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# THE ECONOMIC SITUATION OF THE SHORT SEA SHIPPING IN THE BALTIC SEA

**Abstract**

*The highly congested European highways system, including the Baltic Area and great need for change in the transport environment are stimulating the needs leading to the development of the short sea shipping.*

*The idea has been strongly supported by the European Commission which is expecting to implement the new types of ships and modernize the ports making the short sea shipping profitable, and more effective.*

*Analysing the situation which exist at the Baltic Sea, it could be said that the configuration of the Baltic coast is generally favourable for development of the short sea shipping.*

*The existing and under construction as well as projected land-sea transport corridors as TEM, TEM-Scandinavia and Via Baltica will positively influence the Baltic shipping.*

*The Via Hanseatica running parallel to the Baltic coast is rather in competition to the development of the short sea shipping.*

## 1. Short sea shipping transportation links with the land corridors

The European Commission is one of the international institution that has understood the necessity of development of the short sea shipping representing firm position in comparing to other modes of transport in terms of infrastructure needs, energy consumption and environment impact. It can contribute to the economic development

of the peripheral regions and islands offering a competitive price and a very satisfactory level of safety.

A huge development of West European shipbuilding industry is still observed contributing to the development of the European naval construction. About 50% of the ship built in Europe belongs to the categories of the short sea shipping.

Accordingly to the studies performed by the Commission, the short shipping has a real development potential in the following transport corridors: Spain-Germany, Spain-Portugal-United Kingdom-Benelux, Germany-Scandinavia, Benelux-Northern United Kingdom.

The analysis has emphasized that in Spain-Portugal-Germany corridor the short sea shipping could reach 20% of total traffic away from road haulage in the short run and further 13% in the long run.

The studies connected with analytical research concerning the short sea shipping of the Baltic Sea Region have not been thoroughly elaborated yet.

Only some shipping conferences organized recently in Norway (Bergen, 20-21 June 1996) and Great Britain (London, 27 June 1996) have presented some information on ideas and development of the modern short sea shipping in selected countries.

The Baltic Sea is the natural route for travel and transport between Denmark, Sweden, Finland and to some extent northern Germany on one hand and Poland, Baltic States, central and southern Russia, and transit land locked countries as Czech Republic, Slovakia, eastern Hungary, Bialorussia and others on the other hand.

The population in this region is roughly 300 million inhabitants. At present the Baltic Sea is representing a high activity of ferry and ro-ro services characterizing different density in some parts of this region.

The Baltic Sea Conference of Ministers of Transport held in Szczecin in 1992 inaugurated a study of the transport infrastructure sector of the Baltic Sea Region, representing the all modes of the multimodal sea-land transportation system.

The political and economic changes in Eastern and Central Europe have resulted in a completely new situation for the long term development of trade and commerce between the countries around the Baltic Sea.

The West European road network being already overloaded in terms and capacity and environment resulted in tendencies represented by the Nordic Countries to find alternative road links to eastern and south-eastern regions of the Baltic Sea.

Finally at the Second Conference of Ministers of Transport in Kaliningrad in 1994 four international projects of roads have been presented:

1. Trans-European North-South Motorway (TEM) - coordinated by the United Nations Economic Commission for Europe, linking Baltic Sea (port of Gdynia/Gdańsk) with southern and south-eastern Europe and Mediterranean Sea. The total extended TEM network has length of 20,160 km. There are already about 5,000 km in operation and 2,000 km under construction.

2. Via Baltica - linking Finland through a ferry connection with Estonia and further crossing the territory of Latvia, Lithuania, Poland and western and southern Europe.

3. TEM-Scandinavia - linking the Swedish and Norwegian road network with Poland by the ferry sea-land transportation connection Karlskrona-Gdynia reaching the transport corridor of Trans-European North-South Motorway attaining ports of the Mediterranean Sea.

4. Via Hanseatica - starting in St.Petersburg, linking Narva, Kaliningrad, Gdańsk/Gdynia, Szczecin with Hamburg.

The European Commission on its second Pan-European Conference held in Crete in 1994 approved nine multimodal transport corridors treated as a basis for the future projects leading to the further development of the infrastructure in the Central and Eastern Europe.

According to the statement presented at the Ad Hoc Meeting on Infrastructure Development, Brussels, 3 July 1996, the working document on corridors development could be adjusted or revised according to the real needs revealed during the investment process.

The mentioned above Via Baltica project was presented by the High Level Working Party in Five-Year Investment Plan for the period 1996-2000. The implementation of this project will be coordinated by the Via Baltica Monitoring Committee.

