Bothnian Green Logistic Corridor

THE STRATEGY OF BGLC

Baltic Sea Region
Programme 2007–2013

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REGION VÄSTERBOTTEN

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JOINT LETTER FROM THE STEERING COMMITTEE OF BGLC

The Bothnian Green Logistic Corridor (BGLC) project has reached its finish line, but the work of transforming the BGLC into a green corridor and strengthening the competiveness of the industry along the corridor is a work-in-progress.

WHY WE ARE DOING THIS?

Bothnian Corridor is a strategic link in the freight transport system of the Baltic Sea Region and Europe as a whole. The BGLC project is one of the core joint initiatives within the transport cluster of the Baltic Sea Region Programme.

Industry along the corridor is of vital importance for national and European competitiveness, trade development and supply of raw materials, both in the short- and long-term. Current conditions, including quality and capacity on the transport network, endanger this competitiveness (in certain cases even the survival) and the prospects of future growth. Transformation to efficient and green transport is crucial for growth, competitiveness and for ensuring a sustainable future. BGLC is thus part of aligned efforts to reach the goals set in the EU White Paper on Transport and the strategy for securing Europe's global competitiveness – Europe 2020.

WHAT HAVE WE BEEN DOING?

Lots of work has already been done. Bothnian Corridor has been included in the TEN-T core network. This clearly signals the important role of the transport corridor in the European transport system. The multitude and diversity of partners and stakeholders actively involved throughout the project is the best proof of how important the BGLC is for the region and the European Union. The studies throughout the project have addressed a broad spectrum of challenges and opportunities for a green transformation, developing concrete business plans and deeper understanding of economic impacts of transport infrastructure. Working in close co-operation with private stakeholders is essential for the results to be integrated into practice.

LOOKING TO THE FUTURE

Much work still lies ahead. The challenges facing the transport system and the industry are clear and the stakes are high. Securing reliable and green transport options is one of the key factors for regional and the EU's competitiveness and for an environmentally sound future. It is extremely important to build upon the work done in the project and we should take advantage of the fact that the project has succeeded in bringing together so many stakeholders. This document

formulates the strategic priorities for BGLC development and proposes for future arenas for co-operation and development work. Achieving BGLC's vision 2030 relies on continued co-operation between the stakeholders and a clear common understanding of what can be done.

PARTNERSHIPS AS THE BASE

The BGLC's Steering Committee would like to thank the project partners and associated partners for their support, enthusiasm, engagement and efforts in the work of putting the BGLC on the European map and leading the transformation of the corridor to efficient and green practices. We look forward to continued co-operation.

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13/02/2014	Editing completed

EXECUTIVE SUMMARY

The Gross Regional Product per capita for northern Sweden is 40% higher than the Swedish average, while the catchment area along the Finnish side of the Bothnian Corridor represents 72% of Finland's GDP.

(Bothnian Corridor, 2013)

The Bothnian Corridor stretches out along the Swedish and Finnish sides of the Bothnian Gulf with further connections to Norway, Russia, Poland, Germany and the Baltics. The Bothnian Corridor and the industries along the corridor are of strategic importance for the national economies of Northern Europe and Europe as a whole. Its indispensable role and significance can be summarised in the following themes:

- rich natural resource base for Europe;
- major exporter and wealth generator;
- unique competence centre;
- essential link in the improved integration in the Baltic Sea region and the EU and with neigbhouring countries – combining EU and non-Eu dimensions;
- strategic link in the industrial chains across Europe;
- part of building up the core Trans-European Transport Network (TEN-T);
- crucial component for ensuring the environmental sustainability of regions along the corridor as "business as usual" is no longer an option.

The corridor's failure to meet today's needs of industries, their growth potential and the transformation to sustainable practices are a direct threat to:

- competitiveness of these industries;
- Europe's strategic supply of natural resources;
- environmental and social sustainability of the transport industry;
- natural environments along the corridor.

The current document defines the BGLC's vision for 2030 and the strategic areas that it builds upon.

EXECUTIVE SUMMARY

BGLC'S VISION FOR 2030

By 2030, BGLC will be a fully developed green corridor, an integral part of the TEN-T core network corridors, providing efficient and green logistics solutions for the industrial chains originating from the north of Sweden, Finland and Norway stretching along the Swedish and Finnish sides of the Bothnian Gulf. It will connect with the end markets in central Europe and globally, through Mecklenburg-Vorpommern (Germany) and Poland, and with the northbound freight flows that provide for the industries and population in the High North region. Thus, this will lead to strengthening the competitiveness of the region and the European economy and to securing the supply of raw materials for Europe.

Green corridors are characterised by sustainable logistics solutions for long-distance transport with documented, reduced environmental and climate impact; high safety; quality and efficiency; an optimum utilisation of transport modes; harmonised rules with transparency for all stakeholders; a concentration of national and international freight in relatively long distances and efficient and strategically located transfer points.

Key strategic areas of development:

- Integrated multimodal network
- Open and inclusive
- Smart and efficient
- Arena for stakeholder involvement
- In connection
- Transport corridor as a catalyst
- Combining European priorities with regional interests

Based on these defined strategic areas, recommendations for goals and proposed set of measures for future work are given, including arenas and forums where corridor questions can be discussed, matchmaking between businesses facilitated and transformation to green practices ensured.

BGLC is part of national, regional and international efforts to build an efficient and sustainable transport network and a common transport area to support the needs of the community today and in the future. Thus, the strategy presented in this document aims not to define just a road map for BGLC in isolation, but to contribute to the on-going efforts and work done on the national and regional levels, such as at the Barents Region and the Baltic Sea Region levels and at the European Union level.

Last, but definitely not least, the document gives an overview of the BGLC and the work done throughout the project that laid the groundwork for developing the transnational corridor strategy. Results cover a broad spectrum of themes from identifying current weaknesses in the transport system to mapping future strategic nodes along the corridor. Studies have covered all transport modes, with a strong focus on identifying opportunities for increased use of rail and maritime transports. There has been a strong focus on facilitating realization of logistics and business opportunities using the principle "from contacts to contracts". Future transformation will require a set of measures and a range of stakeholder involvement. This document is thus aimed at the spectrum of Bothnian Corridor stakeholders, both public and private, presenting a proposal for continued co-operation and measures to achieve BGLC's vision for 2030.

The Bothnian Green Logistic project (BGLC) predicts that freight volumes are to rise by 50 per cent by 2050. From a European, Nordic and international perspective, the development of the Bothnian Green Logistic Corridor is of major importance.

GLOSSARY AND LIST OF ABBREVIATIONS

BGLC
(Bothnian Green Logistic Corridor) is a strategic link in the European transport system connecting the markets and gateways of continental Europe with its rich natural resources and processing and manufacturing industries in the north of Sweden, Finland and Norway. The Bothnian Corridor stretches out along the Swedish and Finnish sides of the Bothnian Gulf with further connections to Norway, Russia, Poland, Germany and the Baltics.

Green corridors
are a European concept denoting long-distance freight transport corridors where advanced technology and co-modality are used to achieve energy efficiency and reduce environmental impact. According to the Government Offices of Sweden (2010), green corridors are characterised by:

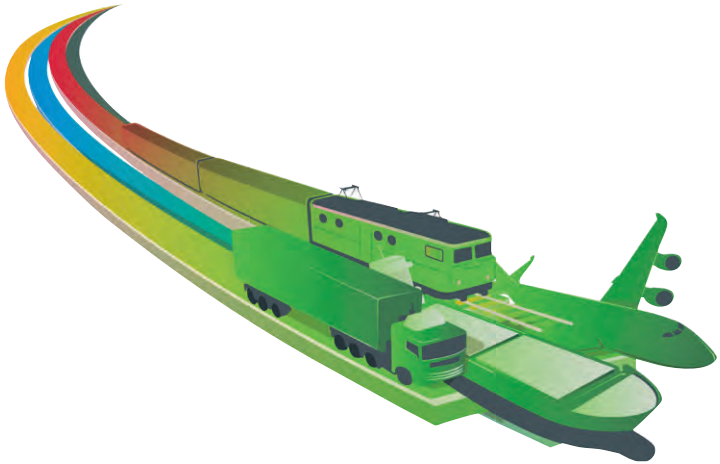
- reduced environmental and climate impact;
- high safety;
- high quality and efficiency;
- integrated logistics solutions with an optimum utilisation of transport modes;
- harmonised rules with transparency for all stakeholders;
- a concentration of national and international freight in relatively long distances;
- efficient and strategically located transfer points and adapted and supporting infrastructure;
- a platform for development and demonstration of innovative logistics (information systems, collaborative models and technology).

Intermodal transport
is the movement of goods in one and the same loading unit (e.g. container, trailer, semitrailer or vehicle), which uses successively two or more modes of transport without handling the goods themselves when changing modes of transport (UN/ECE, 2001).

Multimodal transport
is the concept of transport chains where the carriage of goods is performed by two or more modes of transport in combination (UN/ECE, 2001). It is a broader term than intermodal transport as use of load units is not a prerequisite.

SMEs
(Small and Medium Enterprises) The category of SMEs is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro (European Commission, 2003).

TEN-T
(Trans–European Transport Networks) – is a defined prioritised transport network for Europe, comprising all modes of transport and their linkages. TEN-T is a major policy and funding tool for developing accessibility and a common transport area across Europe.




Barents Sea
Murmansk
Kola Peninsula
Narvik
Bodø
Norwegian Sea
White Sea
Mosjøen
Haparanda/
Tornio
Luleå
Oulu
Kainuu
Umeå
Kokkola
Trondheim
Östersund
Vaasa
Petrozavodsk
Jyväskylä
Sundsvall
Bothnian Sea
Tampere
Pori
Gävle
HELSINKI
St Petersburg
OSLO
TALLINN
STOCKHOLM
Örebro
Gothenburg
Ventspils
RIGA
Baltic Sea
Karlskrona
Klaipeda
COPEN-
HAGEN
VILNIUS
Gdynia
Rostock

BGLC IN BRIEF

The Bothnian Green Logistic Corridor is a strategic link in the European transport system connecting the markets and gateways of continental Europe with the rich natural resources and processing and manufacturing industries in the north of Sweden, Finland and Norway. The Bothnian Corridor stretches out along the Swedish and Finnish sides of the Bothnian Gulf with further connections to Norway, Russia, Poland, Germany and the Baltics.

Industries located along the corridor have a major significance at the regional, national and European levels. Apart from the industrial southbound flows, including mining, forest and steel products, the corridor plays an important role for residents and businesses in the High North region – the northbound flows. The east-west bound flows are less substantial today, but present an opportunity for the future both through increased integration between Norway, Sweden and Finland and by extending opportunities for further connections to the east. Though geographically located in Northern Europe, the BGLC is part of the industrial chains and trade flows that stretch across Europe and globally.

The core of the corridor is the industrial southbound freight flows, but further integration between the southbound and the northbound flows is crucial for transformation of the BGLC into a green corridor. Moreover, the corridor plays an important role for business travel and private mobility, contributing to job creation and, more generally, regional development. Improved private and business mobility are important prerequisites for seizing business opportunities in the north, attracting investments and enhancing accessibility of the region. Thus, all the diverse functions are important.

”Bothnian Green Logistic Corridor is of highest EU strategic importance for ores, minerals, timber etc. from northern Scandinavia. Infrastructure and logistics make BGLC the prototype of a Green Corridor”.

