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SKANE

The Kvarken Strait cargo corridor

Battlefield of pros and cons

The Kvarken corridor stretches from Umeå in Sweden to Vaasa in Finland, across the Bay of Bothnia and further on to Russia. The route has the potential to attract more cargo, especially from industries willing to shorten their delivery times and distance, but it also has major difficulties, which may even jeopardize the whole idea.

The vast majority of northern Scandinavian freight volumes goes in the north-south direction and by lorries. Both the historical demand as well as present conditions have established and supported such routes. Nonetheless, a connection that jumps over from Sweden to Finland in the narrowest part of Bothnia, could reduce transportation duties.

Opportunities

The freight traffic over the Kvarken Strait experienced an overall upward trend during the 2000s, with the number of cargo units increasing by approximately 53% from 1998 to 2008 when the first wave of crises struck the world economy.

The main types of goods transported via this link, are industrial products (55%), paper and wood (25%) and commodities (20%). In 2008 the amount of cargo shipped from Port of Umeå to Vaasa Port totalled 102,200 tn and 173,400 tn in the opposite direction.

In Västerbottens county, where Umeå is located, there is a number of international export which depends on industrial and manufacturing companies, including Volvo and Komatsu, as well as forest firms and the mining sector. The Vaasa region has the biggest energy cluster in Scandinavia – over 100 companies (i.e. power plants, engine manufacturers, wind power applications) with a total net sales of about EUR 4 bln, but also very much dependent upon exports.

The corridor is linked to Russia and the most promising direction for cargo is the Kaluga free economic zone. In recent years the region has become one of Russia's automotive centres, but the long term vision also foresees the creation of a biotech-pharmaceutical cluster and a well-developed transport and logistics base. One example of Kvarken's potential link, analysed hereinafter, is that Volvo Trucks from Umeå has set up a production site in Russia and needs an efficient way to transport components for its assembly process.

Challenges

By all means the weakest link of the whole Umeå-Vaasa-Russia corridor is its ferry connection. RG Line, a ship operator which declared bankruptcy in November 2011, still operates the route. However, if it finally collapses, then every other action is thrown "over board" and much effort will be lost.

The market responds to such a situation with apprehension. What will happen with the corridor if the ferry has an accident or suffers from an engine malfunction? Due to this, all involved parties need to have a backup plan if the traffic stops. Naturally, this causes both additional work and logistics costs. Companies have protested against such a situation, but the Umeå-Vaasa link is in fact a monopoly, so there is no other choice.

How to deal with such a problem? One idea is to replace the ro-pax presently used with a pure ro-ro or con-ro vessel. This would greatly enhance the line's cargo capacity and at the same time reduce expenses related to maintaining passenger operations. Probably a new ship would be too costly for RG Line, while a used is cheaper and won't charge the owner with the burden of credit – not a fatal one, at least.

The second option is to subsidize the ferry route with state money. At first glance it would mean a greater cost for the budget, but then compensation through taxes could cover it. There is one difficulty, though, as the route must be perceived as an infrastructure project, not a shipping link. In the latter case, the EU may turn its nose to the subsidy and call it unjustified in light of the Community's law on state aid.

There are other obstacles which need to be overcome. The ferry itself is missing a port bow, making it hard to load/unload and manoeuvre

Photos: Wikimedia Commons

goods. As the ship is a ro-pax, it has a limited possibility to carry containers; there's a necessity for using special loading units and a tug master with a trans-lifter, but neither port, Umeå nor Vaasa, has the proper equipment.

The Swedish port also needs to relocate its existing ferry terminal in order to effectively link different transport modes. Next, the reclaimed land will require adapting (e.g. reinforcing storage yards) to handle the incoming cargo. The Finnish port is pressing for a new ro-ro ramp, as the old does not meet today's requirements. The port also needs extra storage and handling areas, because – again – the present situation hampers its operational effectiveness.

