production value, euro"



Resources

New mines in progress

In addition to existing mines in northern Europe, development of new mines is under way, in particular for iron ore, copper, nickel and gold. In the next few years, LKAB (Europe's largest producer of iron ore) plans for opening three new iron mines in Svappavaara. These new mines will increase LKAB's capacity to respond to increased demand for iron ore products. The goal for 2025 is an annual production of 37 million tonnes per year, which is an increase of 10 million tonnes. The three new deposits together contain about 300 million tonnes of iron ore.

Boliden's mine in Aitik is one of the largest copper mines in Europe. The exploitation is currently being expanded with the aim of doubling the annual production from 18 million tonnes to 36 million tonnes per year.

New iron ore deposits have been found in the vicinity of Pajala and Kolari. The identified mine deposits may together have an equivalent volume of the ore deposits in Malmberget, that is approximately 340 million tonnes. The mining of iron ore in the deposits in Pajala/Kolari is

planned to start in 2012 with a production of 5-8 million tonnes per year. The iron ore products will be transported to the Port of Narvik.

A number of mining projects, which are significant by international standards, are under way also in Finland. The Kittilä gold deposit, boasting proven economic gold content of about 120 tonnes, may eventually become Europe's largest operating gold mine.

The Talvivaara nickel deposit is the largest in western Europe. Based on reserves, the mine has the capacity to produce nearly 3 percent of the world's nickel over its planned 25-year operating life cycle. However, potential reserves indicate that the mine may ultimately operate many years longer.

Other important nickel mining projects are the Kevitsa mine near Sodankylä and the Rönnebäcken mine south of Tärnaby.

METAL MINING AND METAL MANUFACTURE

○ Mining and Quarrying

↓ processing step

□ Manufacture of metals and fabricated metal products

↓ processing step

Manufacture of machinery and equipment

Metal Mines

● Iron ore

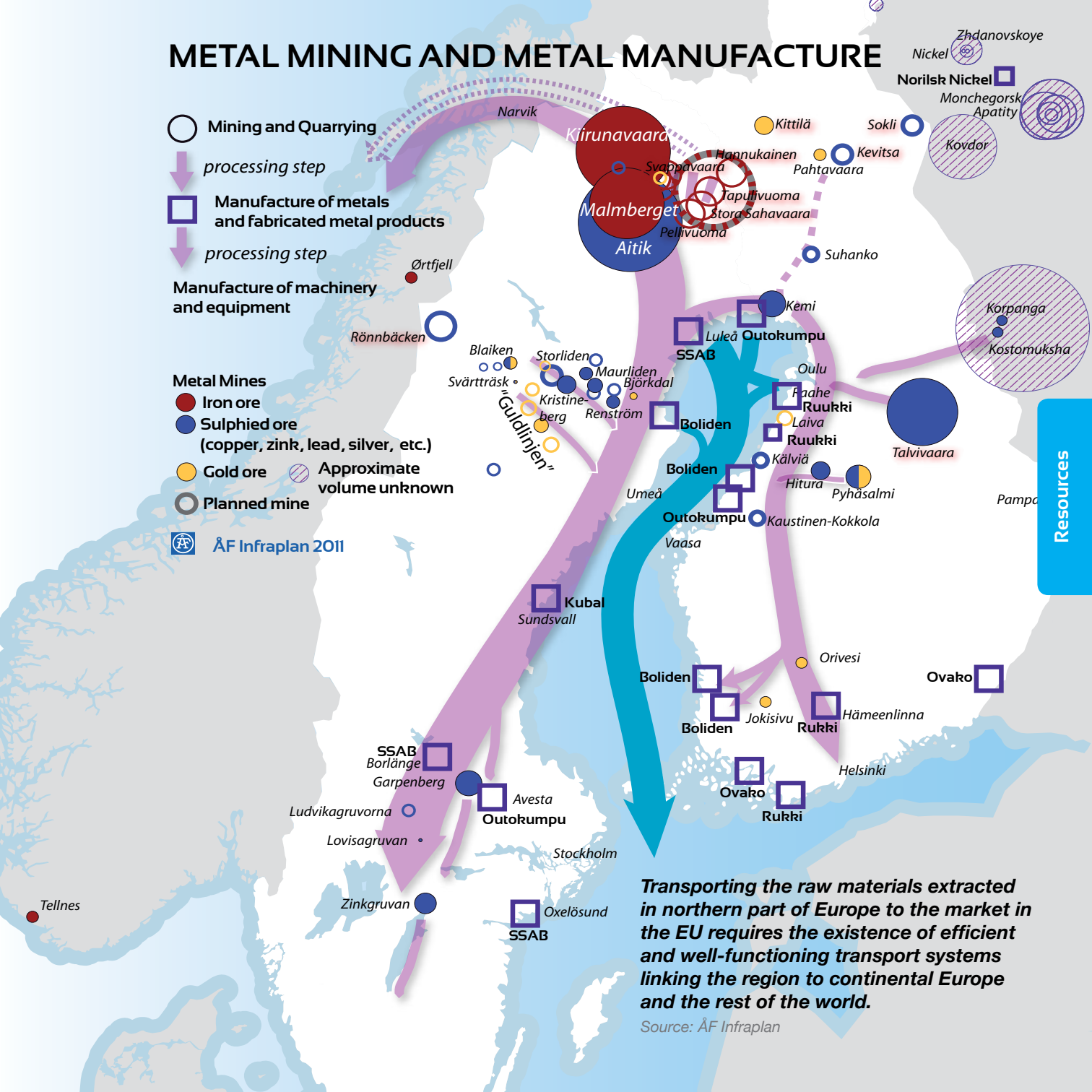
● Sulphied ore (copper, zink, lead, silver, etc.)

● Gold ore

● Planned mine

○ Approximate volume unknown

ÅF Infraplan 2011



Transporting the raw materials extracted in northern part of Europe to the market in the EU requires the existence of efficient and well-functioning transport systems linking the region to continental Europe and the rest of the world.

Source: ÅF Infraplan

Case 1: Iron and steel in Sweden

Northern Sweden and Finland provide the processing and manufacturing industries throughout Europe with steel supply.

The SSAB steelworks in Luleå takes iron ore pellets from ore processing plants in Kiruna and Malmberget via the southern loop of Malmaban Line (the Ore railway).

Inputs in the form of steel scrap, refractories and other supplies are transported by rail from southern Sweden and Europe. The slabs of steel produced in Luleå is transported by train to Borlänge for further processing. After processing in Borlänge the steel products goes to export via the ports in Oxelösund, Gävle, Trelleborg, Helsingborg and via the Öresund Bridge to destinations e.g. the automotive industry and production industry, all over Europe.