Helmut Adelsberger, former DG MOVE

The idea is to shift more of the freight from roads onto rails, along with improving routes from Sweden to Norway and from Finland to Russia.
Baltic Transport Journal

STRATEGY EVOLVED FROM EXPERIENCE

During the BGLC project numerous studies (see the list on page 68), stakeholder meetings, and activities to promote the exchange of experience and knowledge have been carried out. Together all these have laid the groundwork for developing the corridor strategy. Moreover, the strategy document has gone through a public consultation with all the project partners to ensure the final document reflects well the work done during the BGLC project and the views on the future development of the corridor.

This work has been carried out with involvement of a broad spectrum of stakeholders, including ports, haulers, terminal operators, rail operators, shipping lines, cargo owners, regional and national authorities, and regional and industry associations (see the fact box). These make up the key stakeholders of the transport corridor. The project has enjoyed strong political support and academia has been involved as a research partner for specific fields to ensure reliability and the quality of the results. Industrial actors have included representatives from mining, forestry, fishing, metal, chemical, manufacturing and retail sectors – representing all the major flows along the corridor.

INDUSTRY AND STAKEHOLDER INVOLVEMENT – MAJOR CONTRIBUTION

- Partners and associated partners – support, knowledge, networks;
- Individual meetings with industry – understanding the needs and challenges;
- Public consultation – getting input, integrating different stakeholder perspectives;
- Workshops and seminar – an arena for discussion and highlighting problems, opportunities for networking and matchmaking between actors;
- Study visits – learning opportunities, business matchmaking, stakeholder involvement;
- Engaged participation in external events, such as industry expos (e.g. Baltic Sea Logistics Conference), EU conferences (e.g. TEN-T days), workshops, regional initiatives – exchange of experiences, synergies from co-operation and promotional activities.

”All the inputs and comments we have received show great interest for the Bothnian Corridor. Partners and actors are truly dedicated to the question, and want the project to continue.”
Edith Sorkina, SWECO

The studies during the BGLC project have covered a range of themes and had different scopes. They have covered technical, organizational, infrastructural, logistical and economic aspects of transports along the corridor and its connections, in addition to the relationship between trans-

”Norrland’s coastal industries account for major parts of Sweden’s exports. As much as 60 per cent of Swedish rail freight work takes place in Norrland in spite of the rail network’s major shortcomings.

The lack of capacity on the main line through upper Norrland hampers growth in trade and industry.

The expanding mining industries in Sweden will need up to 50,000 persons until 2025 and most of them will find jobs in the northern part of the state”. The North Bothnia Line will halve the travel time between coastal towns, thus providing better recruitment opportunities for businesses and increased transports for the industry.

Elisabeth Sinclair, Leader of the North Bothnia Line Project

port and regional growth and industrial competitiveness. Studies include both detailed analysis (e.g. specific railway line capacity) and broad studies (e.g. inventory of the whole transport network along the corridor). Studies within the project’s different work packages (WP) have utilized various types of methods, including market studies, literature studies, study visits, case studies. etc.

An important source for knowledge creation and raising awareness has been learning from successful cases and best practices. Many successful examples of green practices are already in place today. Numerous companies and industries can be identified as leading the transformation to a sustainable transport system (e.g. SCA, IKEA, Outokumpu, Volvo etc.) or regional initiatives (e.g. Logistics Forum in Luleå; Nordic Logistic Center in Umeå). The key is to identify what practices can be transferred and applied in other contexts or expanded in scale. Spreading best practices is imperative for raising awareness on how change is possible. This relates to industry practices and to developments on the transport market in the different countries involved in the BGLC project that can be utilized for learning from each other. Another important lesson from the project has been to utilize knowledge and experiences from outside the Bothnian Corridor.

EXAMPLES OF LEARNING FROM OUTSIDE THE BGLC

- The Corridor Management (WP6) study has analysed corridor management practices in several cases outside the Bothnian Corridor. The lessons provide insight into how corridor management can be arranged in the BGLC and how different types of challenges can be dealt with;
- The Canadian bulk port study (WP3). Though far from the European context, many of the bulk port challenges are common globally. A study of bulk ports in Canada with the most similar challenges, climate and sea has been conducted to understand how major increases in volumes can be handled in terms of logistics and security;
- Close co-operation with other transport corridor projects: East West Transport Corridor II, North East Cargo Link II, Rail Baltica Growth Corridor, Scandria, TransBaltic, Nordic Logistic Corridor, Kvarken Multimodal Link, and the Northern Dimension Partnership on Transport and Logistics;
- Poland is a fascinating example of fast development of an intermodal market that barely existed a few years ago. Poland's high access charges have been reduced recently, creating new opportunities for strengthening the competitiveness of rail transport. The dynamic market development is an interesting learning opportunity of success in railway market development. The terminal study in Poland – Benchmarking of Dry Ports (WP3) – has provided knowledge on how to develop inland terminal organisation and services can be developed.
- The study of optimised iron ore flows in the Baltic (WP3) looks at infrastructural solutions for strengthening the competitiveness of iron ore producers, port operators and European hinterland steel mills.
  By expanding the focus from industry and transport along the corridor, analysis of the entire supply chain is possible.

"We need to improve on monitoring the degradation of the railway system in order to find more cost-effective maintenance limits. This means that we need to collect the right data that measure the condition of infrastructure and the rolling stock. These data must be analysed and reported back as decision support to the personnel working with the maintenance on a national basis. If we then look at international traffic, there will be a necessity to build up systems for exchanging information across the borders, e.g. an e-maintenance system.

Ulla Juntti, Luleå Railway Research Center, Luleå University of Technology

An overview of the themes within each work package is given under the section "BGLC project" and the overall list of the studies available is presented on page 68.

WITH FUTURE IN MIND

Looking to the future is important for development of the transport corridor. The whole Barents Region carries an enormous potential for further explorations, but is highly dependent on the transport network's ability to accommodate those growing volumes and new logistics requirements.

Growth prospects are high both for the mining industry and the processing industry. Today, Sweden is responsible for 90% of EU's iron ore production, but the potential for the future is even greater. Fifty-four per cent of the mines in the Barents Region have not yet been exploited and a number of these might be economically viable in the near future. Production is expected to increase both in existing mines and through exploitation of new mining deposits. Similarly, with growing global demand for steel, production will increase. Such developments will have significant impacts on the Bothnian Corridor railway network and ports as well as on the EU economy as a whole. Already by 2020 the Port of Narvik is expected to triple the volumes handled, while the volumes on the Swedish Iron Ore Line will double.

The forest industry represents 10-12% of the total production value in Sweden and Finland, whereas the majority of production is exported. The industry is vital for the countries' economies, but it is undergoing a structural change caused by changing demand and global competition. Competitiveness and in some cases survival of the industry is highly dependent on efficient and economically viable transports. Maritime environmental regulation is seen as a major cost threat (SECA). Firstly, there is a heavy reliance on maritime transports. Around 60-70% of Swedish production (Swedish Forest Industries Federation) uses sea transports, depending on the product segment. Secondly, logistics constitute a major share of total costs. For instance, the Finnish estimate is 15-20% (Finnish Forest Industries Federation). Restructuring the forest industry also means changing demands for transportation, as the industry's move towards a combination of diversification and more high-value products will place more stringent requirements on the logistics systems.

Many industries, including fishing, chemical and energy, expect positive developments that will have direct impacts on the transport volumes. In the long-term, the expected growth in the Barents area and the establishment of northern routes in the Europe-Asia traffic flow will only strengthen the role of the Bothnian Corridor in the European transport system and be followed by significant increases in freight volumes. To take advantage of this growth potential, the transport corridor needs to improve and develop efficiency and capacity. Though many of the challenges and problems that need to be dealt with are here and now, this document adopts

"Things are happening in the north of Sweden that people in the south doesn't know about. 90 per cent of the EU's total iron ore production is situated in the north. GNP per employee in Sweden is the highest in Norrbotten – followed by Stockholm."

Leif Zetterberg, Senior Adviser Transport & Communications

"An iron ore train is equivalent to 100 trucks (90 tonnes) or 150 trucks (60 tonnes). It is untenable to drive heavy road transport."

Christina Lugnet, coordinator for activities associated with the mining industry expansion in Sweden.

a long-term vision for BGLC for 2030. Having a long-term perspective is importance as many measures are timing consuming while a number of necessary long-term changes can be identified already today. By 2030 major changes and development will take place, affecting the traffic, infrastructure and demands placed on the corridor, including the following examples:

- Freight flows in Sweden will increase by 50% – the capacity of the transport system needs to be adapted;
- The Northern Sea Route will be ice-free for longer periods each year (2030-2040) and thus open up new transport opportunities to the East (Arctic Council, 2009);
- The Fehmarn Belt Fixed Link will be completed and operational, creating new channels to continental Europe;
- Volumes of containers handled by the Baltic Sea Region ports will increase by 140% (BTO, 2030), placing pressure on both port development and efficient hinterland transports;
- Major increase in share of export volumes from Sweden to Eastern Europe and the Middle East, while the share of export volumes to Western Europe and the United States will decrease (Trafikverket, 2013);
- Current predictions for Finnish railway transports are pessimistic (decrease of freight volumes is expected 2020-2030), which means measures are needed to reverse the trend and ensure greening of freight transports.

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 sustainable development in Europe.

An action plan has been developed within the BGLC project WP3. It is a set of measures that are directly derived from the principles of green corridors. This strategy takes a broader view of the corridor, taking into account the role BGLC has today in the transport system and how this role can be developed in the future. This has been the basis for developing the strategy for corridor development and BGLC's vision for 2030.

The BGLC strategy is the result of the intensive work carried out during the project in all the work packages. The strategy defines how transformation into a Green Corridor will be achieved, combined with priorities and the role of BGLC today and in the future. While the strategy defines guidelines for how the green corridor objective can be achieved, the following Vision 2030 outlines what the Bothnian Corridor aspires to become.

By 2030, BGLC will be a fully developed green corridor and an integral part of the TEN-T core network corridors, providing efficient and green logistics solutions for the industrial chains originating from the north of Sweden, Finland and Norway stretching along the Swedish and Finnish sides of the Bothnian Gulf and connecting with the end markets in Central Europe and globally, through Mecklenburg-Vorpommern (Germany) and Poland, as well as for the northbound freight flows that provide for the industries and population in the High North region. Thus, it will strengthen the competitiveness of the region and the European economy and secure the supply of raw materials for Europe.

To be able to achieve the Vision for 2030 while respecting changes in the surrounding environment, seven key strategic areas have been defined to steer development. Goals and suggested measures are presented for each of the strategic areas.

"In Finland the lack of competition is also a real hindrance. /..../ In order to develop a real intermodal and cost-effective rail transport, we should focus on creating a fair business environment for new rail operators and services."

Jukka Lindfors, BGLC Project Manager WP5, Council of Tampere Region

With the Green Corridors concept, climate and environmental effects should be reduced, while safety and efficiency increase.

STRATEGIC AREAS FOR BGLC DEVELOPMENT

The overall objective is to develop BGLC into a green transport corridor combining green corridor principles and taking into account the special characteristics of the Bothnian Corridor, the needs and challenges of today and the role BGLC will play in the future in the European transport system. The following seven strategic areas for BGLC development have been defined:

Concrete goals have been defined within each of the strategic areas. By working with this set of goals, the BGLC's Vision for 2030 can be achieved. Moreover, the measures needed to achieve these goals are proposed under each strategic area. Measures are categorised into short- and long-term measures. Though the vision is defined for 2030, it is important to adopt a shorter time perspective in parallel to the long-term perspective when discussing specific challenges with industries, as industries have differing planning perspectives. In the current document, the short-term perspective is defined as 2020 and the long-term perspective as 2030. Creating a change to green practices and ensuring that the corridor's development matches the needs of the industry will require a set of measures and action from different stakeholders.