On the one hand, the rail network is in pretty good condition – the rail gauge isn't a problem and the capacity on the Vaasa-Kaluga route is adequate. On the other hand, Finnish and Russian railways have different electrical systems, forcing a change of engines at the border. Vaasa's rail yard can handle freight trains up to 450 m, while 650 m is now the standard and what's worse – within the ferry terminal there's no proper infrastructure to tranship goods from ship to rail. The same goes for Umeå, where the cargo must be moved 24 km to a transhipment area in Holmsund. Among other problems, there is the issue of customs, especially in Russia. The Russian Federal Customs Service is working on decreasing the number of inland customs offices and wants to place all customs clearance near the border, which may result in problems of congestion if the responsible offices won't be enlarged. And, bureaucracy in Russia still has the power to delay trains for days. These are just a few of the obstacles standing in the way of Kvarken Strait's cargo corridor.

Case study: Volvo Umeå

At the Volvo plant in Umeå 57,000 truck cabs are produced each year, of which 3,800 are transported to Kaluga. Both the production and transported volumes are estimated to considerably grow in 2012 and in 2013. The transportation chain starts when Volvo Kaluga sub-orders new cabs from Umeå. In turn, the company calls its logistics division to contract a road haulier which executes the transport. Trailers with cabs are pulled down to Holmsund and stacked on the ferry for a four-hour trip to Finland. From Vaasa the total distance to Kaluga totals 1,600 km and should be covered by road within 7-8 days. Customs clearance takes place in Kaluga and today it's done within 6-7 hours (previously 72-96 hours). After unloading the cabs at Volvo Kaluga, transport units are sent back to Finland without return loads in order to take care of the next delivery. Last, but not least, cabs are prepared for a sequence-driven assembly process, which demands them to be carried in the right – order, condition and time.

Volvo Logistics says that the weakest point in the transport chain is the passage over Kvarken. The winter of 2010 ice-bounded this part of the Bothnian Bay. This forced the company to divert its cargo through Haparanda and consume more resources, not mentioning the increased (by approx. 12 hours) transport time. Volvo would also like to have more frequent ferry rotations, but due to its low volumes, it is in no position to put pressure on RG Line.

An alternative solution involves replacing road transportation with intermodal connections. However, Volvo Logistics has investigated a rail solution between Umeå-Kaluga, but due to some problems, the idea was abandoned. For example, costs pose quite a big difficulty, as rail transport in Russia is more expensive than going by road. A genuine intermodal link would axe spending for such a long distance, but as for now, intermodal transports are a complete novelty in Russia and it will take a considerable amount of time to develop both the infrastructure and good practices.

It seems that the Kvarken Strait cargo corridor still has a long way ahead of it before it can announce a final victory. There is a potential on the horizon, but many stumbling blocks need to be unbarred. It's an ideal battlefield for real action business. ■

Tom Joad

The article is based on the "Opportunity Study for the efficient transport of goods from Umeå, Sweden through Vaasa, Finland to Russia" authored by Vectura. The full document can be downloaded from www.transbaltic.eu.

Bringing potential to reality

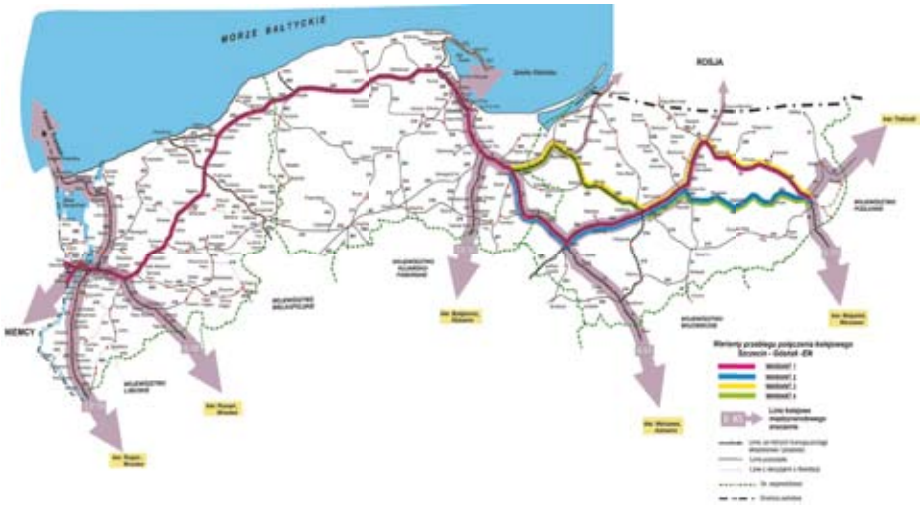
Interview with Michael Malmquist, co-author of the "Opportunity Study"