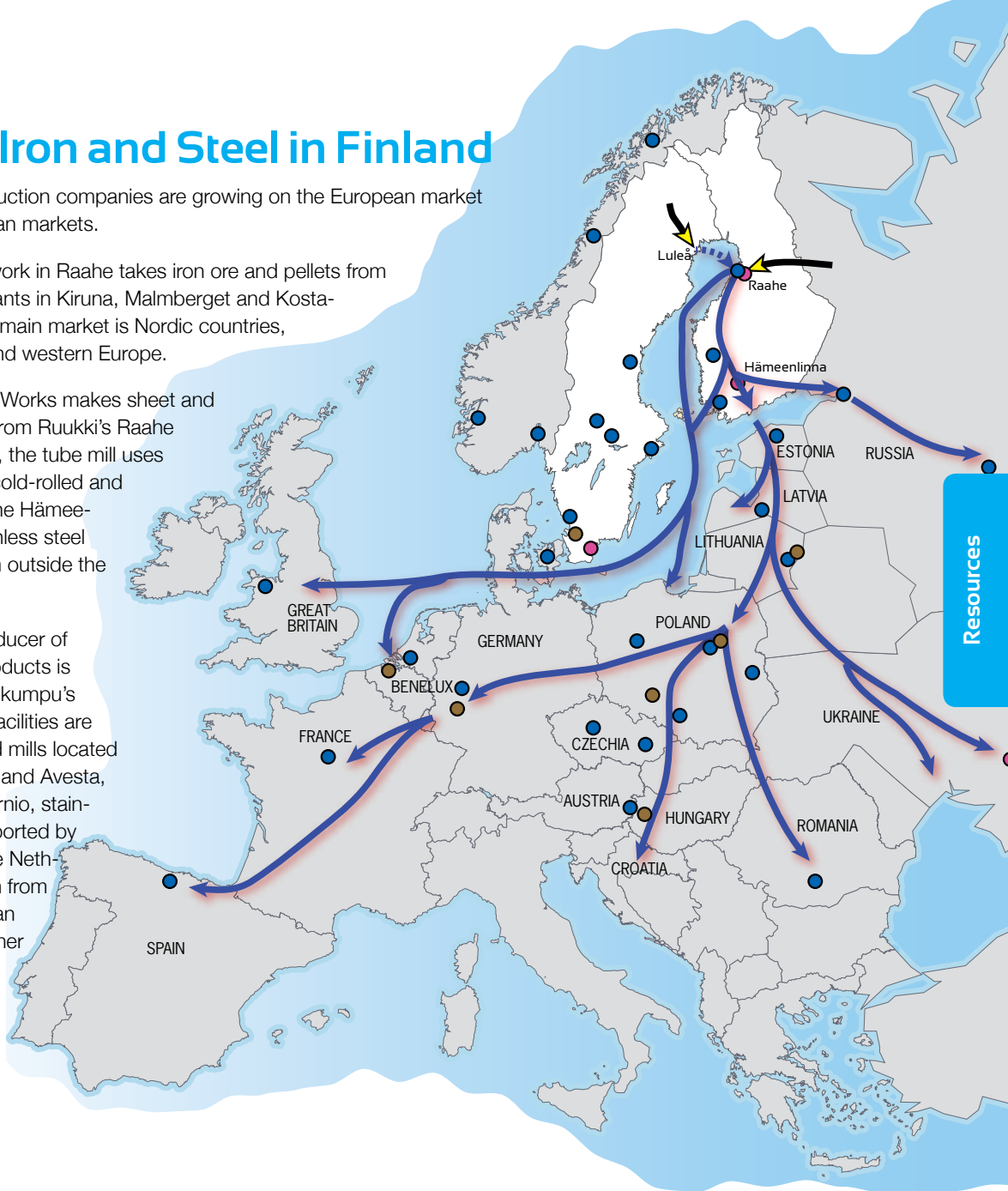
Case 2: Iron and Steel in Finland

Finnish steel production companies are growing on the European market as well on the Asian markets.

The Ruukki steelwork in Raahe takes iron ore and pellets from ore processing plants in Kiruna, Malmberget and Kostamus, Karelia. The main market is Nordic countries, Eastern Europe and western Europe.

The Hämeenlinna Works makes sheet and tubular products from Ruukki's Raahе works. In addition, the tube mill uses steel strip that is cold-rolled and metal-coated at the Hämeenlinna site and stainless steel strip sourced from outside the company.

Another large producer of Stainless steel products is Outokumpu. Outokumpu's main production facilities are efficient integrated mills located in Tornio, Finland, and Avesta, Sweden. From Tornio, stainless steel is transported by sea to a unit in the Netherlands, a location from which products can be easily sent further to Outokumpu's markets.



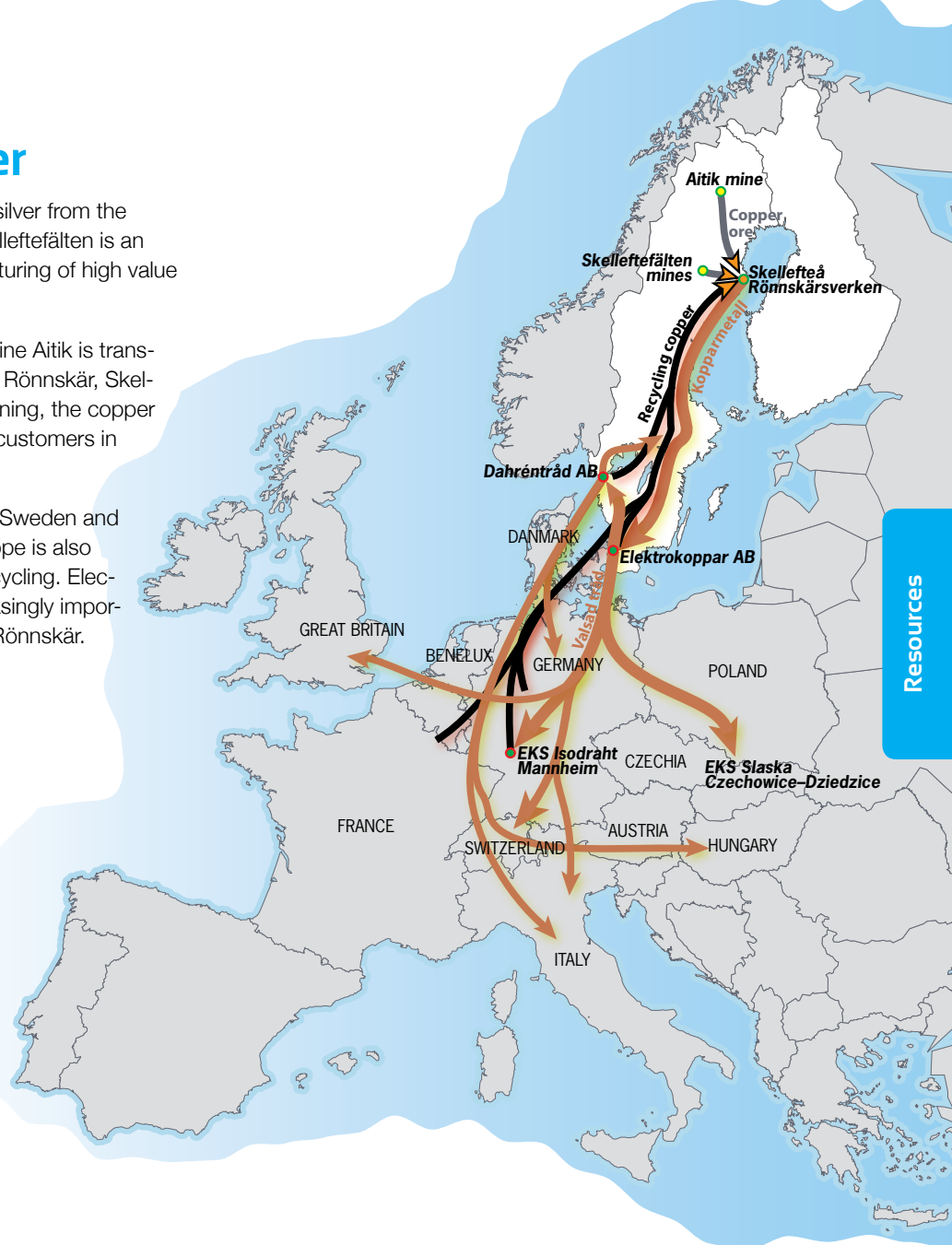


Case 3: Copper

Refined copper, zinc, gold and silver from the Boliden's mines in Aitik and Skelleftefältén is an important input for the manufacturing of high value products in Europe.

Copper concentrate from the mine Aitik is transported by train to the smelter at Rönnskär, Skelleftehamn. After melting and refining, the copper metal is transported by train to customers in South Sweden and Europe.

Electronic waste from southern Sweden and from the populous areas in Europe is also transported to Rönnskär, for recycling. Electronic waste becomes an increasingly important part of the raw material at Rönnskär.