- **MULTIMODAL NETWORK**
- **COMBINING EUROPEAN AND REGION PRIORITES**
- **INCLUSIVE & OPEN**
- **TRANSPORT CORRIDOR AS CATALYST**
- **SMART & EFFICIENT**
- **AREA FOR STAKEHOLDERS INVOLVEMENT**
- **IN CONNECTION**

GOALS:

- 1.1 Increased shippers' trust in multimodal transport
- 1.2 Increased share of rail and sea on long distance transports
- 1.3 Full completion of the TEN-T core network on the Bothnian Corridor stretch by 2030
- 1.4 Improved robustness of the transport system
- 1.5 Seamless cross-border transport by rail
- 1.6 Improved integration across modes
- 1.7 Fair competition between modes of transport (including working conditions)

INTEGRATED MULTIMODAL NETWORK

One of the key challenges is improving connections to existing nationally separated transport and communication networks as well as better integration between transport modes. Multimodality of the transport system is one of the fundamental principles of the European Transport Policy. Multimodality means combining different modes of transport to benefit from their advantages, resulting in an optimal use and consequently in environmental benefits. It is important to focus on developing a multimodal integrated system, rather than focus on modes separately. Though, rail and maritime transports are preferable for long-distances, road transports are necessary and complementary for accessibility. Rail and sea transport should not be viewed as competitors, and integration between the two should be sought. Efficient maritime transports require efficient hinterland transport options, and broader use of rail transports requires for transhipment options to road. Creating conditions for multimodality is one of the key principles of green corridor development and the cross-border integration – a prerequisite for reaching the goal of a single transport area in European Union.

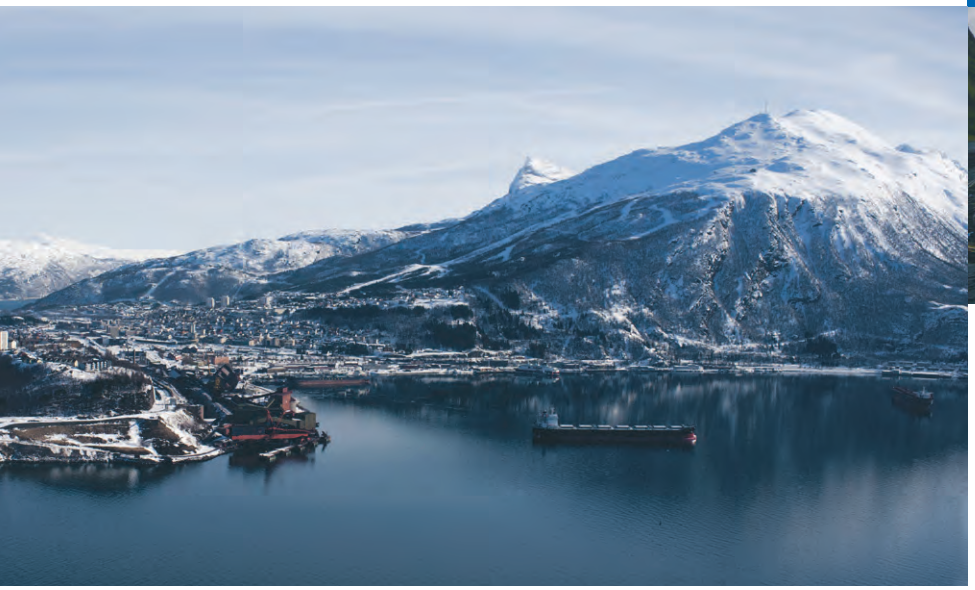
The Bothnian Corridor is a network of links and nodes. Links relate to the different transport routes and different transport modes, while nodes are the essential connections for consolidation, distribution and transhipment of freight between different modes of transport. The network view of the corridor is also reflected in the lesson from the BGLC project: multiple sub-corridors

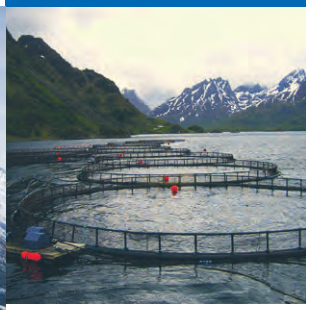
within Bothnian Corridor can be identified for different types of flows and with different types of maturity in terms of green practices. Local connections are very important for the raw material flows consumed by industries located along the corridor and consumer good flows.

Multimodal is important not just for integrating different modes of transport, but also for creating potential parallel channels to and from the markets. Freight flows along the corridor have different market channels and place different demands on the transport system. Parallel channels are needed not only to accommodate the different freight flows. They also become crucial during temporary disruptions or maintenance on infrastructure. Of course, the modes are not always substitutable and have their limitations. For most bulk freight, only high capacity transports are a viable option. The option for backups and parallel solutions is often very important for manufacturing and consumer goods flows, which are more sensitive to disruptions and delays. For industries located in the very north, there are also options for utilizing infrastructures of neighbour countries, which already occurs to some extent today (e.g. the Port of Narvik). Cross-border connections between Norway, Sweden and Finland need to be improved to facilitate joint utilization of available infrastructure. This applies not only to rail and road connections, but also to improved sea routes over the Bothnian Gulf and the Baltic Sea.

THE SALMON ROUTE

Norway's 2006 fish exports amounted to about six 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.





"In better transportation lie great possibilities for better products, new markets and higher earnings for one of the largest industries in Northern Europe"

Roger Mosand, Director at Nordlaks products.

MEASURE	TIME PERSPECTIVE
Development of common minimum standards on the infrastructure according to the Øresund fixed link or higher	Short term
Common investment plan for implementation on TEN-T core network (2014-2030)	Short term
Node development (capacity, services) and integration to stimulate intermodal/multimodal transport	Short & long term
Improvements in planned and coordinated maintenance of rail infrastructure	Short term
Reduction of discrepancies in costs/regulation affecting competition between different transport modes	Short & long term
Incorporating generally permissible vehicle sizes into rail infrastructure design (upgrade & building new sections) to facilitate intermodal transport	Short term
Construction of missing links on the rail infrastructure (new lines, line capacity and missing "last mile" links)	Long term

Already today, both Scandinavia and Finland largely use standards above those of the TEN-T guidelines (on the upgraded and new links), thus it is important to aim for higher standards. Examples:

TRAIN LENGTH: **TEN-T 750 m, Germany – Denmark 835 m, investing for 1000 m, Sweden permits 880 m, ØSB 1000 m.**

LOADING GAUGE: **TEN-T 3.15 m×4.65 m, Sweden up to 3.60 m×4.83 m, ØSB 3.60 m×4.83 m planned**

INTERMODAL GAUGE: **TEN-T 2.60 m×4.65 m, Sweden up to 2.60×4.83 m, ØSB 2.60 m×4.83 m.**

AXLE LOAD: **TEN-T 25 tonnes, Sweden – Norway (Haparanda – Narvik) up to 30 tons, 32.5 tonnes to be tested in 2014, new bridges designed for 40 tonnes, ØSB 25 tonnes.**

LINEAR LOAD: **ØSB 8.3 tonnes/m.**

(For more information check: Boysen, 2013; Øresundsbron, 2012)

OPEN AND INCLUSIVE

Though large companies dominate industry in the High North, is dominated by large companies, it is important not to forget the small and medium size enterprises (SMEs) that are often significant contributors to growth, job creation, innovation and aggregated transport volumes. Moreover, the big transport buyers are often capable of solving their transport needs themselves by scaling up with efficient and green solutions, though with trade-offs on frequency. The problem is that for smaller transport buyers developing dedicated solutions is rarely an option as the freight flows are not enough to fill a train or boat or create balance in the system. Thus, the option of using intermodal or multimodal setups is less accessible for smaller transport buyers.

The principle of inclusiveness and openness is decisive for facilitating access by SMEs to the multimodal network. An open system also facilitates optimal use of network capacity, as extra capacity can be easily sold to the market. Fair minimum volume requirements are an important prerequisite for this. An inclusive system also ensures that the transport system is not built to serve just bulk freight flows and that it is technically open to different types of cargo and load units. An inclusive system for BGLC means combining natural resource flows with processed industry products, manufacturing goods and consumer goods and consolidating fragmented flows from big and smaller shippers. Moreover, the big shippers' flows are better documented and accessible, while smaller, fragmented flows are often unknown. Thus, more work needs to be done to include SMEs in the corridor discussions. Access to infrastructure and terminals is important not only from shippers' perspective, but also transport operators'. Openness should facilitate new entrants to the market.

GOALS:

2. 1 Improved accessibility for SMEs (commercial openness)

2. 2 Improved cost and quality for SMEs

2. 3 Improved ability to balance return flows and combining different types of freight (technical openness)

2. 4 Improved conditions for new entrants (operators)

MEASURE	TIME PERSPECTIVE
Creation of intermediaries (one-stop-shop)	Short term
Improved cargo flow statistics, market analysis, market segmentation--> matchmaking	Short term, continuous
Competence development among transport buyers on multimodal alternatives, benefits and opportunities for consolidation and co-distribution	Short term
Establishing a network of independent terminal operators	Short term
Conduct a study on the barriers to market entry for new operators on the rail network, creating basis for policy makers	Short term

GOALS:

- **3.1 Balance in prioritising freight and passenger transport on the rail infrastructure**
- **3.2 Cohesion in infrastructure planning: comprehensive network vs. core, between neighbouring countries**
- **3.3 Improved coordination on the node level**

"We have changed the basic philosophy of our strategy. The purpose will no longer be to improve the transport system by doing more or increasing capacity, but by doing things in a smarter way than before. *Leena Sirkjärvi, Senior Officer at Ministry of Transport and Communications, Transport Policy Department*

COMBINING EUROPEAN PRIORITIES WITH REGIONAL INTERESTS

BBGLC combines regional, national and EU priorities for competitiveness of local industry, wealth generation, safeguarding supply of raw materials to the European market and so on. This means that the corridor should develop in a way that balances the priorities on different levels and for the different stakeholders. The freight flows in the corridor are an aggregate of international long-distance flows as well as more fragmented regional flows, and these interests need to be balanced. As it is the overall capacity that matters, both core and comprehensive infrastructure need to be developed.

While the priorities can be rather similar, there are some discrepancies in how planning is done. For instance, there are opportunities to improve integration of planning transport infrastructure on the EU level (TEN-T) and the national and regional transport plans, and the integration between the national plans of countries included in the BGLC. This can contribute to better use of financing to achieve system benefits and can speed up the improvements through common planning. For instance, the Norwegian government is investing intensively in upgrading the railway network. It should be better synchronised with development plans in the neighbouring countries to utilize the full effects of improved infrastructure. Work on the investment plan should also include investigation of alternative co-financing schemes.

Balancing different priorities also relates to transit goods. For example, regionally, transit traffic can be seen as a burden, while in a broader context it can be of great value. BGLC freight flows consist both of regional fragmented flows and concentrated long-distance flows. This means that some issues are more relevant on the regional level, while others are more relevant for transport of goods over long distances. Moreover, it is important that efforts in corridor development are aligned with work done in other corridor projects in the region. Continuation of such co-operation between projects, as has been happening during the BGLC project, is essential to achieving maximum effect from the measures taken. For instance, the recently developed Joint Barents Transport Plan (2013) contains many common and complementary proposals for the continuation of work within the BGLC.