To what extent does the winter time block operations on the Umeå-Vassa-Russia corridor? Is it a serious threat for the successful development of this cargo route?
When there is no ice-breaking assistance in the Baltic Sea, the service on the ferry link is affected due to cancelled or delayed connections. Behind time tours affect negatively on the quality of logistic services. However, the cancelled routes do impact on transport in both directions, since they have to be rescheduled/rerouted around Haparanda. This is a very long detour, resulting in disturbances in the production and assembly of e.g. road trucks at the Volvo Kaluga factory. Hence, if the shippers do not trust or aren't satisfied with the service they will most likely reroute their shipments over Haparanda or Stockholm. In the long run, this might affect the attractiveness of locating production sites in the Umeå/Vaasa area. All in all, the ferry is replacing a missing bridge and therefore for the progress of the Kvarken strait cargo corridor as a logistics centre the ferry is of upmost importance.

What is the future of the corridor in the light of the impending in 2015 IMO stricter sulphur regulations?
The ferry is already using fuel with limited sulphur content and hence this new regulation will not affect the operations or competitiveness negatively.

The corridor is served by a ro-pax vessel. Would it be better to alter it to a ro-ro or con-ro vessel, with a bigger cargo capacity and lower upkeep expenses?
This question has not been discussed in our project, although there is certainly a need for a new ferry, however what kind is to be chosen? This surely needs further investigation.

Potential development of railways in northern Poland



The missing link

In recent years, a number of parties have identified the need for new integrated rail links within the Baltic Sea region. In Poland, an improved transport system based on the Trans-European Network of Transport (TEN-T) is fundamental for the cohesion and accessibility of the entire northern part of the country. So why is one link missing?

The east-west route in question connects cities of Szczecin-Koszalin-Słupsk-Gdańsk-Olsztyn-Ełk and goes through three voivodeships in the north of Poland. Within the TransBaltic project, a study of the condition and potential of the abovementioned rail link has been carried out. It main aims were to identify the importance of the rail route's functional components and develop the technical content for application to include the rail line in the TEN-T network.

Welcome to North Poland!

The economic potential of the three regions is mainly found in their major cities, since they serve as centres of education and culture as well as home to important governmental and social bodies. The regions' main industries include shipyards in Gdańsk, Gdynia and Szczecin (although running on a considerable lesser scale than in their prominent years), oil refinery in Gdańsk, tyre manufacture in Olsztyn and Stargard Szczeciński. Above all there are three universal seaports – in Gdańsk, Gdynia and the Szczecin-Świnoujście port complex along with smaller ones in Kołobrzeg and Elbląg. The regions have a well-developed tourist and health care sectors, too.

The key factor that boosts the voivodeships' wealth is their special economic zones. If they are to generate growth, the whole of northern Poland must be ensured with a good accessibility, which in turn is a decisive factor for all investment decisions. Actually, the proposed link also cuts through areas where economic activities and transport availability are the lowest in Poland, thus the proper infrastructure may be a good start up for other industries. What is also vital from the EU perspective, rail is perceived as more eco-friendly than road transportation and will have lesser impact on the environment and on areas protected by the Nature 2000 project.