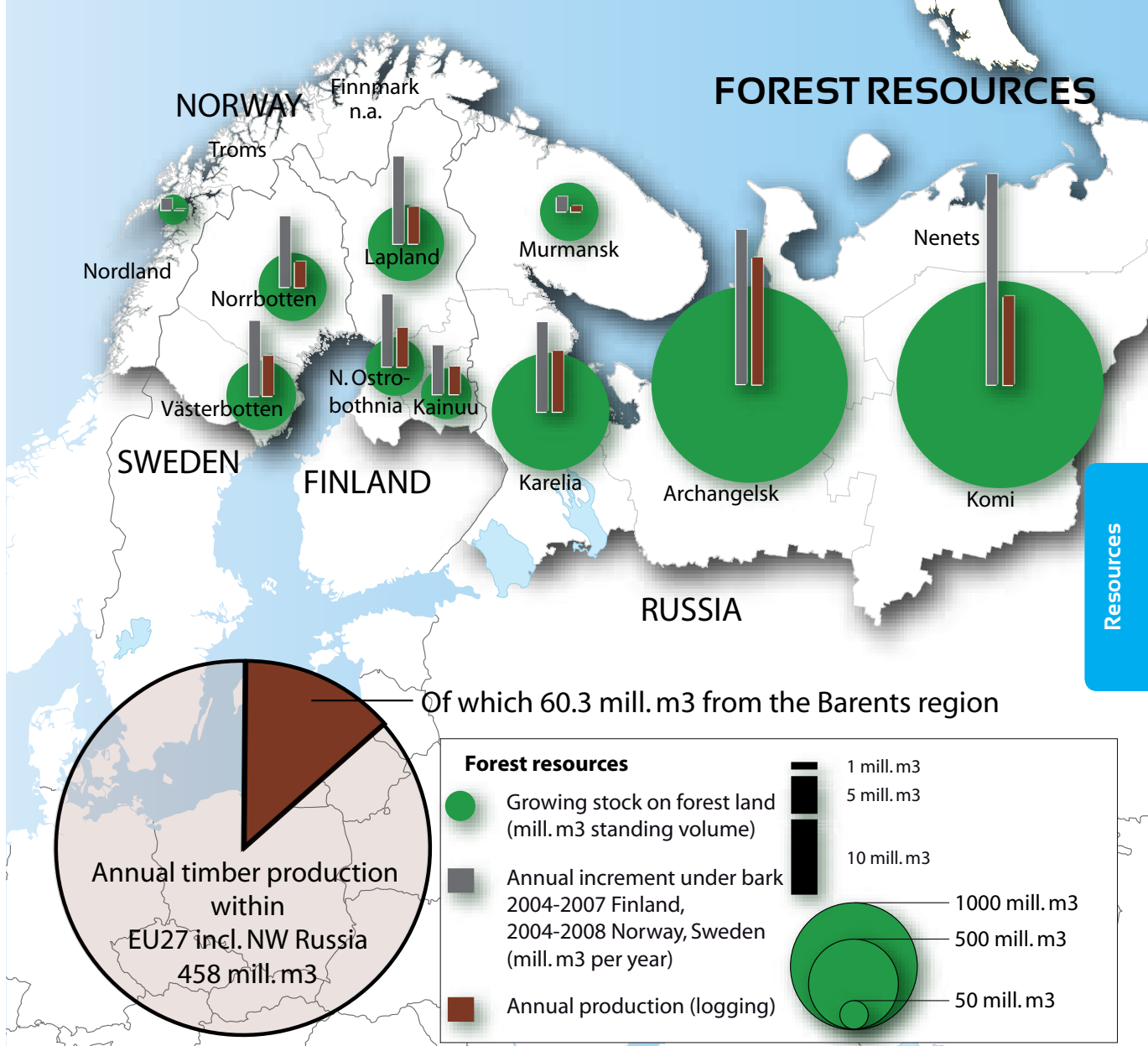
Forest resources in northern Europe

The forest area of the Barents region, the northernmost part of Europe, amounts to more than 100 million hectares, which equals 70 percent of the forest area of EU27.

With 20 million hectares of forest area, the Finnish, Swedish and Norwegian part of the Barents region accounts for approximately 14 percent of the total forest area of the EU. The forest area in the Swedish parts of the Barents region amounts to about 10 million

hectares, which corresponds to a third of the Swedish forest area. Growing stock on forest area accounts for 590 million m³, which is 20 percent of the Swedish total. The forestry industry has opportunities to increase wood production significantly by the use of fertilization.

The Finnish part of the Barents region accounts for 730 million m³ of the forest resources, corresponding to a third of Finland's total forest resource. Finnish forest industry has previously imported a relatively large share of raw materials from Russia.



Forest resources, annual increment and annual production in the Barents region.

Sources: ÅF Infraplan, data source: Swedish Forest Agency 2004-2008, Statistics Norway, The National Forest Inventory 2000-2004, Finnish Statistical Yearbook of Forestry, 2004-2007, arcticcentre. ulapland.fi. Eurostat, Roundwood removals total under bark, 2008.



Strong forest-based industry

Wood, pulp and paper industries in the Swedish and Finnish parts of northern Europe account for significant shares of total exports of the respective countries.

Approximately 15 percent of Sweden's and Finland's total value added in the forest-based industries is generated here.

The annual increment in northern Europe is higher than annual logging, which means that the supply of wood, especially in the northernmost parts of Sweden and Finland continues to grow.

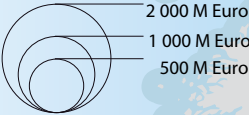
Large shares of the continued processing of forest based products take place outside the region, thus generating a substantial economic return in other parts of the countries and also elsewhere in the EU. Above 80 percent of Sweden's pulp and paper exports goes to countries in Europe. It plays a crucial role in Europe's fibre supply.

The forest-based industries are highly dependant on functional transport systems.

FOREST-BASED INDUSTRIES

Industrial production values

Manufacture of wood and wooden products, pulp, paper and paper products, 2005

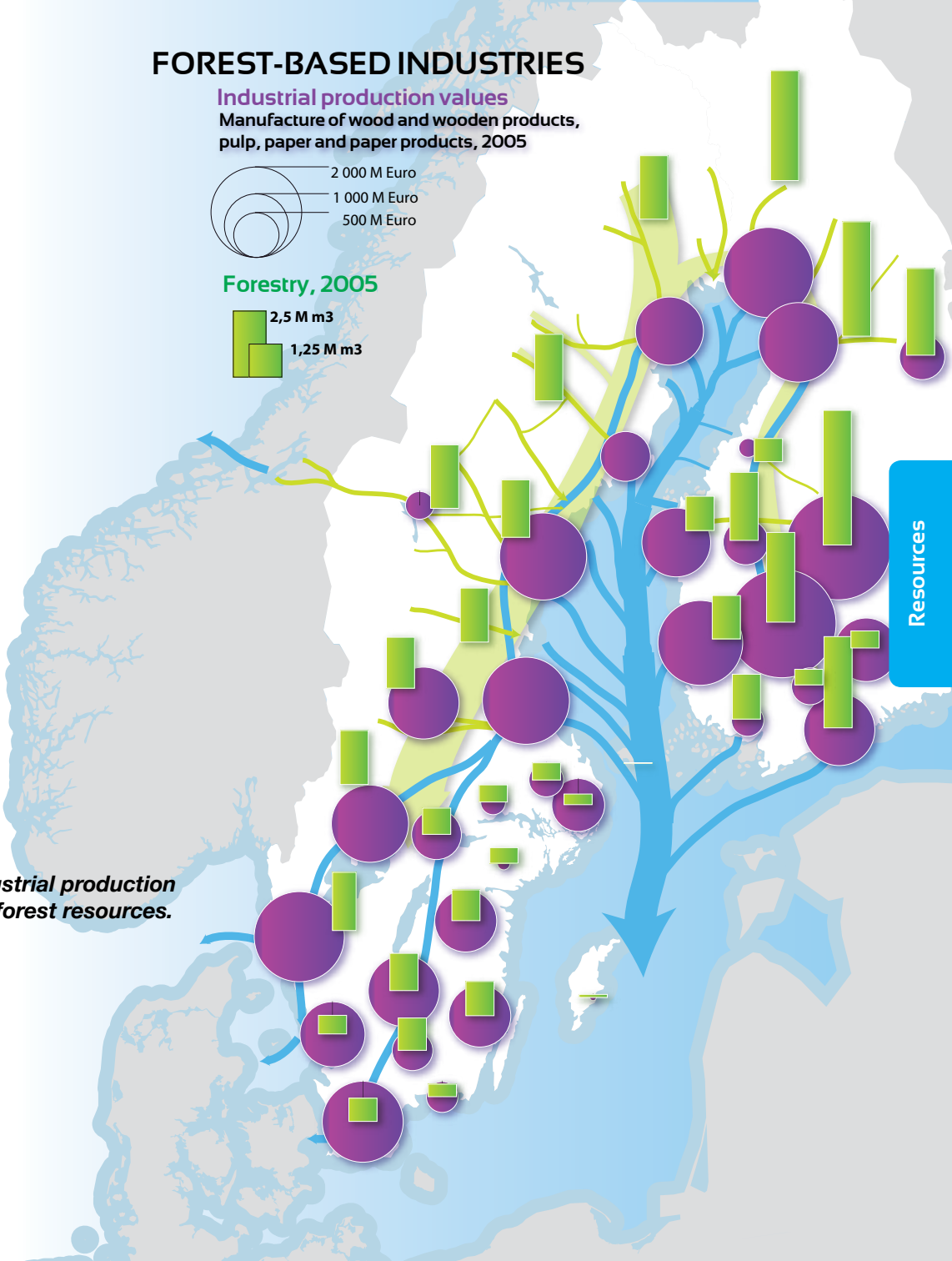


Forestry, 2005



Logging and industrial production values based on forest resources.