Via Baltica includes 445 km of roads improvement and construction and links at the territory of Poland to the Trans-European North-South Motorway (TEM) and to Transport corridor II - Berlin-Warsaw-Minsk-Moscow (A-2).

The both ideas of TEM-Scandinavia and Via Baltica are supported mainly by the countries, directly involved in realization of projects and construction.

The analyzed two big transport corridors are formulating the multimodal sea-land transportation systems, linking directly and indirectly the vast transit hinterland with the Baltic ports and shipping companies operating different types and kinds of vessels servicing short and long distance shipping ranges.

Existing shipping companies representing short sea shipping are covering coastal and island trade and ferry services.

The corridors being at present at the more or less advanced stage of realization are giving the operators the possibility in getting cargo and passengers from the vast territory of the port's hinterland, securing positive economic effects and further development of its services.

The cargo flows entering and leaving ports carried by various modes of transport will be coming from different directions, including projected Via Hanseatica running parallel to the Baltic coast.

Having in mind the localization of this highway, which is different in comparison with the TEM and Via Baltica, it could be said that it is running rather in competition to the short sea shipping taking the cargo which could be directed to the sea-way.

Generally speaking the competition between short sea shipping and land transportation systems do exist and in many cases the coastal shipping will develop services to the peripheral located Baltic ports which are less convenient to the different modes of the transport.

## 2. The economic position of the Baltic short sea shipping in comparing to other European shipping sectors

Baltic is about to achieve an important position in European sea-borne trade. At present in Europe the leading position in the ports activities and shipping have the sector of English Channel and North Sea which can be regarded as the center of maritime Europe. The geographic distribution of port-generated added value is demonstrating the strong domination of ports in this sector amounting up to the 408.7 million tones which represents 1.6 times the total port-generated added value of the European inner and outer peripheries (253.2 million weighted tonnes)*.

The combined port-generated added value of the seven ports of this region (Rotterdam, Antwerp, Hamburg, Bremen, Le Havre, Felixstowe and London) was greater (254.5 million weighted tonnes) than the generated value in the ports of the European inner and outer peripheries combined.

The presented values are clearly demonstrating the present situation of the Baltic ports and shipping in relation to the English Channel/ North Sea sectors. Also comparing other peripheries as Mediterranean port-generated added value (83.7 million weighted tonnes) with Atlantic Arc and Scandinavian countries (amounting together to 31.9 million weighted tonnes), the ports and shipping of the Baltic are far behind the above.

Baltic shipping has been based on the sea-borne trade of the Baltic countries and strong developed links with the ocean ranges.

Recently on the Baltic, are shipped about 300 million ton of cargo annually, of which 40% are inter Baltic shipping relations and 60% are linked with the external sea-trade.

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* The added value in the field of ports means generated income of different kinds of production and services, developed by land or sea-land transport of goods (pay-roll expenses plus company income from annuities, interest of profit, tax and custom duties). Method elaborated by experts group under leadership of prof. J. Marcadon - University of Nantes (1991).

The size of the volume of the total transported cargo annually is amounting 8% of the world seaborne trade.

Analysing the European Inner Periphery the strongest growth rates in the port-generated added value are recorded by the Scandinavia/Baltic sector where growth rates in excess of 50% are very often.

The mentioned results are due to the ro-ro and feeder services traffic. Visible concentration of the short sea shipping services including ro-ro and feeders services is proved to be a characteristic feature of the Baltic shipping trade, however separate regions are presenting different activities of the ferry connections.

A good example of port-generated added value is provided by container traffic which generally represents the most expensive and capital intensive category of cargo per ton. The general tendency of containerization is the concentration of containerized cargo in large modern ports offering the logistic services with the transport chains where the handling operations are increasingly automated. This tendency is leading to the reduction of the number of ports operating container traffic.

Concentrating the containers traffic on a small number of major Baltic ports, the small ports are either eliminated or served by collection routes operating major ports.

In considerable extent short sea shipping has been taking active part in the redistribution process, transporting cargo between the major (central) ports. The Baltic ferry market constitutes very well organized network covering inter-Baltic shipping relation and linking this region with ports of the North Sea and English Channel.

At present about 40% ferry companies are operating 130 ferries which number has been steady increasing. The development of the ferry services and number of tonnage is covering as well cargo transportation as passenger traffic.

The new constructed ferries are offering high standard of services.

The new ships are faster in comparing with the old ones, constituting an important commercial development on the new shipping mar-

ket which is open to the different technical innovations. The visible progress was made in the shipbuilding industry in the production of high efficiency light engines generating speed of approximately 40 knots in comparing with 20 knots of the conventional ferries.