MEASURE	TIME PERSPECTIVE
Improved co-operation between national transport planning	Short term
Investigate improvement opportunities forprioritisation procedures for rail operations	Short term
Coordinated promotion of regional questions on corridor level, nationally	Short term

EFFICIENT AND SMART

Improving efficiency is a central theme for greening transports, but also for creating incentives for transport buyers to choose green solutions. Cost is a decisive factor in the majority of transport decisions even if a combination of factors is used in decision-making. Efficiency relates to the complete transport chains: efficiency in long distance transport and distribution, short distance transports, and nodes (handling/transhipment). Efficiency of resource use, including energy, results in environmental and cost benefits. Efficiency in the transport corridor can relate to various aspects of transportation, for instance harmonisation of standards and resulting improvements in interoperability, increased share of rail and maritime transport or consolidation of flows for better use of capacity/balance in transports.

Smart refers to how improved efficiency can be achieved, but also how quality aspects of transport services provided can be improved. The latter is important for shifting more cargo off the road to alternative modes of transport. Smart solutions are achieved through better utilization of information technology in the logistics chains, through business model and organisational arrangements of how transport is managed and consolidated, and, of course, to the transport technology applied (vehicles, transhipment etc.).

MEASURE	TIME PERSPECTIVE
Unify train formation and brake rules across borders	Short term
Support implementation of innovations through establishment of demo sites (including funding)	Long term
Establishing a network of green energy infrastructure (e.g. LNG)	Short term
Conduct pilots for using ICT for maintenance management on the rail network	Short term
Develop contingency planning to deal with disturbances on rail network	Short term
Conduct a benchmarking on existing use of ICT for improved resource utilization	Short term
Conduct pilot test for new intermodal technology	Short term
Conduct a study on the use and availability of green energy in transports along the corridor	Short term

GOALS:

- **4.1 Diminishing distance disadvantage for industry in the High North (cost aspect)**
- **4.2 Improved use of existing transport resources**
- **4.3 Decarbonisation of transports along the corridor**
- **4.4 Improved use of existing capacity in the transport network**
- **4.5 Simulation of innovation**

"Derailment leads to huge costs and a need for high-level logistics expertise. Our products must be delivered, which means that we get to control the transport and chartering vessels to handle deliveries. For us, the Bothnian Corridor is extremely important"

Per Bondemark, vice-president of SSAB, exporting 6,000 tonnes of steel each week

GOALS:

- **5.1 Establishing an arena for working with corridor questions**
- **5.2 Unifying "fragmented" efforts along the corridor**
- **5.3 Stronger representation of corridor issues externally**
- **5.4 Induce B2B actions/ B2B meeting (intraregional and interregional meetings)**

ARENA FOR STAKEHOLDER INVOLVEMENT

A multimodal, cross-border corridor with a rich industrial base means that the BGLC has a wide range of important stakeholders, both public and private. Creating a dialogue between the stakeholders to better understand challenges, commonalities and each other's priorities has been an important part of the BGLC project work. The project has revealed a clear need for creating a more permanent arena that would allow stakeholder involvement. Creating an arena is a prerequisite for the corridor being perceived as an entity, for being able to discuss corridor-wide questions and for implement measures though public-private partnerships. Obviously, for the public sector such engagement would carry a clear purpose, but it is important to combine the public and private sectors, especially as the base of BGLC is the industrial flows. Co-operation structures should follow the Triple Helix principle: uniting public actors, private actors and academia. Not least, an arena would enable more co-operation between the industries along the corridor, creating new business opportunities and stimulating co-operation in transport and logistics. The corridor is a good base for creating an arena as it has very clear common interests, while also engaging a range of very different stakeholders.

Along the corridor different forms of regional partnerships can be found. Many organisations exist that deal with specific regional issues, industry issues or specific infrastructural projects. Thus, the arena should not be perceived as one of many arenas, but rather an arena that perhaps brings together many others and allows discussing broader questions. Moreover, the need for dialogue is not only internal to the corridor. An arena would allow better communication of the corridor's issues on the European level.

The proposals for a Corridor Management (CM) structure and high-level logistics network based on nodes are presented in the following section of this document: Future arenas.

"On the importance of last mile transports: "... In the north, the transport costs from production areas to main hubs often account for more than half of the total transport cost from origin to final destination."

Per Stromhaug, Senior adviser at the Port of Bodo

MEASURE	TIME PERSPECTIVE
Initiate a dialogue with core stakeholders on a potential CM structure	Short term
Establish Corridor Management structure for BGLC	Long term
Establish high-level logistics networks	Short term

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

"LKAB's future foundation is being laid now through investments in existing underground mines, research and new infrastructure. On top of that we plan to operate three additional open pit mines very soon. The need for good, effective transport solutions in the north region has never been greater. That's why we support BGLC"

Markus Petäjäniemi
Senior Vice President
Production & Logistics, LKAB.

GOALS:

- **6.1 Bothnian Corridor will be integrated with the Scandinavian-Mediterranean/ Baltic-Adriatic/North Sea Baltic TEN-T core network corridors**
- **6.2 Improved east-west links**
- **6.3 Efficient border crossings**

"On challenges transformed to opportunities: "The fact that from 2015 the Baltic Sea will be part of the Sulphur Emission Control Area (SECA) means a new pattern of ship traffic in the Baltic Sea. Adriatic Ports, together with train and ferry connections (e.g. Gdynia-Karlskrona) reaching Scandinavia, could form an alternative to sea transports. The result of this could be a huge demand for intermodal transports both in Scandinavia and on the European continent."

Tore Almlöf, Head of Strategic Planning at Municipality of Karlskrona

IN CONNECTION

The principle of in connection emphasises the need to improve connections to outside the corridor. Many of the industrial flows originate in the northern part of Finland, Sweden and Norway, but the destinations are located outside the BGLC. Thus, connections to outside the corridor are as important as efficient connections within the corridor. Mecklenburg-Vorpommern and Poland are essential gateways for BGLC freight volumes to reach markets in Central Europe. Connectedness to outside the core of the BGLC network can be improved through better connections to the TEN-T 9 core network corridors, as that is the part of the TEN-T network that will already be completed by 2020. The Bothnian Corridor is part of the TEN-T core network and is a natural extension of the Scandinavian-Mediterranean/Baltic-Adriatic/North Sea Baltic TEN-T core network corridors and integration should be sought. Well-developed domestic connections outside the core of the corridor are also crucial as they function as transit areas, consolidation/distribution nodes or gateways for cross-border flows.

There are also connections to neighbouring countries outside the EU. Both sea routes and land-based transports are important here. For instance, the role of the Port of Narvik can be even stronger as it is not part of the SECA area and can become an important gateway alternative for overseas cargo (though this requires easing capacity constraints on the railway network connecting to the Port of Narvik). Developing better connections to the east, including Russia, are very important, both considering the large market there and the evolving opportunities for quicker land-based transport to Asia. For Russian transports, developments in Finland have an important role to play for creating opportunities for all of BGLC. Though many technical and administrative barriers needs to be resolved, there are already exciting developments as efforts are being made to start up intermodal trailer-based traffic.

The northern sea route is likely to emerge as an attractive alternative for quicker transports to Asia. For BGLC that will mean that the potential of southbound and northbound cargo flows can significantly increase and the functioning infrastructural connections to the Arctic and Barents region need to be improved and further developed for better efficiency in the west-eastbound flows.

Having a broader view is necessary in efforts to green transport and logistics operations. It is the door-to-door view that is important for the industry: how efficient and effective is the whole transport chain. Most of the industrial freight flows are transported beyond the core of the Bothnian Corridor. Thus co-operation externally is necessary in efforts to transform the corridor, to understand the industries' challenges (bottlenecks may lie outside the corridor borders) and to contribute to the greening of European transport industry. Important are both links outside the corridor as well as nodes – the major gateways (e.g. Port of Gothenburg, Port of Rotterdam).

MEASURE	TIME PERSPECTIVE
Organise communication and lobbying activities towards EU and national decision-makers	Short term
Continued co-operation with connecting corridor projects and regional initiatives	Short term
Promote results from the BGLC project to other green corridor initiatives	Short term

”An example for initiatives within the BGLC project aiming at improving connections to the end markets is the A2A – Atlantic to Adriatic corridor initiative. This work has brought together stakeholders from a broad geographical spectrum: Gdynia City Hall, The Council of Region Blekinge, Örebro County Council, the Swedish Transport Administration and Nordland County Council. “In the long term, we are working to better connect Scandinavia with the markets in Poland, France, Germany, Russia and the east of Europe.”

Leif Petersson, Council of Region Blekinge and activity leader in BGLC

GOALS:

- 7.1 Improving dialogue between industry and political decision makers
- 7.2 Strengthening competitiveness of the industry and trade along the corridor
- 7.3 Creating new business and growth opportunities

TRANSPORT CORRIDOR AS A CATALYST

A green corridor is in and of itself not the end goal, but rather should be viewed as a catalyst for growth and for business opportunities. Better transport and logistics services can support the industry along the corridor, facilitate more businesses to locate there, increase trade options through better market connections, attract investments and create job opportunities.

Throughout the BGLC project there has been a lot of focus on understanding the relationship between infrastructure and logistics and the regional growth opportunities. This has been the core theme of WP5, but also discussed in other studies. Prospects for many of the industries along the corridor are very positive, but conditioned on the corridor's ability to meet transport demands. Mining, forest, chemical, fishing, electronic and hi-tech industries and the energy sector present opportunities for growth that are important not only locally, but for the European and global economies. Better connections can facilitate trade between the countries along the corridor and new east-west growth opportunities.

For BGLC with industrial freight flows as its core, it is thus central that the development of the corridor follows industry developments. Though many of the business issues are discussed in 3-4 year perspectives, the major decisions are rather long-term (e.g. new mines, new production sites), where planning horizons are compatible with infrastructure planning. To better match transport planning and business planning, a dialogue between the relevant stakeholders is essential for creating a better foundation for decision-making and for better understanding the various decision-making processes. The relation between transport corridor developments (e.g. infrastructure investments) can also work in the opposite direction, where uncertainty about the future puts on hold industrial investments.

MEASURE	TIME PERSPECTIVE
Further studies on impact of transport infrastructure on regional growth	Short term
Map discrepancies between industry needs and current conditions along the corridor	Short term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FUTURE ARENAS

The BGLC projected has identified the distinct need for arenas, in particular, as most of the logistics and business opportunities identified and discussed build upon facilitated co-operation between actors in the corridor. An important task within the BGLC project's WP6 report has been to identify important stakeholders in the corridor and to create a basis for continued co-operation. The following section will introduce two complementary proposals for the future arenas to be developed for the BGLC: Corridor Management and a complementary High Level Logistics Network. Creating governance structures is crucial for coordinated and efficient implementation of a corridor strategy and BGLC's transformation into a green corridor. An important principle in creating new structures is connecting existing initiatives and building upon them so as not to waste efforts already made and to avoid too many parallel organisations working with similar questions.

CORRIDOR MANAGEMENT

WHAT IS CORRIDOR MANAGEMENT?

Corridor Management has become a much discussed theme at the European level, a natural result of Europe being so focused on developing cross-border corridors (e.g. TEN-T Core Network Corridors, European Rail Freight Corridors). "The term Corridor Management consists of the development and/or continuing operation of a corridor, and implies central control and coordination of stakeholders. Owing to the diversity of corridor users, there is a large number of governmental bodies involved in the activities of a corridor, as well as transport and logistics service providers." (WP6, Transport Corridor Management Structure, Eckhardt, ed., 2013). Management of a corridor can be arranged in different forms: by public organisations, the private sector, or joint schemes, depending on the corridor's nature and functionality. There are some basic functions a management scheme should address, and these are: "investments for improving the corridor's performance, standardization of procedures, common documentation for control and clearance and cost recovery actions "(WP6, Transport Corridor Management Structure, Eckhardt, ed., 2013).