Today's situation

The technical condition of the analyzed lines has been assessed and showed significant wear and tear of the tracks' surface and rail sidings. The single electrified Stargard Szczeciński-Gdańsk line 202 is in satisfactory state, especially in its western part. The middle section of the line between Runowo Pomorskie and Wejherowo operates on a single track, limiting the capacity of the system. There are single tracks on lines branching off the rail interchanges in Białogard, Koszalin and Słupsk. In the Pomorskie region, the line's capacity deteriorates on the route Gdynia-Wejherowo, since there is an overlap between long-distance and urban train services, causing frequent problems with traffic. However, main advantages of the missing link are: it's the shortest overland west-east route from Germany to the Baltic States and Russia, it links CETC-BAC-Rail Baltica corridors as well as main municipal areas of South Baltic with their ports. It's also a part of the Baltic Sea Ring concept and counteracts social exclusion by enhancing the transport accessibility of middle parts of the Pomorskie Region. The missing link has also a great potential, as its nowadays freight capacity is utilized only in 30%. The route can be used to carry the growing amounts of cargo from Gdynia and Gdańsk ports. It can attribute to the development of intermodal transport, too, shifting much of the cargo from trucks onto rail.

The technical condition of the Warmińsko-Mazurskie rail lines varies. The Iława-Olsztyn-Korsze line has relatively good technical parameters with pax train speed limits as 100-120 km/h. The Malbork-Elbląg-Bogaczewo section is equally satisfactory. The technical condition of the single track between Bogaczewo and Olsztyn is poor. The Korsze-Ełk line operates on a single non-electrified track with a speed limit of 80 km/h. The Czerwonka-Mrągowo-Ełk line is also in poor technical condition.

Main trains stations along the whole link were evaluated and found to be in adequate technical condition, however, they need modernization. The route's smaller train stops are gradually falling into disrepair.

The data shows that passenger trains prevail with pax traffic accounting for 87% of the line's overall locomotion. Most of the trains are regional (53%) and interregional services (33%). The average number of trains on the entire line is 39 per day, including five freight trains. Among all the lines of the link in question, only the Gdynia-Tczew section operates over 120 trains a day. The biggest share of freight traffic is between Szczecin-Stargard Szczeciński-Gdańsk, while pax traffic is the highest between Gdynia-Tczew and Szczecin-Stargard Szczeciński.

Poland's "National Strategy for Regional Development 2010-2020" points out that western parts of Pomorskie and parts of the Warmińsko-Mazurskie region have the lowest transport accessibility in Poland. As a consequence, areas around Ełk, Słupsk and Stargard Szczeciński are affected by low levels of inward investments. If this is to be improved, an increased focus is required on the role of sub-regional towns and the development and modernisation of their transport infrastructure. Improvements are also required in cross-border areas affected by poor transport networks, chiefly in areas along the EU external border.

Competition

Analyses of other modes of transport shows that neither air pax traffic nor inland waterways are a major rivals of the link in question. Rail faces competition from road transport when it comes to pax and freight traffic. An assessment of passenger numbers carried by rail and road transport illustrates that in the Zachodnipomorskie region the rail link offers more services and quicker travel times. The number of services and travel times using Pomorskie's train services are also more competitive on the majority of the link's sections. On the other hand, the Warmińsko-Mazurskie voivodeship faces serious competition from bus transport that offers shorter travel times and more frequent services.

A comparison of rail freight transport and road haulage shows that motor transport has advantages over rail because it offers better prices and connections. If rail transport is to improve its competitiveness, it would need a new harmonised system of infrastructure access fees to include external costs. This could help to put a halt to the asymmetry there already is between rail and road transportation.

What to do?