The attention of the naval architects has been also directed to produce small fast ferries very well adopted to the demands and conditions of the short sea shipping.

The high speed allows to increase the number of the round-trips increasing the annual income, which in case of a right operation ot fhe ship will provide the company reasonable profit.

The Baltic ferry services are representing four main ranges:

- western range including Scandinavia, Germany and Poland - comprising 75% of ferries operating between Baltic ports;
- central eastern range linking Sweden with Russia, Estonia and Finland;
- east-west range joining Finland with Germany and Poland - servicing 0.12% of the Baltic traffic;
- central range linking Swedish ports with Poland and Latvia comprises 3.5% of the Baltic ferry services.

The further integration of the Baltic countries will create the new possibilities in the development of the ferry connections linking Scandinavian and Nordic countries with Central and Western Europe.

Central location of the Polish ports connected with the vast hinterland by transport corridors will activate and reinforce its position in serving as base ports for ro-ro and ferry connection on the Baltic Sea.

The share of the Polish operators participating in the ferry services in the Baltic short sea shipping is rather small amounting to 5% in cargo shipments. But in the nearest future the visible effects derived from the realized investments in ports and shipping will bring more evident results.

The Polish passenger-car-rail ferry of 1000 passengers capacity built in Langsten Shipyard (Norway) in 1995 and operated by the

Euroafrica Line has started its activity on the short sea shipping line between Świnoujście and Ystad. The economic effects of its operation are satisfactory.

The port in Świnoujście is prepared for handling ferry and ro-ro traffic. After modernizations of the two existing berths and constructing the three new ones including new passenger terminal and custom clearance facilities, the car terminal offers already 11 gates. The modernized ferry terminal will handle 15 vessels daily, offering yearly capacity amounting 850,000 passengers, 150,000 passenger cars, 100,000 trucks and 60,000 railway wagons (cars).

Following the forecasts concerning the ferry traffic between Swedish and Finnish ports and ports of Gdańsk/Gdynia and predicting 5-7% of the annual growth in passenger-car transport some important investments have been made.

In the nearest future a new multi-berth terminal in the port of Gdynia will be realized connecting port with the linking transport corridor of TEM-Scandinavia.

Among the new terminals and harbours presented by the Baltic countries, the project of the Vousaari Harbour located in Helsinki might be emphasized.

The project received already good deal of publicity in 1995 and was positively evaluated by the Uusima Environmental Center in its own statement issued in March 1996.

The project of Vuosaari has been commissioned by the Harbour of Helsinki to the Technical Research Center of Finland VTT which in its survey confirmed previous notions concerning the logistically correct location of Vuosaari Harbour.

Some other examples of elaborated projects concerning the new modern ferry/ro-ro terminals in the Baltic countries might be also presented. All of them are demonstrating the necessity which exists in facing the new demands of the Baltic Region, followed by the political and economic situation in Central and Eastern Europe.

The concentration of cargo in the large multipurpose ports has developed the feeder services engaged mostly in container traffic, often operating in short sea shipping.

The special types of vessels for container feeder service have been build in many European shipyards, especially in Germany.

At the beginning of this process not many feeder vessels are having loading capacity attaining 150 TEU.

Some vessels operating at present in the Pacific and Atlantic short sea ranges designated to the feeder service are often exceeding 1000 TEU securing profits derived from economy of scale. It might be mentioned that presented loading capacity of ships is greater in comparing to the ocean going vessels.

Some operators as for example the Mediterranean Shipping Company (MSC) are operating the vessels (MSC - Angela - 516 TEU) in feeder short sea shipping previously designated and constructed to the demand of long distance ocean service.

The Baltic shipping market has been one of the most technically and technologically advanced market over the last 20 years and the Finnish yards have been the leaders in producing the large ferries.

In 1995 and in 1996 a number of new fast ferries have come into operation and new contracts have been signed for fast ferries to operate in the main European markets.

The positive economic results coming from operation in the field of short sea shipping is stimulating the demands for new specialized medium sized tonnage adapted to the demand of the present shipping market.

Following these demand many European shipyards as for instance the German Siatas in Hamburg, the Dutch Conoship Group are producing a lot of small short sea shipping container vessels of loading capacity from 200 TEU including the big ones of 1000 TEU.

Polish shipyards in Szczecin and in Gdynia are building at present about 30 feeder container vessels of a loading capacity between 900 - 1100 TEU.