Actors have diverse motives for participating in an organisational relationship and the actual management structures differ in different stages of corridor development, as the management

" Conclusions on the A2A, our new Intermodal Shuttle Connection, indicates that the combination of train and boat is at least 40 per cent more energy effective than the combination of truck and boat."

Maria Öberg, Senior research engineer, Luleå University of Technology

structures can have different purposes and drivers – "there is no "one fits all" solution"(WP6, Öberg, 2013).

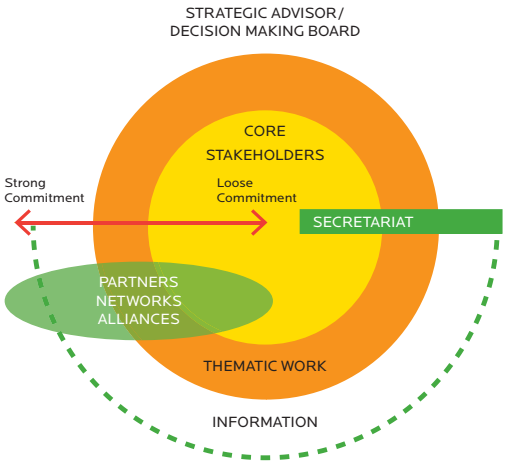
WHAT HAS BEEN DONE SO FAR?

Investigating Corridor Management structures has been a major task within WP6. The study looked at the different Corridor Management models applied in other settings (e.g. other corridors in Europe) and at developing a proposal specifically for BGLC. This work has involved literature studies, a procured international study, interviews, information from other EU and interregional transport initiatives and a workshop with a range of stakeholders to discuss the results. Apart from this and in co-operation with the Bothnian Corridor project, an initiative on the Swedish side is looking at potential interest from the stakeholders to establish a Corridor Management structure for the corridor. This work has resulted in a strong base for developing a recommendation for a BGLC-specific Corridor Management structure. However, it is important to keep in mind that a concrete structure can only be developed through dialogue with stakeholders that become part of the structure.

There is no current mandate for a transnational transport management structure for the Bothnian Corridor (Öberg, 2013).

RECOMMENDATION

The recommendation[1] is to create a management structure that all types of stakeholders can easily join. However, there should be different options for degree of commitment, such as a multi-optional structure. Stakeholders can be strongly committed through contractual agreement or a joint body, or they can be loosely committed, such as in an informational network.



Proposed Corridor Management Structure for BGLC (Wp6, Öberg, 2013)

It is suggested that the structure be steered by the core stakeholders, who have a strong commitment to the issue. These could be infrastructure authorities, regions, major operators and/or major terminal actors. Engagement of the ministries and the EU as core stakeholders should be obtained if possible.

Strategic advisors are influential actors that might make important decisions or provide information for the development processes without active participation. For

NOTE

[1] The following recommendation is an extract from an extended version presented in the "Management Structure from the Bothnian Green Logistic Corridor" report (WP6).

instance, they could be representatives from the EU or national authorities. It is proposed to explore the possibility of allowing strategic advisors to have delegated mandates for making certain decisions with the support of the core stakeholders and with the purpose of harmonisation. A strategic advisors group would then act as a decision making board.

All stakeholders would be able to participate in and be committed to thematic work (e.g. through working groups dedicated to different issues). Several combinations of structures, like partnerships, alliances, working groups or networks, can be used in the overall management structure and having various options for commitment. For instance, there might be interest in creating a terminal partnership, an environmental working group or other suggestions. All interested stakeholders should be able to commit to an information network and then be able to change their commitment to become more active. A secretariat is needed for administrative support and facilitation of a management structure and the work processes attached to it. This could be arranged as a separate organisation or be part of one or more stakeholder organisations. A separate organisation is preferable to make sure that the dedicated resources are spent on these tasks.

Transports and logistics is a prerequisite for competitive advantages for the industry in northern Europe.

HOW TO PROCEED?

The Future Bothnian Corridor project took place 2012-2014 and has now concluded. Similarly, the BGLC project in its current form is ending in March 2014. This proposed structure needs to be further discussed with the stakeholders, especially the potential core stakeholders. According to their views the structure should be further improved and adapted to the context of the Bothnian Corridor. All in all, it is important to consult stakeholders from different parts and levels of society in testing and evaluating further actions and projects. Such a test is important to make further improvements to a management structure. Stakeholders need to see a clear potential of such collaboration. Especially for private companies, it is very important to see the benefits of creating such structures and what are the costs and functions. The Corridor Management needs some sort of mandate and legitimacy to have the power to take action.

The recommendation and work done both with BGLC and the Bothnian Corridor project should be seen as complementary. The work in both projects has created a good base for going a step further and initiating discussions with potential stakeholders that can become part of the Corridor Management structures. It is natural that at this state that the Corridor Management structure be discussed only as a proposal, as the key to the structure is the willingness and interest of stakeholders to be part of it.

The development of Corridor Management structures for the Bothnian Corridor should fol-

"We tried to gather business stakeholders 20 years ago. Our main idea was that the cargo-owners should co-operate with carriers for better results. This idea wasn't received well by the forwarders. Some of them felt unwanted competition and got really angry and upset. Today I think the market has matured – carriers, forwarders and cargo-owners recognise the benefit of co-operation."

Stellan Lundberg, ÅF Infraplan

low the development in the 9 core network corridors. European coordinators will be assigned for each of the core corridors. BGLC has a clear opportunity to initiate a development of such as structure on the BGLC level, which can then be easily integrated into the structures on the core network corridor levels. This type of initiative will also send a clear signal to the decision makers about the regional commitment to working towards becoming an integral part of the core network corridors.

The dialogue with BGLC stakeholders has shown a clear interest for the Corridor Management structure for BGLC. A range of questions and functions have been identifiedas relevant for the Corridor Management to work with, e.g. harmonisation, standardisation, maintenance planning, lobbying, awareness raising etc.

”The aim has been to collect experiences and analyse success factors on how to create a good management structure. This knowledge is used in the recommendation for a Bothnian Corridor management structure”.

Kristina L. Nilsson

HIGH LEVEL LOGISTICS NETWORK

WHAT IS A HIGH LEVEL LOGISTICS NETWORK?

The aim is to create a transport forum or so called High Level Logistics Network (HLLN), for transport buyers, forwarders, transporter operators, terminal operators and regional authorities that can be used for exploiting opportunities in the corridor through new types of co-operation. The forum will act as a lobbying body to represent the interest of the participants in corridor issues, as a forum for public consultations and as a negotiating partner with external actors. Creating legitimacy is an important part of the forum creation and, thus, intensive dialogue with the potential participants will take place.

The High Level Logistics Network, or a transport forum, is meant to be a complement to the more formal Corridor Management structure and to channel information between the formal structures and the industry. Besides managing more business-oriented questions, a forum can also channel reports, questions and other information between the region's companies and external stakeholders and authorities. The High Level Logistics Network will focus on business interests and have the major transport hubs (nodes) as the base of the structure. The general idea for the HLLN is based on regional initiatives – to bridge and link these initiatives to the Corridor Management structure.

WHAT HAS BEEN DONE SO FAR?

This idea has been tested within the BGLC project through a series of seminars in the major hubs along the Swedish side of the Bothnian Corridor. Seminars have been held in Luleå, Umeå and Sundsvall. The idea has been to bring together different stakeholders to create a dialogue that would enable an evaluation of whether or not there is a need for such a forum. The results of seminars show that such forums partly exist regionally, but not in a broader format.

"The BGLC idea is vital for the development of northern Scandinavia and Russia and further onto the Baltic countries. In order to increase our competitiveness as well as to attract investments and a skilled workforce, we need efficient and high-capacity infrastructure".

Olof Nyberg, CEO Sundfrakt

"A forum will represent the interest of transport buyers, forwarders, transporter operators, terminal operators and regional authorities in the matter of corridor issues. It will serve as a forum for public consultations and as a negotiating partner with external actors."

Tina Stjernberg, WP6 Manager

Proposed tasks for High Level Logistics Network based on the discussions with the stakeholders:

- Survey the demand for transportation in the region from large, medium and small companies, for improving opportunities for initiating dialogue with existing freight carriers and transportation resources, and for more efficient links without building new infrastructure.
- Based on the demand, jointly conduct analysis of the effects of consolidation/coordination of flows, infrastructure measures and regulatory changes.
- Initiating the development of joint new high-capacity transport solutions between two or more companies. Two examples of this are SCA's ship-based transport system today and ScandFibre Logistics' transport system for paper products.
- Creating basis for infrastructure planning and decision-making within the region or along the corridor. Taking the corridor's perspective, prioritise necessary actions and measures.
- Joint train scheduling application for the region's businesses – with consolidated volumes better bargaining power can be achieved.
- Balancing transport flows – common processing of retraction flows to optimize volumes/resource utilization.
- Development or procurement of common IT systems.
- A number of cargo owners, shippers and infrastructure managerscan join forces and together create a function for procurement of permits, inspection and maintenance of the infrastructure.

It is now clear that the establishment needs to be based on the industry's needs and consequently have a bottom-up approach. This is important for attracting local/regional business needs. The progress of all initiatives is highly dependent on support from each company's management board and on the focus on questions that are relevant in the coming 3-5 years.

FURTHER ACTION

Further investigation for other strategic nodes along the corridor is required, similar to the series of seminars conducted so far along the Swedish side of the BGLC. As the idea with a High Level Logistic Network is to apply a bottom-up approach, the network can consequently be built up based on participation interest.

FITTING THE TWO TOGETHER

For the defined TEN-T 9 core corridors, coordinating/governance structures will be built (European Coordinators). Adding BGLC to the core network corridors will naturally mean that similar coordination structure will be adopted. Corridor Management is a formal function with a rather top-down approach, needed to be able to have a single entity. Corridor Management as discussed can have a variety of functions/working groups focusing on specific areas.

The current proposal includes a complimentary arena – High Level Logistic Network. This arena would be developed through a bottom up approach where nodes are the key elements of the structures. A High Level Logistic Network is considered "easier" to build as its structure will depend on interest from the nodes to participate and its functions will clearly focus on achieving synergies from closer co-operation. A High Level Logistic Network can then serve as a basis for building the Corridor Management structure and can become integrated into it. The prime benefits of a High Level Logistic Network will be opportunities for coordination and co-operation in logistics and transport, both locally and across nodes.

Bothnian Corridor in connection (adjusted map from the Bothnian Corridor project)

PART OF A BIGGER EFFORT

BGLC does not develop or exist in isolation. It is part of the corridor network connecting Europe and ensuring connectedness to outside the EU. BGLC links up the Northern Axis, Nordic Triangle, Motorways of the Baltic Sea and the Rail Baltica (see the map).

This strategy aims not only at creating a vision and a road map for BGLC development and integration, but also at achieving the goals set by the European Union Transport Policy, the EU Strategy for the Baltic Sea Region, the national strategies in the respective countries and, of course, the broader strategy of strengthening EU competitiveness, such as the Europe 2020. In addition, as the industrial flows are the nature of the corridor, the strategy contributes to industry-specific efforts and company-level work on improving transport connections to markets and the environmental performance of the logistics function.

