



# ThinkTank

Think transport | Think energy

## The future strategy

By Lena Lorenc

The importance of collaboration between various actors within the project and agreement on a common vision cannot be overemphasized. The goal is to prepare and present the Bothnian Green Transport Strategy with concrete solutions for decision makers on how to develop the corridor towards a more efficient, sustainable and cost-effective logistical system.

**G**lobalization, along with technological development, drives the growth of international trade between neighbouring regions. The logistics sector is therefore prompted to create more flexible, complex networks using advanced concepts. This emphasizes the need to improve the condition of transport super- and infrastructure, as large parts of it have reached the end of their technical and economic age or experience problems regarding congestion levels.

The goal of the BGLC project is to identify current weaknesses of the transportation system in the region, in order to predict future needs and to eliminate traffic-related problems on the Bothnian Corridor. By learning, i.e. how to make the railways more reliable, facilitating the trans-national cooperation, creating an intermodal business model and introducing new services necessary to satisfy the needs of the industries along the corridor, the project wishes to upgrade the Bothnian Corridor to a green corridor. Moreover, four areas of progress have been identified for the BGLC, including: improvements related to nodes and links in the corridor; transport technologies; improvements in business models for transport and logistics solutions as well as in the area of regulations and policies.

However, the success within the project as well as effective development of a green freight corridor in the region cannot be completed through independent activities in secluded areas. Instead, it is a complex process of coordinated and aligned activities in numerous fields that will have the best potential to fruitfully transform the overall performance of the corridor. Therefore, the project brings together public authorities and private stakeholders to cooperate in creating future transnational transport policies and actions as well as making an effort to increase collaboration between industry, business and governments.

Now the shortcomings and obstacles along the Bothnian Corridor have been mapped, some questions

arise: how to make sure that the BGLC lays the foundation for a permanent change, for businesses along the Bothnian Corridor, the public and the environment? How to go from “contact to contracts”? What are good examples of new markets and business models? ●



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By Maria Öberg, Senior research engineer/PhD-student,  
Kristina L. Nilsson, Professor,  
and Charlotta Johansson, Assistant Professor  
Luleå University of Technology



**W**ith a multi-optional management structure it is possible to facilitate and steer cooperation and collaboration for development of the Bothnian Corridor. Such a management structure should encompass many stakeholders, but not make the processes unwieldy. Core stakeholders like infrastructure managers need to be committed to the structure, and the structure should have a certain firmness but, at the same time, allow for flexibility for adjustments.

Creating a management structure for the Bothnian Corridor is a question to be handled by the organizations, authorities and businesses, etc., which are active in the corridor or just concerned with its development. Several studies have been performed, investigating experiences and current management structures, to be able to make a

recommendation for the Bothnian Corridor. Indicated by the results of these studies, a multi-optional management structure has been recommended. This structure is based on good possibilities for all types of stakeholders to easily attach to the management structure. To ensure progress, despite many stakeholders being involved, diverse commitment options should be provided. Core stakeholders (ex. infrastructure authorities, regions, major operators, major terminal actors), those who have a strong commitment, are proposed to facilitate and steer the management structure. Other stakeholders can be attached to partnerships or alliances for specific topics or only to an information network. Stakeholders of great decisive importance, which for some reason are not core stakeholders, can be connected to the structure as Strategic Advisors. It is further

proposed to be explored if a decisive group can be formed for certain harmonisation for the specific corridor. Also, a separate secretariat for facilitating such a structure is anticipated.

The working processes in a management structure are just as important as the organisational structure. The strategic approach for the procedural part is proposed to rest upon four pillars: Communication, information and dialogue activities both within and outside the management structure; Transparency, with high access to meetings, documents and decision-making processes; Flexibility, ensuring a process where adjustment of the management structure is a natural part of the evolution; Formalized agreements, where stakeholders state their commitments. National and EU levels are desirable partners. ●

By Ryszard Toczek  
Head of City Development Office  
Municipality of Gdynia



**Y**es indeed, the common vision cannot be overemphasized. However, the assumption adopted by the think tank, that transformation of the Bothnian Corridor into a green one is a key challenge for the project partners, is debatable. Isn't it narrowing of the problem?

Bothnian Corridor enables utilizing the resources of the Barents Region in the Central and Eastern European markets.

Therefore, upgrading the Bothnian Corridor into a green one is a step forward of the strategic importance for the Central-East Europe region. However, the green logistic chain is recommended for the whole door-to-door routes. Bothnian Green Corridor needs the Green Baltic Link in Sweden as well as the Green Baltic-Adriatic Corridor (labelled as Amber Green Corridor). Without aforementioned links, the Bothnian Green Corridor looks like a semigreen, and consequently, not as a green one.

Moreover, green corridor is definitely not a one way concept. Empty returns are spoiling the sophisticated architecture of the green corridor and business plans for necessary hard & soft infrastructure.

Actually, it is hard to overemphasize the relevance of the A2A initiative. The rapid growth of trade turnover with Sweden and Norway can gather many Polish exporters and transport operators around this vision. Hopefully, this trend is to be stable.

Action Plan for the development of the BGLC (WP 3) includes export-import orientation. Therefore it will be useful for ports of Gdańsk Bay, linked with Swedish and Finland seaports, as well as their hinterland. ●





Standard lumber packages loaded three high in intermodal gauge P/C 450 (2.60 m x 4.83 m), photo: Ulf Jaarnek



By Hans E. Boysen  
Royal Institute of Technology, KTH

## Great potential for improvement, urgent needs

The main areas to maintain and improve are: safety and reliability, efficiency, intermodality and capacity.