Sources: ÅF Infraplan.

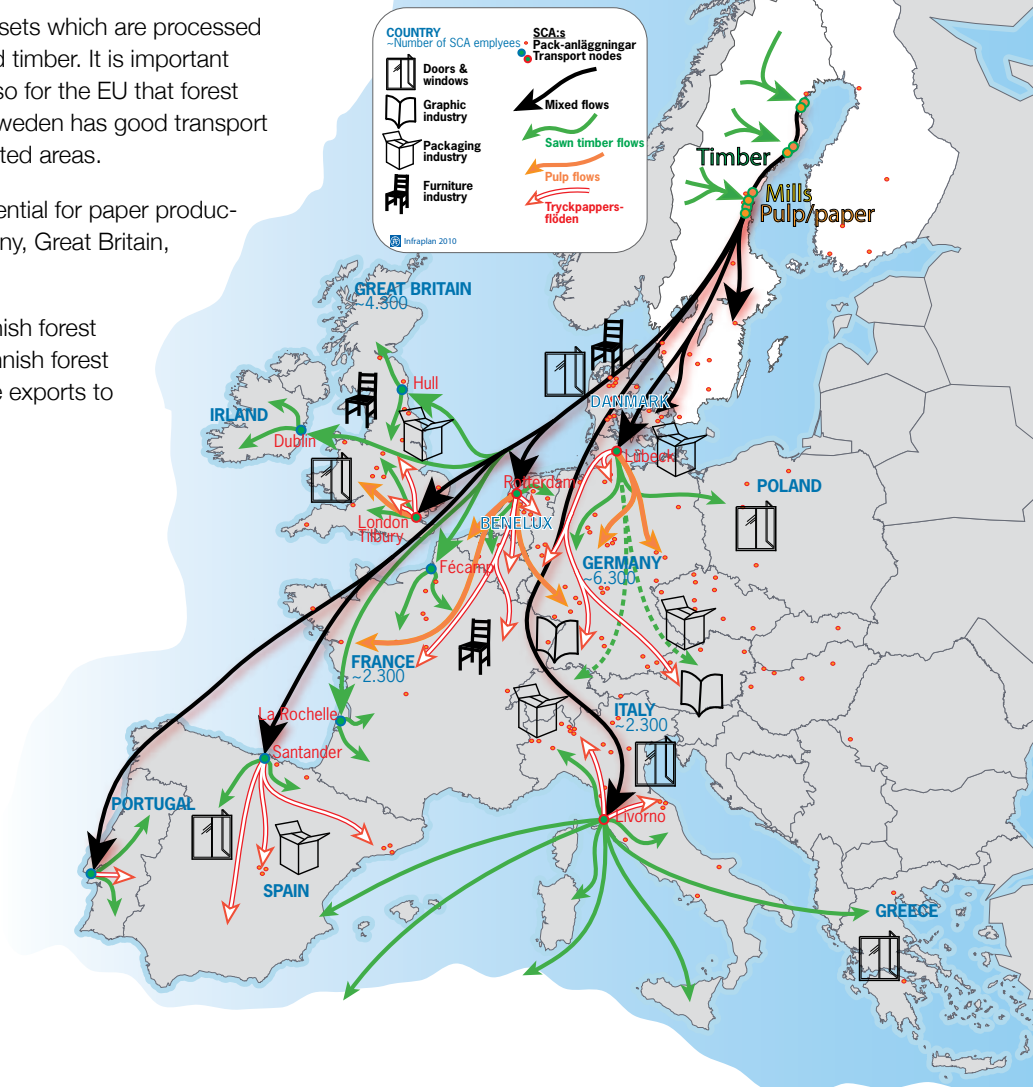


Case 4: Forestry products

Sweden has extensive forest assets which are processed to pulp, paper, sawn and planed timber. It is important for the whole of Sweden and also for the EU that forest production and processing in Sweden has good transport links to the EU's densely populated areas.

The Swedish pulp export is essential for paper production in countries such as Germany, Great Britain, France and Italy.

The same pattern exists for Finnish forest based companies. However, Finnish forest based industries have also large exports to Russia and the Baltic countries.



Source: ÅF Infraplan.





The Surrounding World

Photo: www.fotoakuter.se

Europe

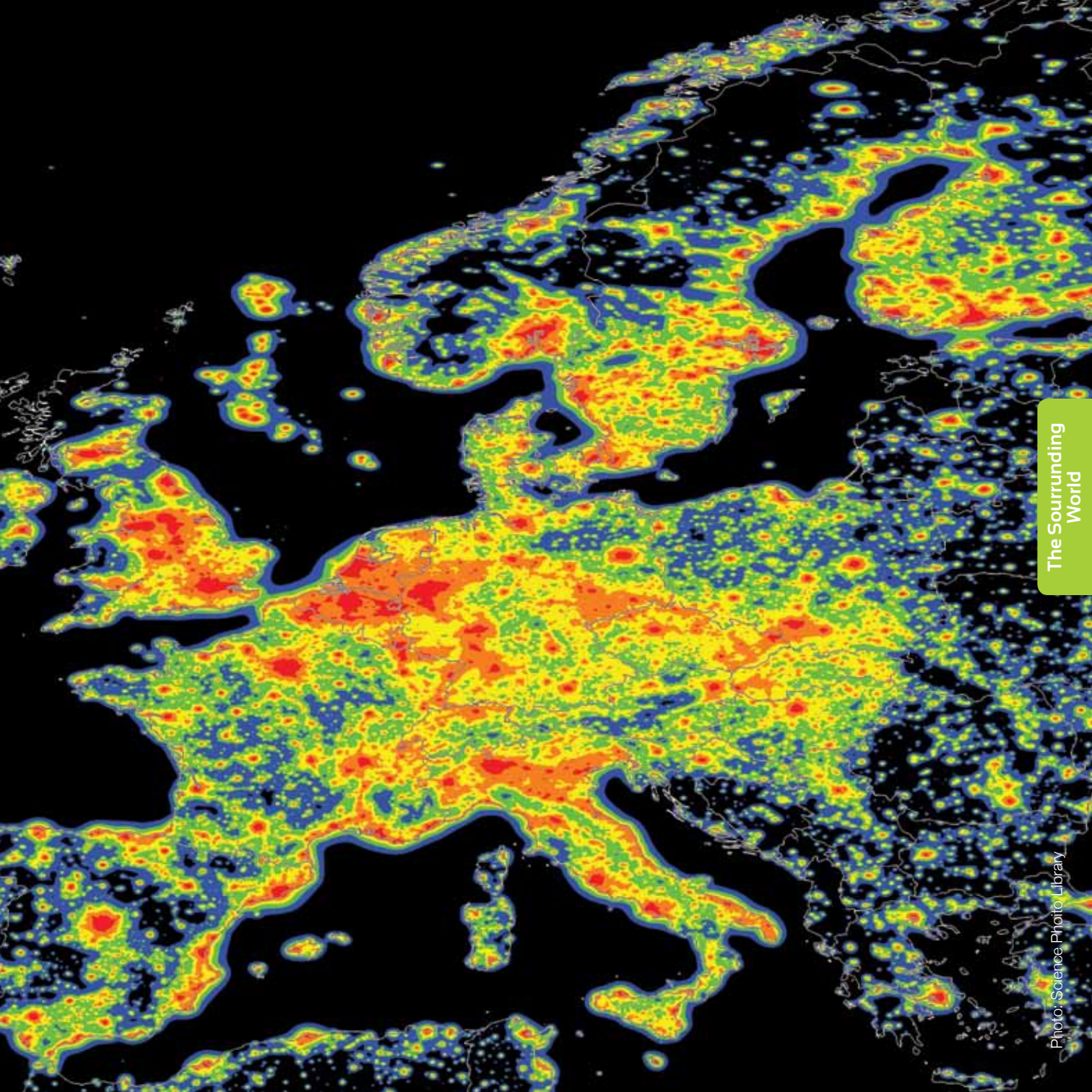
The area of the EU is less than half the size as the United States, but the population is over 50 percent larger. With a population of roughly 500 million inhabitants, the EU represents the third largest population in the world after China and India.