European transport policy is defined in the 2011 White Paper on Transport: Roadmap to a Single European Transport Area — Towards a competitive and resource-efficient transport system. The document sets guidelines for developing the European transport system in a sustainable matter. Among the key issues, the transport policy includes ambitions to drastically reduce GHG from the transport industry (by at least 60% by 2050), implement a fully functional and EU-wide multimodal Trans-European Transport Network, and create a single European transport area. The whole policy strongly focuses on increasing pan-European integration and accessibility and reducing the external effects from the industry. BGLC is directly part of this work. Efforts to transform the corridor, create better cross-border connections both internally within the EU and with neighbouring countries, and upgrade the core infrastructure are directly in line with the work done at the European Community level.

The TEN-T has long been the central component of European transport policy and the integration of the Union. From the initial guidelines in 1996, the network has undergone several stages of adjustments as the result of the changing geopolitical environment, economy and environmental policy of the community. TEN-T is the backbone of the European transport system. The network consists of two layers: the core (implemented by 2030) and the comprehensive (implemented by 2050) networks.

> "Adding Bothnian to the Scandinavian-Mediterranean Corridor to future CEF Regulation (2021-2027) is possible if bottlenecks to the south for Sweden, Finland and Germany are removed (key project: Fehmarnbelt) and if Sweden and Finland seriously show their intention to invest in the Bothnian Corridor.
>
> *Helmut Adelsberger, former DG MOVE*

NOTE

[2] Mjölby – Hallsberg stretch is included in the Scandinavian-Mediterranean core network corridor.

As can be seen from the map above, Bothnian Corridor has been included in the new TEN-T core network, including the North Bothnian Line between Umeå and Luleå (to be built). The latest addition to the TEN-T is the 9 core network corridors – connecting the major transport flows of Europe. Bothnian Corridor, to a large extent[2], is currently not part of the core corridors (see the map on the left below) and is an obvious major missing link on the core corridor map of Europe. The continued work with BGLC development should definitely include integration of the Bothnian Corridor to the existing defined core network corridors. The maps below illustrate

the defined core network corridors (above) and the desired future integration of the Bothnian Corridor into the core network corridors (below).

Green Corridors is the initiative of the European Commission aiming at transforming the European transport system into an efficient and climate smart system, while strengthening the logistics and transport industry's competitiveness. The concept was introduced by the Freight Transport Logistics Action Plan (2007). It is an important element of the European Transport Policy. Green Corridors are characterised by (Government Offices of Sweden, 2010): reduced

TEN-T core network corridors map on the left (European Commission), the desired extension of the TEN-T core corridor map in the future

environmental and climate impact; high safety; high quality and efficiency; integrated logistics solutions with an optimum utilization of transport modes; harmonised rules with transparency for all stakeholders; a concentration of national and international freight in relatively long distances; efficient and strategically located transfer points and adapted and supporting infrastructure; a platform for development and demonstration of innovative logistics (information systems, collaborative models and technology). In December 2012 the first Green Corridor between Oslo and Randstad in Netherlands was opened.

Apart from the European Transport Policy, BGLC's work aims to contribute to improving European competitiveness and increased trade opportunities (Europe 2020, Lisbon Strategy), to strengthening participation of SMEs (Europe 2020), and improving competitiveness of the rail industry (The European Rail Network for Competitive Freight). Moreover, many industry-specific initiatives, both nationally and on the EU level, aim at strengthening the competitiveness and the sustainability of these strategic industries. Thus, BGLC can also be seen as part of fost-ering a sustainable supply of raw materials from European sources (in line with the EU Raw Material Initiative and Finland's Mineral Strategy), creating a robust and reliable infrastructure that meets the needs of the mining industry (Sweden's Mineral Strategy) and improving the competitiveness of the EU forest industry (EU Forest Strategy 2013).

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.

"Port of Narvik shipped out about 18 million tonnes of iron ore outbound and approximately 600,000 tonnes of different types of goods inbound during last year. This figure is estimated to triple by 2020. The huge increase of different types of cargo needs to be handled by railways and also affect the port."

Rune Arnøy, Port of Narvik

EUROPEAN INTERESTS AT STAKE

BGLC – DIVERSE ROLES

BGLC is a strategic artery for the industrial flows of Europe and source of many global industrial supply chains. The major natural resource base in the High North is an essential supplier for European industry. This makes development of the corridor of high strategic importance and reflects the long-term needs of the European Community to secure and strengthen the supply of raw materials to the EU markets.

For the High North region, the performance of the corridor or the ability to meet industrial needs impacts the profitability of economic activities in the region and the competitiveness of industry as a whole. Better connections to central Europe are essential for development of the peripheral northern regions that, despite its rich natural resources and diversified economic structure, have a major disadvantage compared to its competitors down on the continent due to the long distances to the market. In many cases for heavy industries, transport accounts for a major share of total costs and thus changes in transport costs can both be very damaging or create new markets. For instance, the estimated share of transport for the forestry industry is around 15-20% of total costs, while the corresponding figure for the forestry industry in Central Europe is 10%.

For Sweden and Finland, the Bothnian Corridor is one of the most important north-south routes since a large share of the export industry is located along the corridor. For instance, the share of exports for the Finnish forest industry is 90%. Industry along the corridor also accounts

" The Bothnian Corridor with its connections is indisputably one of the most important transportation routes in the Baltic region and will possibly become the most important ground transportation connection within the region. I believe that Bothnian Green Logistic Corridor will create information and cross-border possibilities in a modern and environmentally responsible manner and I am excited to see the results. "

Arto Satonen, Finnish Parliament Transport and Communications Committee

"Many minor flaws in the railway network creates significant costs and disturbances for the industry and its customers. They must be fixed as soon as possible to avoid reduced competitiveness for the industry."

Magnus Svensson, SCA

for a significant share of growth and GDP, thus industry is an important wealth generator both for the region and Europe. The GDP per person in the northern part of Sweden is around 30% higher than the GDP per capita in Sweden as a whole. Moreover, the potential for additional growth as the result of investments in the Barents Region and additional exploitation means that the corridor's role for the European economy in the long term will only grow.

Essentially, industry in the High North is a competence centre for the mining, forest and steel industries that does not exist anywhere else in Europe due to the broad spectrum of industries and the representation of different stages of industrial chains. The preservation and development of this competence centre is directly dependent on the accessibility of the region to the rest of Europe. Moreover, the High North is also a competence centre for efficient railway operations, pioneering the development of heavy-haul solutions in Europe (The Ore Line: Narvik-Luleå).

The corridor also plays an important role for improved integration of the EU's internal market and the Baltic Sea Region and providing access of the EU to neighbouring countries, such as Norway and Russia. Better connectivity can consequently boost trade and open up new business and investment opportunities. The Bothnian Corridor links together the Nordic Triangle and Northern Axis and is the transport backbone of the Baltic Sea Area.

Examples of needed investments for upgrading and increasing the capacity on the rail infrastructure:

UPGRADE TO DOUBLE TRACK:
Oulu – Liminka
Pohjois-Louko – Lielahti
Sundsvall – Söderhamn
Kilafors – Ockelbo
Storvik – Mjölby

BUILD NEW RAILWAY:
Luleå – Umeå
Härnösand – Sundsvall

Achieving more efficient connections and tighter emission norms is also in the region's common interest and contributes to the European Union's overall goal of drastically reducing environmental impact from the transport industry and of reshaping industry in a sustainable way. This is especially relevant for BGLC due to its precious and sensitive natural environment. Environmental sustainability is an important priority not only politically, but also for the industries along the corridor. For example, the Swedish forestry industry has set a goal to reduce emissions from transports by 20% (Swedish Forest Industries Federation). Greening the Bothnian Corridor is an important contribution to achieving these environmental sustainability goals on all levels. At the same time, focusing on greening industry also creates new business opportunities, for instance in the field of renewable energy production.

After the recent revision of TEN-T, the Bothnian Corridor has been included in the TEN-T core network – a clear indication of pan-European understanding of the Bothnian Corridor's role in the core trans-European transport network and its importance for the long-term needs of the community. The significance of the corridor is also mirrored in the active involvement from and support of transport agencies and industry in the BGLC project.

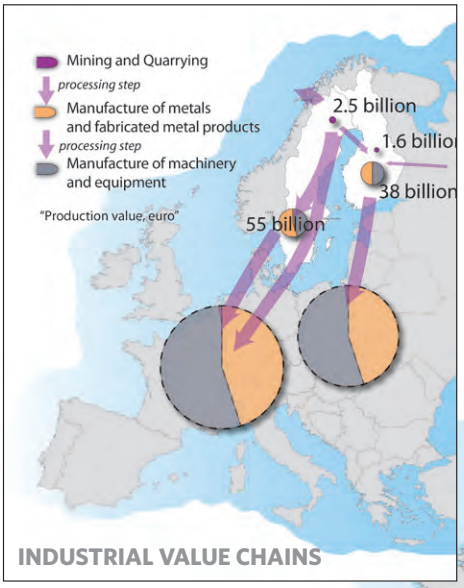
Though the industrial freight flows are the core of the corridor, development of BGLC both nationally and cross-border is crucial for efficient passenger traffic, which directly impacts regional development opportunities, population growth potential, prospects for the tourism industry and the region's access to skilled labour. The latter is crucial for the future prospects of the industry in the High North.

CHALLENGES

To fulfil its strategic role, the Bothnian Corridor needs to be developed into a green corridor that matches current and future needs of industry along the corridor and diminishes the distance disadvantage of industry. The inability of the corridor to meet these demands can directly threaten the positive prospects of industry along the corridor.

A major challenge is the quality and capacity of the infrastructure. There is a strong and clear need for investments in the Bothnian Corridor both in the form of upgrades to existing infrastructure (e.g. capacity increase on the rail network in connection to Port of Kokkola) and new construction (e.g. Northern

With 20 million hectares of forest area, the Finnish, Swedish and Norwegian part of the Barents region accounts for approximately 14 per cent of the total forest area of the EU.



INDUSTRIAL FREIGHT FLOWS ACROSS EUROPE

Bothnian Line). National forecasts indicate an increase by 50% in transport volumes through 2050. However, current rail infrastructure can only serve an increase of 10-15%. In Finland, the picture is more unclear, where the overall rail volumes are expected to decrease, but many key lines are facing capacity shortages. The ability of railways to provide high quality service is directly impacting the prospects of having more consumer and manufacturing goods transported by rail. Putting more freight on rail is an important component in greening the corridor. Capacity and quality of infrastructure is relevant not only for rail transports, but also sea (e.g. Port of Narvik) and road (e.g. improving road conditions on smaller roads connecting to the trunk roads in northern Norway), including both the core and comprehensive TEN-T networks.

Despite the many commonalities, there are distinct differences in the transport markets and transport systems along the corridor, which means there is a strong need for harmonisation and for local and context-specific approaches to solving challenges. For instance, the differences between Finnish and Swedish sides of the Bothnian Corridor are rather significant. The geography of countries is different, as are deregulation of the rail market and industrial transport system and the maturity of the intermodal market. Finland's industry is highly dependent on sea transport with a large number of ports, while in Sweden the industrial flows are more distributed between inland and maritime infrastructure. The inventory of infrastructure and freight flows in the BGLC has clearly identified the presence of multiple sub-corridors within the corridor with different levels of maturity in terms of green practices. Moreover, there are significant discrepancies in technical, infrastructural and organisational interoperability, preventing efficient use of the Bothnian Corridor's transport network.

The nature of the corridor's flows means that there are major imbalances in flows and imbalances in use of transport modes. To make the transports more efficient, more integration between different types of cargo flows and different directions of cargo flows should be sought. Such changes require both change of current practices and application of new business models. In certain cases, the imbalances are rather significant and facilitating co-operation between stakeholders is crucial. Most of the focus today is on north-south freight flows, while the east-west links are more poorly developed and have many barriers. Freight flow forecasts indicate significant growth in the east direction. To exploit that growth, transport alternatives need to be improved.