Shipper surveys have identified reliable on-time delivery of shipments as their highest priority for improvement and, for some shippers, a necessity. There is a need to improve safety and reliability with robust, fault-tolerant systems as well as by timely, condition-based or preventive maintenance of critical components.

Network service reliability can be enhanced further with alternate routes of a comparable standard, interconnected at the network nodes. In the Bothnian Green Logistic Corridor (BGLC), resume maintenance of the Arvidsjaur-Jörn link for network redundancy.

When reliability needs are being met, shippers will choose a transport mode based largely on cost, where the operators' ability to offer competitive rates depends on operating efficiency. Thus, high operating efficiency is important to shippers and train operators alike. One of the most expensive assets, modern-generation locomotives, have up to 78% higher power than the previous generation, but to actually utilize their full capacity, the load capacity per wagon and per train also needs to be raised, reducing the shipping cost per unit of freight. Uniform gradients are critical to enable uniform train tonnages along the whole corridor, without the need for intermediate switching or to add and remove additional locomotives.

In the BGLC, future construction of the Norrbotnia Line, Luleå-Umeå, would be coordinated with upgrading of Härnösand-Sundsvall (as well as Storvik-Granstanda) to achieve a uniform gradient of  $\leq 10\%$  and to enable heavier trains along the whole corridor. Large, flat-top loading gauges, high axle loads and linear loads (meter loads), long trains, and electrical power supply ratings corresponding to the latest and future high-performance locomotives are also needed.

For the Ofot Line and Ore Line, Narvik-Luleå:

- simultaneous entry to meets;
- wagon rake length  $\approx 1,000$  m, train length  $\approx 1,070$  m;
- linear load  $\geq 13$  tn/m;
- axle load  $\geq 32.5$  tn;
- wagon rake mass  $\geq 13,000$  tn;
- intermodal gauge P/C 450 (2.60 m x 4.83 m).

From Luleå to continental Europe, Øresund standard:

- wagon rake length  $\approx 1,000$  m, train length  $\approx 1,020$  m;
- linear load  $\geq 8.3$  tn/m;
- axle load  $\geq 25$  tn;
- intermodal gauge P/C 450 (2.60 m x 4.83 m);
- loading gauge C (3.60 m x 4.83 m) to Lübeck or beyond.

Terminals need to be adapted to the same standards as the mainline network, including up to 1,000 m wagon rake length where warranted by demand. For existing and new terminals, plan expansion phases that can be implemented incrementally, as needed depending on demand.

To shorten transit times and raise asset utilization, high average speeds need to be maintained, stops for meets and passes minimized, and stops to change direction – avoided. Connecting wye tracks are needed at Boden (south), Maland (Birsta), Bergsåker (Sundsvall) and Gunnarbo (Söderhamn). South of the BGLC, train formation rules need to be unified internationally, to enable trains to cross into continental Europe intact, without having to stop at the borders for switching or to change brake settings, which is now the cause of much delay. Train speed is frequently limited by insufficient brake performance, but as new wagons are acquired, these should be fitted with

high-performing SS brakes for operation in longer trains and at 120 km/h or higher, both empty and loaded. This is partly achievable with conventional tread brakes, but important trials with higher-performing disc brakes are in progress as well. Equally important is a short turn-around time at terminals, and here the recently developed intermodal swing wagons can contribute.

For service reliability as well as to reduce transit times and energy consumption, trains should increasingly be routed the most direct way, with priority for loaded trains to avoid detours, for which capacity expansion of key links is needed: double track Kokkola-Tampere, Sundsvall-Söderhamn, Kilafors-Ockelbo and Storvik-Mjölby.

Intermodality needs to be improved, to make all trucks capable of being carried by rail, including the 4.50 m high trucks of Norway and Sweden, and those trucks that lack reinforcements and therefore cannot be lifted. This is accomplished by the higher intermodal

gauge, P/C 450 (2.60 m × 4.83 m), which is being surveyed in Sweden and has already been adopted by the Øresund and Fehmarnbelt links. Intermodality is further improved by efficient, electrified railway connections to the main seaports, in the BGLC to include the ports of Sundsvall and Gävle.

And for expanded access, there is a need to investigate a new, single track line Kaunisvaara-Svappavaara for iron ore.

Beyond the normal national planning horizons, investment plans for 2014-2030 are urgently needed for all lines that make up the TEN-T Core Network, to coordinate across borders and to decide now which projects to prioritize and complete by 2030, so as to be eligible for EU co-funding from 20%-40%.

The potential for improvement is great and the needs are urgent, so let us act now to implement! ●



**Bothnian  
Green  
Logistic  
Corridor**

**BGLC Final Conference**  
**6-7 March 2014, SE/Umeå**

Join the Bothnian Green Logistic Corridor and its 29 partners from Sweden, Finland, Norway, Germany and Poland at the project's final conference, where the BGLC team will present the Bothnian Green Transport Strategy on how to develop the Bothnian Corridor into an efficient, reliable and sustainable transport corridor. Registration will kick off at the beginning of 2014.

[www.bothniangreen.se](http://www.bothniangreen.se)

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