In all EU countries, more than 60 percent of GDP comes from the services sector (e.g. banking, tourism, transport and insurance). Industry and agriculture are still important sectors, but their economic importance has declined in recent years.

Trade between the EU countries account for two thirds of total EU trade, although levels vary between member

states. Inter-EU trade is now much easier, thanks to the internal market, since goods, services, capital and people now can move freely across borders.

The EU is the world's leading exporter and second largest importer. USA is the EU's main trading partner, followed by China. In 2005, the EU accounted for 18 percent of world exports and 19 percent of imports. The EU is also an important trading partner for less developed countries. Most of their exports to the EU enter duty-free or at reduced tariffs. The purpose of giving them this preferential access to the EU market is to strengthen economic growth in less developed countries around the world.



The Baltic Sea Region

The European Commission adopted a Communication on the EU Strategy for the Baltic Sea Region on 10 June 2009. This is the first time that a comprehensive strategy, covering several Community policies, is targeted on the creation of a 'macro-region'.

What is the aim of the strategy?

The Strategy aims at coordinating actions by Member States, regions, the EU, pan-Baltic organisations, financing institutions and non-governmental bodies to promote a more balanced development of the Region.

The four cornerstones of the Strategy are to make this part of Europe more:

- » Environmentally sustainable (e.g. reducing pollution in the sea)
- » Prosperous (e.g. promoting innovation in small and medium enterprises)
- » Accessible and attractive (e.g. better transport links)
- » Safe and secure (e.g. improving accident response)

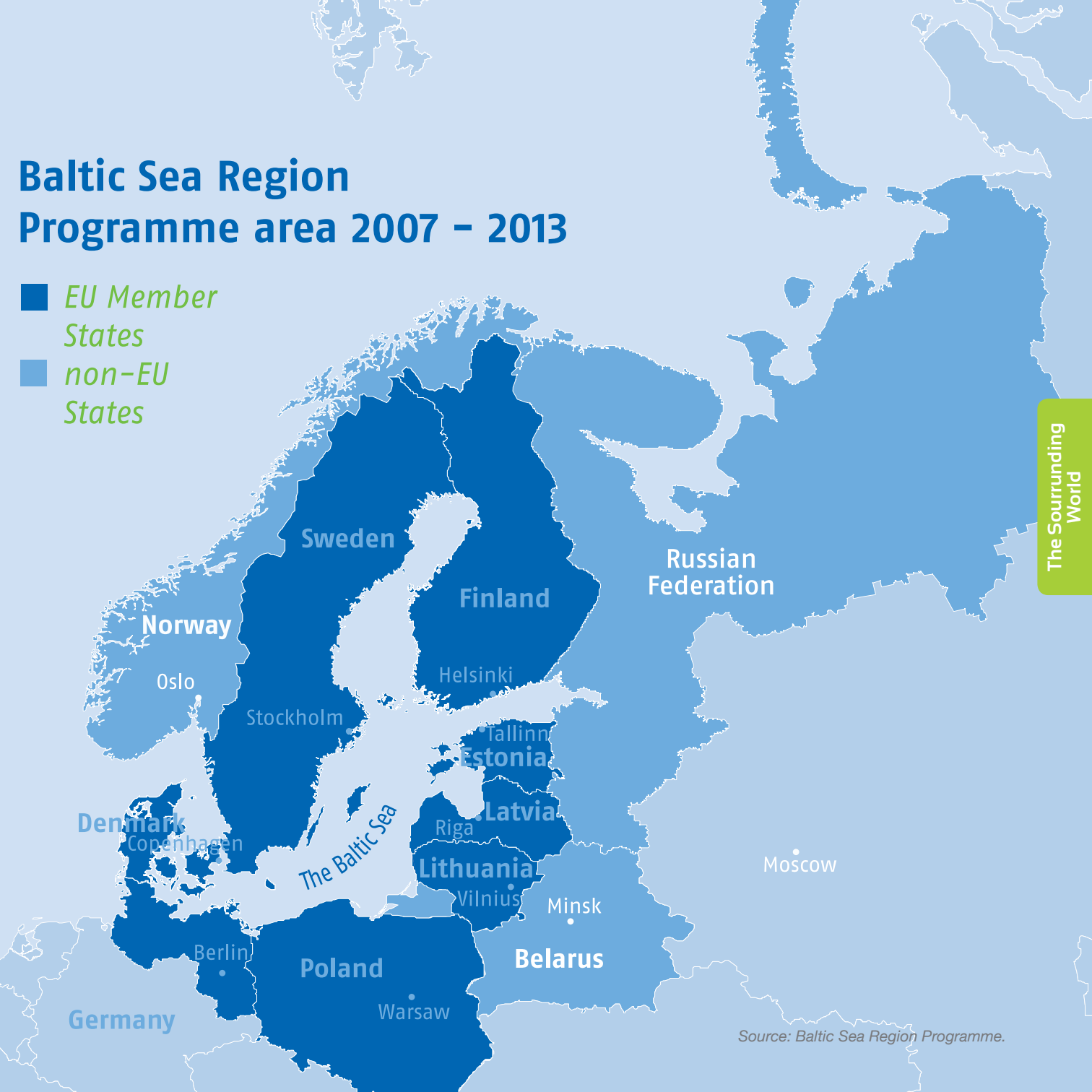
The Baltic Sea Region programme area

The eligible co-operation area includes EU member states Denmark, Estonia, Finland, Latvia, Lithuania, Poland, Sweden and northern parts of Germany, as well as the neighbouring countries of Norway, north-west regions of Russia and Belarus.

Baltic Sea Region

Programme area 2007 – 2013

- *EU Member States*
- *non-EU States*



The Surrounding World

Source: Baltic Sea Region Programme.

Supply of raw materials for the EU

For the EU, the supply of natural resources from northern parts is important in order to reduce the dependence on raw material imports. Efficient transport infrastructure is critical for the competitiveness of natural resource based industries in the refinement chain as a whole.

Increased demand for minerals on the world market, driven by fast growing countries in Asia and Africa, entail an increased potential for the development of industry centred on natural resources in northern Europe.

The EU's consumption of iron ore products in 2007 was 117 million tonnes, while the iron ore production was only 28 million tonnes.