The new SECA regulation[3] is a major factor for the regional transport system in the coming years. BGLC will be affected. Predicted consequences include prices for transport services and the need for alternative energy infrastructure. While the idea has been to internalise the external costs of maritime shipping to protect the environment, in many cases the effects can be the opposite, resulting in modal shifts or rerouting to environmentally less favourable options that are less expensive. Consequences also include development of energy infrastructure and transport

NOTE

[3] The allowed content of sulphur in maritime fuel will be limited to 0.1% from 1 January 2015.

setups (e.g. transport of LNG from Norway to the Bothnian Gulf) to support use of alternative fuels. Moreover, as many industries are highly reliant on bulk, large-scale transports, the lack of suitable alternatives can endanger the competitiveness of industries in the High North with strong disadvantages to their competitors in the rest of the Europe. Potential consequences could include re-location for certain companies, which would primarily damage the regional economy.

Costs are a driving factor in all transport decisions and much of industrial production is highly sensitive to transport costs increases, as transports makes up a significant share of total costs. Thus, price competitiveness is a prerequisite for influencing transport buyers to choose green solutions.

Finally, there are many diverse stakeholders and there is a need of co-operation to develop this corridor, especially in the multimodal TEN-T concept including both freight and passenger transport. Interests of these stakeholders need to be balanced. Thus, arenas for stakeholder dialogue are a crucial component for developing the corridor.

Despite the challenges and their variation along the corridor, there is a long history of co-operation in the region included in the BGLC corridor, with its the numerous common interests derived from the commonalities in industrial structures on both sides of the Bothnian Gulf, its peripheral location to the markets and its common political priorities. Moreover, the differences in maturity present many opportunities to learn from as well as logistics and business opportunities.

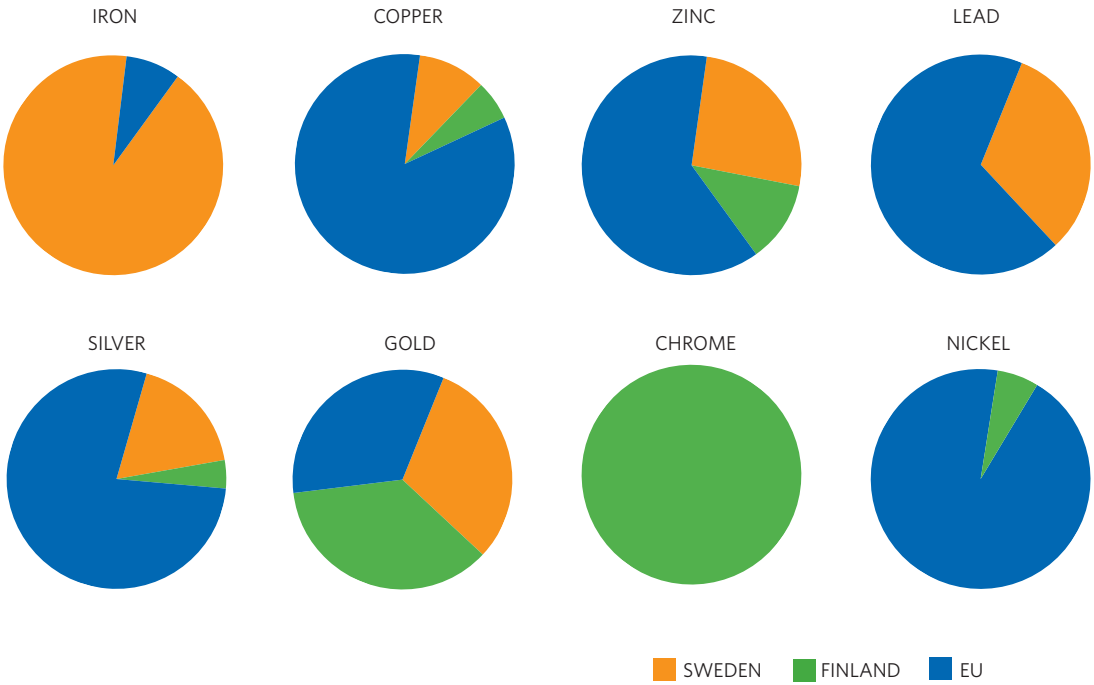
BGLC CONNECTIONS

BGLC connections are vital. They are gateways for the freight along the main line and present exciting trade and business opportunities.

Industry in northern Norway is dominated by oil and gas extraction, hydro power, fishing and the fish processing industry, but also major steel, aluminium, and chemical industries. Seafood is Norway's third biggest export item, and Norway is the second biggest seafood exporter in the world. In the coming years, in light of the SECA regulations and the major increase in mining volumes, the Port of Narvik has a great potential for growth and for becoming an important gateway for trans-oceanic traffic both for Norwegian industry and for Swedish and Finnish industries. Similarly Tromsø and Kirkennes (transports to Russia), located outside of the SECA area, have an opportunity for new growth.

The Mecklenburg-Vorpommern region in Germany and Poland are increasingly important gateways for the industrial flows of northern Europe and present exciting business opportunities. The Mecklenburg-Vorpommern region in Germany, through its favourable location, is gradually becoming an important gateway for the transport of goods between continental Eu-

NATURAL RESOURCES ALONG THE BOTHNIAN CORRIDOR AS PART OF THE EU'S TOTAL



rope and the High North region and an attractive location for logistics companies and industrial zones. The Mecklenburg-Vorpommern transport network presents alternative opportunities for all modes of transport and combinations: road, rail intermodal, ro-ro/ferry. For instance, the intermodal connections between the Port of Rostock and southern Germany enable avoidance of major bottlenecks in other corridors of the German transport network. Development of large industrial sites has opened up opportunities for new investments. Not only are the local conditions attractive, but transport through Mecklenburg-Vorpommern is the shortest and an economically more attractive route between the Baltic Sea Region and central/south-eastern Europe/Italy. Value adding services are available at the intermodal connection points and offer advantageous cargo handling when connecting both.

Poland has emerged as a major consumer, processor and transit land for both north-south and east-west freight flows. Poland has good connectivity to southern Europe through European Freight Corridor No. 5 and the well-built up network for transports further to the east. Poland

has gone through impressive development in just a couple of years when it comes to intermodal traffic. The Gdynia-Gdansk area has undergone major development and built up a strong logistics cluster. Not least, the ferry routes between Sweden and Poland have seen very positive development. While Poland is one of the biggest European importers of Norwegian seafood (both as consumer and processor), today's trade between Poland and Norway, Sweden and Finland is still rather marginal, and there is a great unexploited potential.

"The Bothnian Corridor is not only connected to Russia and Norway, but on the southern end there are several connections to Central Europe. This connection has played a great role in the Bothnian Green Logistic Corridor project (BGLC) and should not be forgotten. To better link the Bothnian Corridor to Central Europe, it is important to understand that there are several options. Apart from the traditional route from Sweden via Denmark and Hamburg to the south, emerging markets in south-east and east Europe open new transport possibilities. For many transport relations it is faster, greener and more cost efficient to transport goods on a sea route and then e.g. via the ports of Mecklenburg-Vorpommern (Germany) or Poland. The BGLC project has partners in both of these regions. Many transport operators do not know about the opportunities, good infrastructure and free capacities of these alternative routes. It is therefore crucial to initiate a networking process. "

Gesa Köhler, Ministry of Energy, Infrastructure and State Development Mecklenburg-Vorpommern

Essential connections for BGLC are also located domestically within Sweden and Finland with various functions: transit, consolidation/distribution nodes or gateways for cross-border flows. Examples of such connections are the Port of Karlskrona in south-east Sweden, the Port of Gothenburg on the west coast of Sweden and border-crossing points between Finland and Russia. Moreover, these domestic connections are important for the industrial northbound flows, but even more as locations for the manufacturing industries and consumption areas. Flows connected to the manufacturing and consumer goods industries are essential for generating balance in the system (return cargo). Thus, the domestic connection points have an essential function for consolidation of fragmented flows along the Bothnian Corridor and for combing flows from different transport corridors.

The fishing industry is the backbone of coastal Norway with a production of about 3.3 million tonnes per year. International orientation is a clear characteristic of the industry and more than 95% of production is exported to over 150 countries.

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.

BGLC PROJECT

The overall objective of the BGLC project has been to increase the integration between northern Scandinavia and the Barents region with the industrial chains and end markets in the Baltic Sea Region and Central Europe. BGLC's aim has been to present quantifiable, green, resource-efficient, cost-effective and reliable transport solutions that meet the needs of industry today and in the future. Efforts have focused on reaching results though enhanced co-operation between stakeholders, awareness and increased integration in the region.

Green solutions are in focus as the corridor should ensure accessibility and competitiveness of the industry in the long term, taking into account the environmental challenges and the ambitious national and international goals (EU) to reduce the environmental footprint. For transport and logistics this does not mean prioritizing one mode over the other, but creating a transport system that most efficiently utilizes the different advantages of the different modes of transport in combination. Moreover, though infrastructure is crucial both in short-term and long-term perspectives since the failure of it to support industrial needs can threaten the competitiveness of the region, the focus in the project has been primarily on opportunities in logistics and changes that can be achieved with the least effort and resources.

BGLC is a project partly financed by the Baltic Sea Region Programme, a transnational co-operation programme partly financed by the European Union and Norway. It is one of the mainstream Structural Fund programmes under the European Community's territorial co-operation objective. The programme supports transnational projects working together to make the Baltic Sea region an attractive place to invest, work and live in. The programme ran from 2007 to 2013 and had a budget of 236 million euros. The Baltic Sea Region Programme 2007-2013 is the only European programme that integrated Structural Funds, Norwegian Funds and European Neighbourhood and Partnership Instrument (ENPI).

DIVERSITY OF STAKEHOLDERS REPRESENTED – BGLC PARTNERS

The Bothnian Green Logistic Corridor includes partners from Sweden, Finland, Norway, Germany and Poland. The partners represent a diversity of stakeholders, including regional authorities, cities, publicly-owned ports, national authorities, universities and one governmental department. Moreover, BGLC has numerous associated partners and a broad spectrum of stakeholders with representation from all the main industries. The project has been supported by four national ministries of transport:

"Region Västerbotten is leading the Bothnian Green Logistic Corridor project. Twenty-nine partners across five countries – Sweden, Finland, Norway, Germany and Poland – are working within different fields towards a single joint goal: to connect northern Scandinavia's raw materials with markets in the Baltic Sea Region and Central Europe. BGLC is working to develop the existing Bothnian Corridor into an efficient, reliable and green transport corridor. Doing so involves mapping the flow of goods and future needs, eliminating bottlenecks and other technical obstacles and introducing new, intermodal solutions for increased flexibility.