According to the opinion of Tor Vergeland and Arne Osmundsvaag three main types of fast ferries might be distinguished:

**Main types of fast ferries**

| Type | Lenght | Passenger capacity | Car capacity | Max. waves |
|---|---|---|---|---|
| Small fast ferries | 50-90 | 250-500 | 10-120 | 2 m |
| Medium large fast ferries | 75-105 | 500-900 | 140-210 | 3 m |
| Large fast ferries | 120-130 | 900-1500 | 240-375 | 4-5 m |

The small fast ferries are typically enlarged fast boats with some car carrying capacity for pure transportation routes only. They can be build in yards with experience from building smaller fast vessels. The current designs include enlarged catamarans, wavepiercing catamarans and monohulls of various designs.

The medium large fast ferries are equipped with onboard space for various activities and the designs are again a mix of monohulls and enlarged catamarans.

The large fast ferries are equipped with space for onboard activities similar to conventional ferries. So far these category is dominated by catamaran design's, but several yards offer monohulls also in this category.

The main objections against fast ferries have up to now been that they are noisy. It could be expected that in the nearest future the noise problem will be positively solved.

## 3. Prospects of the short sea shipping in the Baltic transportation systems

The stabilization of the freight rates on the Baltic shipping market and slowly growing demand for shipping services are inducing necessity of paying a special attention on costs analysis and the right management of the company.

It could be said that shipping business at present is crucially depended on the top management's capability. Many examples taking directly from the shipping practice of the last years are confirming this statements.

The classical example of sucha a situation was the fall of the United States Lines and the economic success of the Evergreen Marine Corporation competing at the same huge shipping market, presenting similar strong economic positions. The success of the second one was the customer-oriented marketing, cost-effective operations and a good management.

Likely the some situations might be observed at present also on the Baltic Sea in relation to the short sea shipping companies. Some of the most successful companies before establishing a new shipping services have conducted a thorough study and survey of all factors and conditions involved, utilizing market research, data analysis and budgeting to assure complete grasp of the situation.

Generally, speaking the small ports and based there shipping companies are watching carefully their costs, operating sometimes old tonnage which is far away from the demands of the modern technology.

An example is given by one of the shipping companies in Kalmar which is still operating the oldest cargo carrying vessel in Sweden named M/s Sydfart, built in 1879, called the port last year 21 times with around 300 tonnes of wheat in bulk, all of it from other Swedish ports within a distance 250 - 500 miles.

From the other side the Swedish shipping companies involved in the short sea shipping are representing good management and generally are operating modern vessels well adopted to the market conditions.

The coastal shipping companies are effective and innovative on a technological and operational plans, and the multicoastal shuttle network on the Eastern coast of Sweden is covering the demands of different shippers. The configuration of a coast line of 2000 kilometers from Ystad to the end of Gulf of Bothnia could be evaluated as an ideal for coastal shipping.

The Swedish Government and local authorities are supporting the initiatives of maritime transport organizations, having in mind the high costs of the development of rail and road networks and the law density of the population and economic activity of the coastal regions.

The cargo has been collected, distributed and delivered to ports and then further transported mainly by sea. The adapted principles are based on highly automated terminals loading and discharging unitized cargo including the use of self-loading and unloading ships also highly automated, representing speed up to 30 knots.

The automation of ports and the ships services should help in considerable reduction of costs giving to this category of the sea short shipping strong competitive position to the other modes of transport. Also the mentioned automation should bring to the considerable reduction of transshipment costs.

It is estimated that the full implementation of the mentioned system will absorb between 20% and 30% of the traffic along the Swedish Eastern coast.

Many forms and solutions concerning the adaptation of the short sea shipping to the present market conditions could be observed in many Swedish ports.

One of the example which might have been given is the shipping company ABOUT Broderna Hoglung in Kalmar acting as a husbandry owners for 15 mainly locally owned coaster-type vessels with a dead-weight capacity ranging from 300 to 3000 tonnes.

They operate as carriers/charterers in the Baltic up to and including South Norway, mainly with bulk cargoes. The company had a policy of not owning part in the vessels they operate and has for decades high in confidence with shipowners as well as cargo owners. They engage as well in sport freighting as signing volume-contracts to be carried in specified times.

Out of around 2 million carries tonnes per year, they estimate around 70% or 1,400,000 tonnes to be carried on their "own" vessels. They carry a good part of the agricultural products arriving in Kalmar:

| | |
|---|---|
| Domestic | 33,000 - 50,000 tonnes per year |
| Imports | 15,000 - 25,000 tonnes per year |
| Total | 45,000 - 75,000 tonnes per year |

I am sharing the opinion of Mr. Jacques Robert scientific adviser of the Conference of Peripheral Maritime Regions (CPMR) that in the Baltic, Scandinavia looks set to serve as a catalyst for future technological and commercial developments in the field of coastal; shipping representing the short sea services.