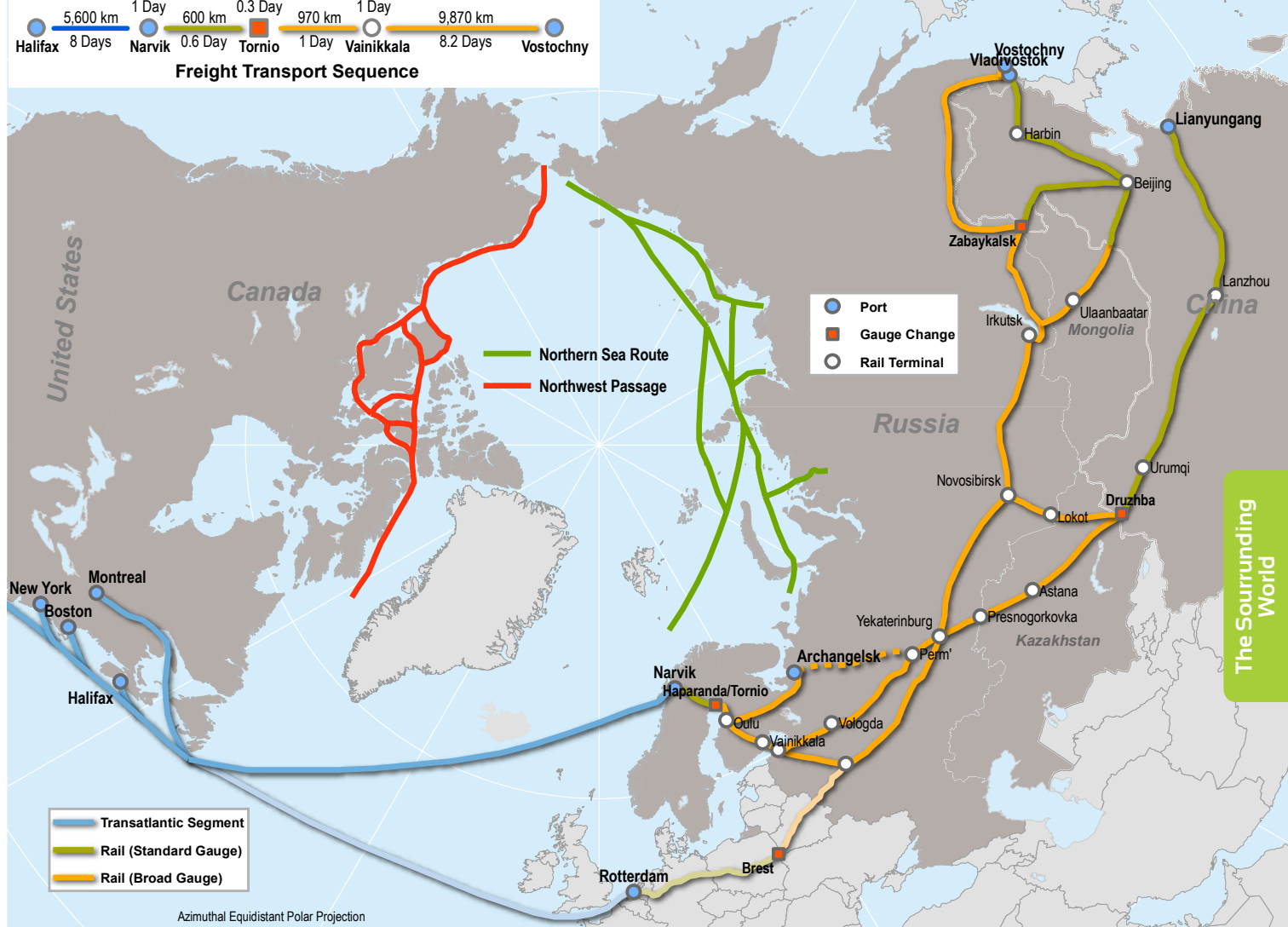
Sweden and Finland are the world's second and third largest exporters of pulp, paper and sawn timber in terms of volume. Despite the current major exports, there is potential to increase exports because forest growth is greater than the annual felling. Actions are planned and implemented to further increase forest growth. Sweden exports relatively larger shares of sawn timber and paper, while Finland exports relatively larger volumes of paper.

The paper-consumption in the EU was 90 million tonnes in 2007, out of which paper-deliveries from Sweden and Finland corresponded to 9 percent and 10 percent respectively. A fifth of the EU27 countries' consumption of sawn timber was produced in Sweden.

Northern Europe in a global perspective

With economic growth slowly resuming in the EU and the rest of the OECD and with continued strong growth in the emerging Asian markets, global demand for raw materials is expected to rise in the near future. Given the global nature of the commodities markets this naturally entails that demand will grow also for the raw materials produced in the Barents region.

The Barents region could also gain in importance as a link for transporting goods and raw materials to and from Asia and North America. The proposed "NEW-corridor", which is the northern part of Northern Axis, would constitute an alternative route for container shipment between North America and China with containers being transferred from rail to ship at the port of Narvik, thus avoiding the congested transport corridors of central Europe.



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



The Bothnian Corridor

A strategic link in the European transport network

The Bothnian Corridor is a strategically important link within the transnational transport system of goods in northern Europe. It stretches out on both the Swedish and the Finnish side of the Bothnian Gulf. It connects east-westbound and north-southbound transnational links in Sweden, Finland, Norway and Russia. The Bothnian Corridor connects the northern part of the Northern Axis with the Nordic Triangle.

The Bothnian Corridor is already of great importance for transnational goods flows within the EU and to/from the EU. As the extended European integration continues, the importance of the corridor will increase further.





Freight volumes

Large volumes of goods are currently being transported on the rail and road networks 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 minerals, wooden products and fish exported from the region
- » industrial products that are produced and further processed in the region
- » consumer goods that are imported into the region

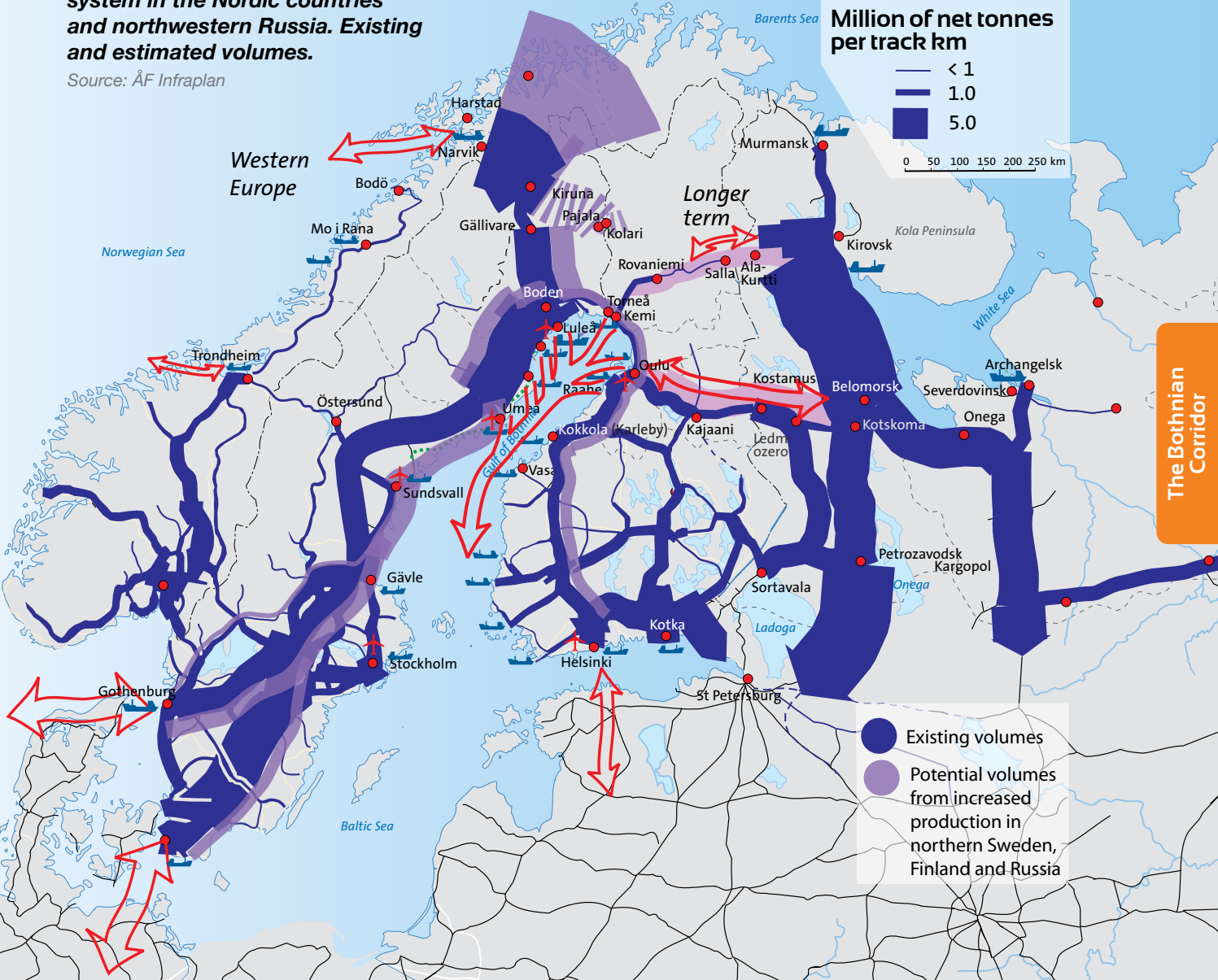
As the industry in northern Norway, Sweden, Finland and Russia contributes to large shares to the exports of each of these countries, the southbound transport flows are twice as large as the northbound flows for both rail and sea transports. The share of road transport is significantly lower in northern Sweden, northern Finland and north-west Russia, with road transport flows slightly higher in the northbound than in the southbound directions.