Carina Aschan, Project Manager, BGLC

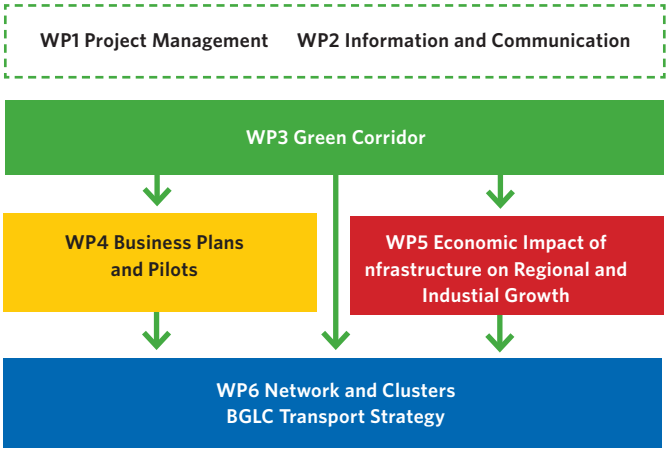
- Ministry Of Enterprise, Energy And Communications, Sweden
- Ministry Of Transport And Communications, Finland
- Ministry Of Transport And Communications, Norway
- Ministry Of Infrastructure and Development, Poland

Additionally, the Ministry of Energy, Infrastructure and State Development of Mecklenburg-Vorpommern (Germany) has been one of the main BGLC project partners.

The list of all the project partners can be viewed on page 67.

THE SIX WORK PACKAGES

The project consists of six work packages (WPs)The first two are more administrative and supportive: Project Management (WP1) and Information and Communication (WP2). The list of the studies conducted within each WP are listed on pages 68-69 of this document.



WP3: GREEN CORRIDORS

WP3 focuses on the green transport corridor concept and how to transform BGLC into a green corridor. Studies conducted within WP3 include an inventory of cargo flows, actors and infrastructure. Understanding today's transport flows and infrastructural conditions, including barriers and bottlenecks, is a prerequisite for developing the corridor in the future. The inventory has led to development of an action plan (see fact box) for upgrading BGLC to a Green Corridor. There was also a study on benchmarking of dry ports and inland terminals with a strong focus on future developments. Another study looked at bulk port development and a feasibility study looked at different intermodal technologies suitable for the corridor. The WP3 also included a study on measurement of Green Corridor performance – something that is of relevance well beyond BGLC and interesting to many different actors. Measurement is the prerequisite for improvement, for understanding the impact of contextual conditions and for decision making.

Furthermore, there were studies on increasing railway quality in terms of reliability, capacity and cost of maintenance, including better utilization of existing railway capacity, opportunities for larger loading gauges in Europe in order to facilitate increased rail transport, and continuous vulnerability reduction to increase market credibility. Studies also looked at new, innovative railway services, such as revitalizing feeder traffic by rail for last mile transports, which can create new opportunities for increased use of rail instead of road transports with economically viable conditions. A study on collision risks and accessibility of ports connected to wind farm planning explores the effects of growing offshore wind-farming on efficiency and safety for sea transport and the consequent environmental effects.

EXAMPLE

ACTION PLAN: PATHWAY FOR BGLC TO BECOME A GREEN CORRIDOR

The action plan for transforming BGLC into a green corridor has been developed on the basis of the inventory conducted earlier in WP3. The action plan proposes concrete measures for each of the green corridor principles, evaluates the potential impact and determines responsible stakeholders. The action plan has gone through open public consultation and has been discussed in workshops both internally in BGLC and with the industry. The results have been communicated with Closer and Swiftly Green for further dissemination and contribution to the work on developing green corridors.

WP4: BUSINESS PLANS AND PILOTS

In close co-operation with business and public stakeholders, BGLC has worked on multiple new services for shifting freight off the road along the BGLC. The idea has been to develop the market for new intermodal services by identifying the origin of and destination for different types of cargo that can be combined.

Studies within WP4 include evaluation of concrete routes and tracks, identifying the bottlenecks and best transport alternatives within the BGLC, such as A2A (see fact box) and Narvik-St. Petersburg routes, evaluation of impact from reopening the Pori-Haapamäki railroad track and so on. Aspects investigated include market potential, product concepts, bottlenecks and logistical concepts. Notably, the work covers both north-south transport directions (Artic to Central Europe) and east-west (Northern Axis to Russia). There has been a strong focus on achieving real progress by following the principle "from contacts to contracts".

EXAMPLE

A2A – THE NEW INTERMODAL SHUTTLE CONNECTION

A new intermodal shuttle connection for a train/ship service connecting the Atlantic coast to the Adriatic Sea via the Baltic Sea is aiming to start at the end of 2014. Apart from an intermodal connection through Norway, the service would be complemented by a new shuttle between Umeå and Örebro, thus being able to serve an even bigger market. The service should be tailored to the temperature- and time-sensitiveseafood industry. The project includes identification of shippers/forwarders possessing a base volume and developing the product concept (time slots, costs etc.).

WP5: ECONOMIC IMPACT OF INFRASTRUCTURE ON REGIONAL AND INDUSTRIAL GROWTH

BGLC has analysed economic consequences of infrastructure and the impact a green logistic system will have on regional economic development. The goal has been to gain a better understanding of the economic impacts of infrastructure and to broaden the decision basis for infrastructure investments. Work includes study of the Finnish and Swedish mining industry and the relations to transport infrastructure and study of the development of Norwegian fish industry and the relations to transport infrastructure; study of liquid cargo flows between Pori and Gdynia and the northern Finnish railway network. Moreover, within WP5 a broader investigation of allocation of TEN-T funding through different financial frameworks has been done. Not the least, a report on the future strategic nodes (see fact box) in the BGLC and Baltic Sea area has identified the strategic nodes of today and the future.

EXAMPLE

THE FUTURE STRATEGIC NODES

This study has resulted in a new map of strategic nodes for freight transport of today and in the future, both maritime and inland. A strategically located nodal network is very important for efficient consolidation, distribution of goods and transhipments between different modes of transport. The report is basically a road map for future development of the nodal network in the region. It adopts the 2030 perspective that well matches with the long-term perspective adopted by the BGLC Strategy.

Rostock Port/Nordlicht

"One of our ambitions is to further develop the railway connection between Narvik and St. Petersburg/ Moscow. This route is a section of a larger inter-modal corridor, namely the so-called NEW-Corridor (N.E.W.) which consists of a land- and sea-transport section, linked together into an intermodal chain through the rail/sea terminal in Narvik. The N.E.W. is an intermodal transportation concept where several routes can be developed."

Edel Storelvmo, Managing Director of Futurum AS

WP6: NETWORK AND CLUSTERS

The BGLC strategy is part of the concluding WP6. Apart from formulating the final strategy for developing the BGLC in both the short- and long-term future, WP6 includes a major study on the transport Corridor Management structure (see fact box), resulting in recommendations for BGLC. Another core component of the final work package has been identification of relevant stakeholders and efforts to get them involved through a series of seminars, workshops and individual meetings. The purpose of this continuous dialogue with the stakeholders has been better understanding of different stakeholders' perspectives, but above all to create a platform for dialogue, co-operation and involvement both today and in the future, where corridor questions can be discussed and resolved. The purpose of the study visit is a B2B arrangement aiming to facilitate new business contacts on both sides of the Baltic Sea.

EXAMPLE

MANAGEMENT STRUCTURE FOR THE BOTHNIAN GREEN LOGISTIC CORRIDOR

This study has reviewed Corridor Management practices in other corridors and relevant examples and it has developed recommendations for a transnational management structure for implementation in the Bothnian Transport Corridor. The latter includes a multi-optional structure, with alternative commitment options to the structure for different stakeholders. Corridor Management is a tool and arena for corridor development and for dialogue between important stakeholders. The issues that are dealt with can differ and change over time with corridor maturity. An overview of the detailed proposal is presented in the final section on opportunities.

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LIST OF PARTNERS

PROJECT PARTNERS
Region Västerbotten
Norrtåg Economic Association
County Administrative Board of Norrbotten
City of Umeå
City of Sundsvall
Region of Jämtland
Regional Development Council Gävleborg
Swedish Transport Administration
Ministry of Transport and Communications, Finland
City of Tampere
The Council of Tampere Region
City of Oulu
Uusimaa Regional Council
Joint Authority of Kainuu Region
Port of Kokkola
Port of Pori
Port of Narvik
Futurum
Nordland County Council
Port of Mosjoen
Luleå University of Technology
Örebro Regional Development Council
Region Blekinge
Ministry of Energy, Infrastructure and State Development Mecklenburg-Vorpommern
Rostock Port
Municipality of Gdynia
Royal Institute of Technology
Council of Oulu Region
Bodö Port

ASSOCIATED PARTNERS
Ministries
Ministry of Enterprise, Energy and Communications, Sweden
Ministry of Transport and Communications, Finland
Ministry of Transport and Communications, Norway
Ministry of Infrastructure and Development, Poland
Ministry of Energy, Infrastructure and State Development Mecklenburg-Vorpommern, Germany

ASSOCIATIONS
Vesterbotten Chamber of Commerce
Norrbotniabanan
The Swedish Construction Federation
Baltic-Link Association
Pomeranian Maritime and Vistula Catchment Basin Cluster Association
Logistic Network Berlin-Brandenburg

AUTHORITIES
Finnish Transport Agency
Norwegian National Rail Administration
Self-government of the Pomorskie Voivodeship

COMPANIES
Outokumpu
Nord Norsk Spedisjon As
M Jürgensen
Meyership
Nordlaks Produkter As
Inab
Billerud
Smurfit Kappa
SSAB
LKAB
Boliden
Volvo Trucks
Terminal Hallsberg
Port of Umeå
Norrbotniabanan AB
Lindholmen Science Park AB
IPG- Infrastruktur- und Projektentwicklungsgesellschaft
Logistics Initiative Mecklenburg-Vorpommern
Airport Gdynia-Kosakowo Ltd
Baltic Container Terminal
PKP Polskie Linie Kolejowe S.A
Sundsvall Logistics Park
Polish Chamber of Maritime Commerce

LOCAL AUTHORITIES
City of Helsinki
Karlskrona Municipality
Skellefteå Municipality
City Hall of Wejherowo
Rumia Municipality
Community of Reda City

PORTS
City of Helsinki
Karlskrona Municipality
Skellefteå Municipality
City Hall of Wejherowo
Rumia Municipality
Community of Reda City

REGIONAL AUTHORITIES
Regional Council of Päijät-Häme
Regional Council of Lapland
Regional Council of Central Finland
Regional Council of South Ostrobothnia
Regional Council of Satakunta
The County Administrative Board of Västerbotten
The County Administrative Board of Västernorrland
Regionaler Planungsverband Mittleres Mecklenburg/Rostock
Chamber of Industry and Commerce Rostock

UNIVERSITIES
Tampere University of Technology
University of Oulu, School of Business
Gdynia University of Business and Administration


REGION
VÄSTERBOTTEN


NORRTÅG


County Administrative
Board of Norrbotten


REGIONFÖRBUNDET
ÖREBRO


TRAFIKVERKET
SWEDISH TRANSPORT ADMINISTRATION


SUNDSVALLS
KOMMUN


Regional
Development Council
GÄVLEBORG


Ministry of Transport
and Communications


U M E Å
KOMMUN


Helsinki-Uusimaa
Region


Mecklenburg
Vorpommern
Best of Northern Germany


Reglonförbundet
Jämtlands län
Regional Council of Jämtland


FUTURUM


LULEÅ
UNIVERSITY
OF TECHNOLOGY


REGION
BLEKINGE


GDYNIA


KTH
VETENSKAP
OCH KONST


OULU
Oulu Capital
of Northern
Scandinavia


Nordland
COUNTY COUNCIL


COUNCIL OF
TAMPERE REGION


THE CITY OF TAMPERE


Port of Narvik


PORIN SATAMA
PORT OF PORI


Kainuun liitto


ROSTOCK
PORT


BODØ HAVN KF
PORT OF BODØ


PORT OF KOKKOLA


Mosjøen Havn KF

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Bothnian Green Logistic Corridor, Region Västerbotten

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