In the field of short sea shipping, excluding Ro-ro traffic, the situation in the North-South of the Baltic is presenting some major differences.

In the South, the German shipping companies are generally representing small organizations operating one to three vessels. The cooperation between them did not exist in practice. The small coastal shipping companies are not very competitive and the small ports which they serve are presenting at present declining traffic.

In Denmark, from the other side, there has been observed a process of cargo in one port of Frederica.

As we have already mentioned, the feeder traffic is increasing and could attract mostly container service between the countries bordering the Baltic. The container could be also send by inland waterways systems to the interior of the continent from Rotterdam, Hamburg or Szczecin.

In some of these sea-river routes the multipurpose sea-going and river-going vessels might be used. In connection with a study on activation of Odra river linking Berlin with port of Szczecin, the project of that kind of vessels has been also presented by the Technical University in Berlin.

Another types of river ships and barges presented by a Technical University in Gdańsk, are destined to the inland water transportation system, including the Vistula Bay linking port of Kaliningrad with Middle and Western Europe.

Special types of river vessels, could transport cargo efficiently from Kaliningrad via Elbląg, and using local channels up to Vistula River, reaching the north bound port of Gdańsk, and south-passing rivers: Brda, Noteć, Warta and Odra, via Hochenzollern Canal to Berlin. Realization of the German project Elbe - Havel Canal could extend mentioned river junctions to the west German ports.

The port of Elbląg has favorable localization at the Vistula Bay in linking river network with the sea. The dimension of a middle size port is destinating its activities for the servicing the short sea shipping and inland water transportation vessels.

Unfortunately, the Pilawa narrow linking Vistula Bay with the Baltic Sea is still not open by the Russian Authorities to the international shipping.

The Second Conference of Ministers of Transport of the Baltic Countries - Kaliningrad 24-25 February 1994, has been giving the possibility for the representative of the Union of the Baltic Cities to present officially the demand concerning the opening of Pilawa Strait to the international shipping.

At present the Russian cities, Kaliningrad, Pilawa and Polish cities Elbląg and Gdańsk are interested in free navigation but still this problem has been not officially solved.

The Polish short sea shipping is operated at present mainly by the Polish Baltic Shipping Company mostly concentrating its activities on the Baltic ferry connections and middle-sized cargo vessels transporting yearly 830,000 tonnes (85% in liner service).

The Polish Baltic Shipping Company accounts for the majority of the passenger and cargo shipments by ferries between Poland and Scandinavia in about 80%.

The structure of passenger traffic between Poland and Scandinavia is as follows:

1. Approximately 45-50% of passengers constitute people visiting their relatives (relatively stable group in the future),
2. About 20% of all passenger are tourists (growing group),

3. 5-10% of all passengers are Poles going to Scandinavia in search of seasonal work (this group of passengers is declining rapidly),
4. Approximately 10% of traffic results from business trips,
5. Duty free shopping and other reasons account for the reminder of passenger traffic.

Cargo traffic between Poland and Scandinavia has two important reasons: transportation of goods due to the Polish-Scandinavian trade agreement and transit traffic between Scandinavia, Nordic countries and Central and Southern Europe. The construction of projected highways (TEM and TEM-Scandinavia) as mentioned before will considerable activate the sea-land transportation network strengthening also the position of the short sea shipping services. The connection from sea to land is very important for any shipping route. If for example a fast ferry route ends farther away from main traffic routes than conventional ones, this will obviously limit the attractiveness of the route.

The Swedish and Finnish transport market is special as the main streams of cargo can be carried by all transport modes along the long sea coast where the majority of industry and population is located.

The industry shows an interest for a development of a short sea shipping system calling at high frequency to the port. The same demands are represented by the shippers intending to have one shipment per day. The shipowners at present are not prepared generally to take the risk of investing in the number of ships securing a high frequency service without chance of filling their ships.

The question is whether exists a market for sea transportation which can be covered by new technologies leading to the improvement of frequency.

The answer to this question has been given by Anders Sjobris in his case study on the market potential for short sea shipping concluding that this kind of transport is very cost efficient. It might be added that the short sea shipping is cost efficient enough to be fully commercial if other modes of transport will not be subsidized in manner that will

make it impossible to be commercial. Nevertheless the new coastal shipping system start off, will probably require a small portion of financial assistance.

Summing up the presented questions on the short sea shipping in the Baltic Sea it might be concluded that the future development of this form of sea-transport looks rather positively and the necessary technical innovations in ports and in shipping as well as better management will bring profits.

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