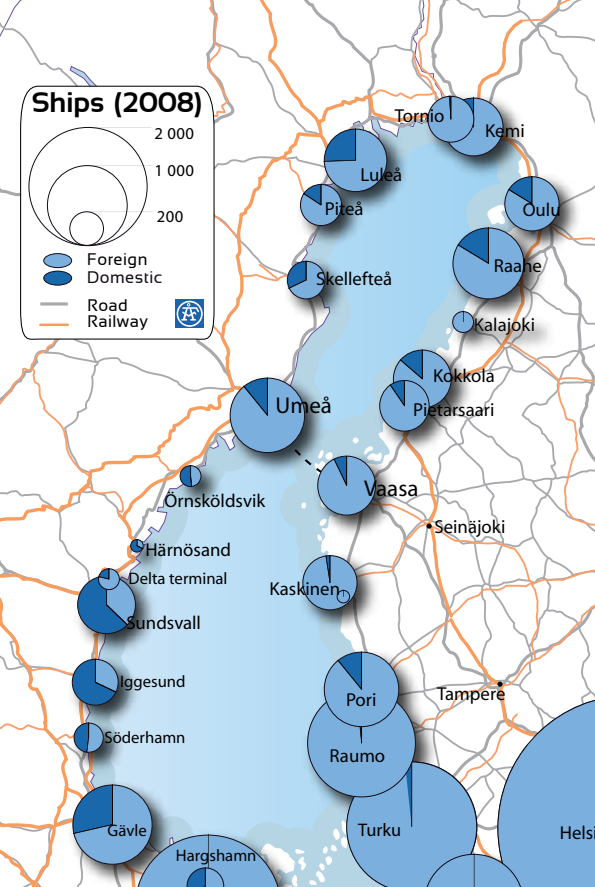
The transport volumes are large both in volume and in terms of heavy weight and shipping and railways, often in combination, are transporting a large share of this.

The increase in cargo flows that supply the EU with strategic raw materials and products have resulted in critical bottlenecks.

Freight volumes on the railway system in the Nordic countries and northwestern Russia. Existing and estimated volumes.

Source: ÅF Infraplan





Intermodality

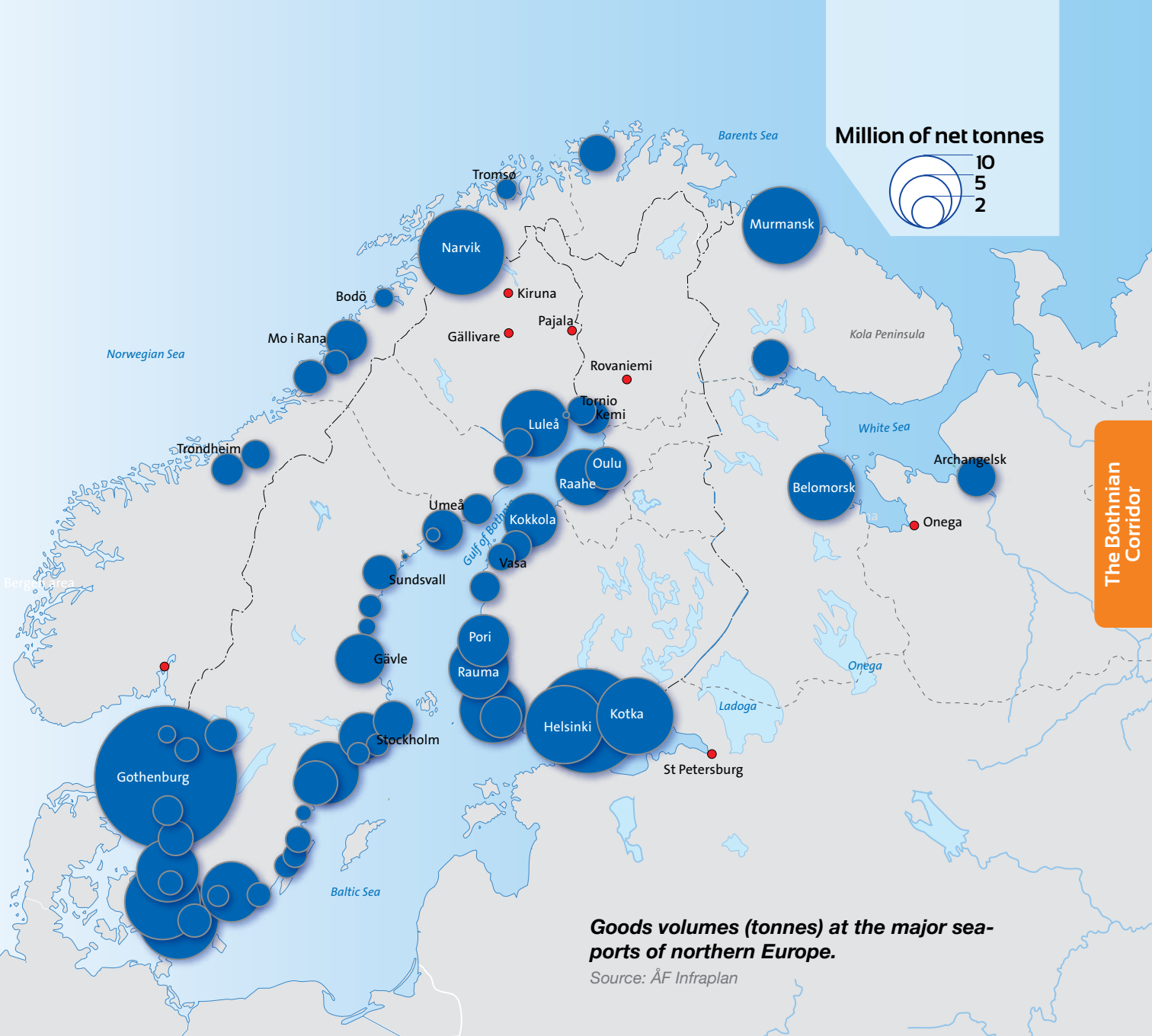
Several of northern Europe's largest ports and combined terminals are located adjacent to the Bothnian Corridor.

Intermodality is essential in many of the transportation chains. For the industries it is important that the modes of transport smoothly complement each other and that they can compete on equal terms. Significant factors for the transport buyer is choice, flexibility, competitive prices, delivery reliability and an environment- and climate friendly alternative. There is an imbalance in traffic flows for the northern part of Europe, because exports is larger than imports. The exports goes mainly by sea or rail.

The trend in industrial transports is towards larger vessels and increased combined transports and container transports. Ports and hinterland connections need to be developed in order to cope with the increasing use of intermodal transports which form an essential part of many of the transport chains in the region.

More efficient terminals need to be built and existing terminals need to be made more efficient in order to create a more sustainable transport system.