The authors of the study have listed a dozen and so basic conditions for boosting the importance of the link. Firstly, technical parameters should be enhanced – with speeds targeted at 160 km/h for pax trains and 120 km/h for freight as well as axle load at 221 kN, not mentioning the construction of LCS local control services and implementing the ERTMS for traffic management and control. The rail line 202 needs a second track (on selected sections) to improve its capacity and to reduce journey times. Flyovers and grade separated crossings at intersections with road traffic are demanded along with increasing capacities of interchanges and single track sections which branch off. Rail freight transport requires also just in time doo-to-door technologies. A dry port (to be built by PCC Intermodal in Zajączkowo Tczewskie) and border crossings in Braniewo make the region more attractive for cargo handlings. Also greatly required are direct rail links or routes where passengers can conveniently change between Szczecin-Gdańsk-Olsztyn and the major cities within respective catchment areas such as Berlin, Hamburg, Lübeck, Vilnius, Kaliningrad, Riga and Tallinn. Passenger transport needs matching the services offered to the demand (day time and night time services) to ensure that they are competitive to journey by road; in this regard timetables of different train operating companies need to be synchronised. Main integrated interchanges require an efficient road transport shuttles. Last, but not least, special arrangements are needed for disabled passengers, as now their needs are very much neglected.

If improved, the link in question will become not only more competitive in comparison to road transport, but will also have the chance to break the spell of Polish pax railways ill name. Additionally, it may serve as North Poland's trade artery, since e.g. the country's ports forecast a huge increase in their turnover. Now it's up to proper authorities to ensure that the missing link will transform into a vivid mark of success, as first victories have been won – 75% of the link has been included into the TEN-T as well as the European Commission supports it. ■

Tom Joad

Tab. 1. Forecast of rail passenger and freight traffic until 2030

Line 202 Stargard Szczeciński-Koszalin-Słupsk-Gdańsk					
Description	2005	2009	2013	2020	2030
Passenger traffic					
Kilometres travelled [thou. train km]	6,606	5,072	5,468	6,125	7,019
Number of passengers [thou.]	13,967	11,374	12,262	13,734	15,739
Freight traffic					
Kilometres travelled [thou. train km]	694	444	690	775	848
Number of gross tonnes [thou.]	2,887	2,452	3,935	4,420	4,834
Variant 1: Iława-Olsztyn-Czerwonka-Korsze-Giżycko-Ełk					
Description	2005	2009	2013	2020	2030
Passenger traffic					
Kilometres travelled [thou. train km]	1,550	1,726	1,696	1,976	2,365
Number of passengers [thou.]	4,266	4,750	4,666	5,439	6,508
Freight traffic					
Kilometres travelled [thou. train km]	690	396	464	619	764
Number of gross tonnes [thou.]	3,425	2,170	2,192	2,928	3,614
Variant 2: Iława-Olsztyn-Czerwonka-Mrągowo-Ełk					
Description	2005	2009	2013	2020	2030
Passenger traffic					
Kilometres travelled [thou. train km]	1096	1,095	942	1,221	1451
Number of passengers [thou.]	2,766	2,764	2,377	3,082	3,662
Freight traffic					
Kilometres travelled [thou. train km]	452	288	332	427	532
Number of gross tonnes [thou.]	2,183	1,538	1,500	1,928	2,405
Variant 3: Elbląg-Bogaczewo-Olsztyn-Czerwonka-Korsze-Ełk					
Description	2005	2009	2013	2020	2030
Passenger traffic					
Kilometres travelled [thou. train km]	1,574	1,693	1,691	1,984	2,373
Number of passengers [thou.]	4,450	4,786	4,781	5,609	6,711
Freight traffic					
Kilometres travelled [thou.train km]	490	242	278	406	505
Number of gross tonnes [thou.]	2,211	1,261	1,306	1,909	2,374
Variant 4: Elbląg-Bogaczewo-Olsztyn-Czerwonka-Mrągowo-Ełk					
Description	2005	2009	2013	2020	2030
Passenger traffic					
Kilometres travelled [thou. train km]	1,119	1,061	937	1,228	1,459
Number of passengers [thou.]	2,953	2,800	2,472	3,240	3,849
Freight traffic					
Kilometres travelled [thou. train km]	253	134	146	217	278
Number of gross tonnes [thou.]	970	629	613	909	1,165

Source: TransBaltic work based on data from PKP PLK SA

The article is based on the "Study of the condition and potential of the rail link between Szczecin, Koszalin, Słupsk, Gdańsk, Olsztyn and Ełk" authored by the Research Institute of Transport Economics. The full document can be downloaded from www.transbaltic.eu.