The railway system of today

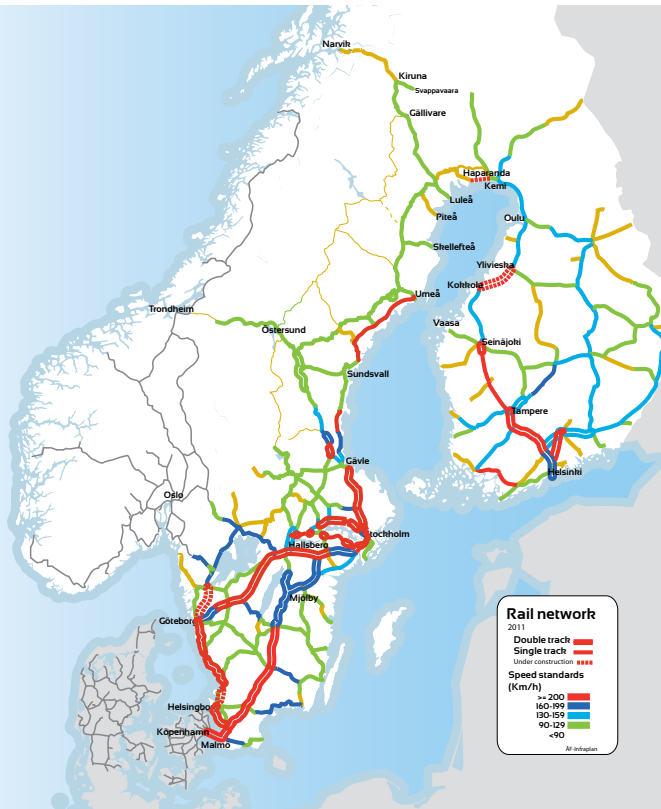
Many important industries for both Sweden as Europe's supply of strategic raw materials is located along the coasts of northern Sweden and Finland. But today there is no coastal railway north of Umeå. The completion of the Bothnia Line in August 2010 has increased the capacity south of Umeå, however there are still many severe bottlenecks to handle.

There is a serious lack of track capacity, carrying capacity and limited speed standard along the railway systems in the north. The East Coast Line is today the most congested single track line in Sweden.

Soon there will be increasingly negative economic consequences north of Umeå as a result of the lack of capacity and this will not ease until the completion of the North Bothnia Line, between Umeå and Luleå.

The Finnish Main Line is a single track line, except for the parts Seinäjoki-Pohjos/Luoko and Tampere-Helsinki. The carrying capacity is limited to 22,5 tonnes north of Tampere.

The construction of the double track between Kokkola and Ylivieska will significantly improve the passenger and freight traffic capacity of the busy railway section. With the introduction of the double track, the maximum speed for passenger trains can be raised to 160-200 km/h and the maximum axle load for freight trains can be raised to 25 tonnes at the speed of 80-100 km/h. In respect of the freight traffic, the traffic flows on the track between Seinäjoki and Oulu may be increased in the future as a result of the mining projects (e.g. Talvivaara), centralization of the wood and paper industries and the increased number of express goods trains.





Lack of capacity threatens economic growth

A well functioning infrastructure is essential to secure the EU's future transports of raw materials and industrial products.

In many cases transportation by train is the best option, from the northern parts of Sweden and Finland, due to economic factors, such as demand for regular just-in-time delivery of sufficient amounts of raw materials. For some products shipping would give more tied-up capital. Lowering the standards of capacity would lead to companies losing vital competitiveness. Lack of capacity threatens the economic growth.

The railway system can only handle a minor increase in traffic (5-10 percent), but the traffic is expected to increase significantly more. The time consuming planning period of railway projects is a serious problem. The increasing limitations can be prolonged and if future planning and capacity improvements are not sufficient to meet the demand, it will reduce the economic growth within the region.

Measures

Effective and efficient infrastructure is essential for industrial competitiveness. Improved rail transport lowers costs and increases reliability. This is of great importance for industrial transport and thus for production, cost effectiveness and reliability of supply.

Substantial investments are needed in the Swedish and Finnish rail network to cope with Europe's supply of raw materials and strategic inputs for the industry.

The Malmbanan line (the Ore railway) is in urgent need of capacity improvements. To meet the additional transport volumes by 2015, all meeting stations between Kiruna and Narvik must be able to manage meetings with long trains. In addition, more extended meeting stations are needed in the southern circuit (Gällivare-Luleå).

Investment funds are not available for this. Further additional volumes to the year 2020 also requires increased axle load, computer-aided traffic management, (probably even partial double track) on the northern circuit.

There is also a need to strengthen the capacity on other parts of the northernmost branch of the Northern Axis in order to cope with increasing cross-border transports.

Confirmed national investments in the Bothnian Corridor amount to 2,5 billion euro in Finland and 3,3 billion euro in Sweden. It is estimated that the total investments in the range of 5-7 billion euro are needed before year 2020.

- Double track Sundsvall-Gävle.
- New coastal railway Umeå-Luleå
- Double track Mjölby-Hallsberg
- New and improved railway Härnösand-Sundsvall
- Improvement Boden-Kalix
- Double track and increased bearing capacity Tampere-Oulu (Kokkola-Ylivieska is under construction)
- Increased bearing capacity Oulu-Kemi/Tornio
- Capacity improvements Helsinki-Tampere

Mining companies in northern Sweden (e.g., LKAB and Boliden) and Finland (Outokumpu and Talvivaara) are engaged in substantial investment to increase production volumes.

Metal-based industries (e.g. SSAB, Ruukki, Outokumpu, Boliden, Metso, Cargotech, KoneCranes, and OMG) will increase transport between production units and customers around Europe.

Forest-based industries (e.g. SCA, Smurfit Kappa, StoraEnso, Metso, Metsä and M-real) are expected to increase shipments of more processed goods, and so does bioenergy production.





Economy

foto: www.fotoakuten.se

Northern Europe's primary industry transports a significant share of its high value and strategic products by train on the Bothnian Corridor, from raw materials in the north with gradual processing to the major markets in the south.

This transport system is a concern for Sweden as well as for Europe.

This industry also accounts for a significant share of growth, GDP and net export value and it is **very important for Swedish and European economy.**

Trade of raw materials in Europe is a strategic issue of great importance for the future.

Northern Europe plays a fundamental role for the EU's mining-based industries and also has a very important role for the forest-based industries.

The primary industries show an increasingly strong growth. The potential for further growth is obvious with **large investments in new mines and industries.**

Transport by rail is in most cases the only alternative, because reliability, frequency of delivery and the time factor regarding capital binding is crucial. Businesses cannot endure major deterioration without losing crucial competitiveness.

The lack of capacity in the corridor is a major threat. Traffic has increased dramatically and is expected to increase even more, while at the same time the transport system, with limited measures, only tolerates a very marginal increase in traffic (5-10 percent).

The effect of limited transport capacity is slower growth, which affects **both the European processing industry and growth.**

The Bothnian Corridor should be given priority in the current TEN-T revision, as its importance for transports of raw materials, for processing industry and for economic growth is tremendous.

Significant impact

A considerable part of the EU's supply of primary goods originates from the industry in northern Europe. The growth is strong and the net export values are very important for the Swedish, Finnish as well as the European economy.

Sweden

Gross Regional Product

- » 52 % of GDP from northern Sweden
- » Sweden: 36 000 euro/cap
- » Northern Sweden: 51 000 euro/cap

Growth rate 2001-2006

- » Sweden: + 11,9 %
- » Northern Sweden: + 17,3 %

Net exports

- » Sweden: 1400 euro/cap
- » Northern Sweden: 5 800 euro/cap

Finland

Catchment area represent:

- » 72 % of GDP
- » 68 % of Business Establishment
- » 71 % of Jobs

Connected harbours represent

- » 73 % of Export
- » 67 % of Imports



European strategies

For the creation of a functional single market it is necessary to overcome lack of inter-operability and infrastructure gaps reducing the efficiency and weakening the global competitiveness of the European industry.

A new Core Network

The governments of Sweden and Finland promotes the inclusion of the Bothnian Corridor in the TEN-T Core Network.

Rail routes of great importance

Large volumes of goods are currently being transported on the rail and road networks and through ports in northern Europe. The transport flows are predominant in the north-south direction, and the infrastructure has been developed accordingly.

Huge assets of raw materials

For Europe, the supply of natural resources from the northern parts is necessary in order to reduce the dependence on raw material imports.

Over 90 percent of the iron ore mining in the EU takes place in northern Sweden.

Investing in your future



EUROPEAN
UNION
European Regional
Development Fund

THE
BOTHN
CORR | **AN**
DOR

www.bothniancorridor.com
info@bothniancorridor.com