Short - sea shipping as chance of CEE regions’ accelerated development

According to the Communication /EU 1692.98/, from the beginning of XXI centuries the greatest attention should be given to development and consolidation of the European transport networks. Their key functions are passengers and cargoes transportation (as network transport’s component), transfer of energy resources (as network energy component), and also the information and knowledge bases’ diffusion (as network telecommunication component). Such policy should allow to increase volumes of freight transportation by 38 %, and passenger traffic on 24 % for the 1998-2010 period. These goals’ achievement will demand 350 billion € up to 2010. At the same time, the EC is noticed, that within 1980-2000 real investment in a transport infrastructure has sharply decreased. So, if in the beginning of this period such financing was carried out at a level 1.5 % GDP of EU countries-members, then in the beginning of XXI century it has decreased to 1.0 %. Such level of investment allows on allocation only 15-20 billion € / year on various trans-european projects. All this can considerably reduce transportations efficiency. If drastic measures in the near future will not be accepted, then for 2025-2030 period, volumes of unproductive downtime for passengers and cargoes transportation only can increase on 60-80 %. In particular it concerns Baltic Sea Region (BSR).

Figure 1. The “black” scenario for BSR transport’s services market dynamics /2025-2030 period/
1. – BSR delay dynamics (vehicle /hours); 2. – BSR transports’s capacity dynamics (vehicle /miles).


In these conditions of EU has appreciably toughened the requirements to projects of TEN-T’s development that can be reflected into Poland transport infrastructure’s development. It is possible under next conditions:

2. Guaranteeing of investments, terms of projects’ execution and expected results.
3. Reliability of the information on legality of projects financing sources.
4. Generating of the effects stimulating social, economic, ecological, cultural, etc. factors of the European Community development.

If planned investment remain at a predicted level, and total cost of the TEN-T will average 600 billion € in 2020, then it is possible to solving of the following transport problems:

1. Reduction in congestion on EU’s roads, that will give the economic result estimated in 8 billion €/year.
2. Reduction in emission of carbonic gas (CO$_2$) in an atmosphere by 17 million tons/year.
3. Reduction in environmental pollution by other contaminants with the total economic result 0.7 billion €/year.
4. Increase stimulation of the GDP’s by 0.23% /year.

For achievement of the put results, the special EU attention gives to development of maritime component TEN-T. By the beginning of 2004 its place was characterized by the following parameters:

1. Accomplishment approximately 90% of trading haulages in intercontinental communications.
2. Overload by seaports above 1 billion tons/year.
3. Accomplishment approximately 43% of trading haulages in intraeuropean communications.
4. The control over 1/3 world fleet.
5. Presence 2.5 million workplaces on a labour market.

There are also negative tendencies in development of this transport segment:

1. The number of the European seamen on EU flag’s ships has decreased on 37% during 1985-1995.
2. The number of the non-european seamen on EU flag’s ships has increased on 14% during the same period.
3. Loss over 51% of workplaces on EU flag’s ships, as a transfer’s result of european ships under substandard flags.
4. Only 13% of world shipping are realized by EU flag’s ships. In 1970 this share made 32%.

<table>
<thead>
<tr>
<th>Maritime business</th>
<th>Maritime transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Trade structure and demand volumes</td>
<td>1. Ships, tugs, pilots, etc.</td>
</tr>
<tr>
<td>2. Productivity, capacity &amp; service</td>
<td>2. Routes, channels, canals etc.</td>
</tr>
<tr>
<td>3. Freight charges</td>
<td>3. Transport point - infrastructure</td>
</tr>
<tr>
<td>4. Price structure</td>
<td>4. Regulation and navigation standarts</td>
</tr>
<tr>
<td>5. Competitiveness</td>
<td>5. Logistical &amp; organization scheme</td>
</tr>
<tr>
<td>6. Taxes (direct, indirect) etc.</td>
<td>6. Transit time, flexibility, comfort etc.</td>
</tr>
</tbody>
</table>

**WORLD & REGIONAL MARKET**

<table>
<thead>
<tr>
<th>Maritime environment</th>
<th>Maritime safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Weather &amp; navigation conditions</td>
<td>1. On-board security</td>
</tr>
<tr>
<td>2. Environment policy</td>
<td>2. Ship-terminal security</td>
</tr>
<tr>
<td>3. Information &amp; Communication</td>
<td>3. Cargo safety</td>
</tr>
<tr>
<td>5. Innovations’ diffusion</td>
<td>5. Monitoring &amp; Control system</td>
</tr>
<tr>
<td>6. Knowledge transfer etc.</td>
<td>6. H &amp; M reliability etc.</td>
</tr>
</tbody>
</table>

Figure 2. Components of BSR’s maritime transport policy
Source: Author’s research on basis: EVINAR. The European Virtual Maritime Institute.

In these conditions of EU declares two possible activity patterns:
1. Global strategy’s development of returning to the European fleet of a acceptable competitiveness level.
2. Introductions of the standards’ interconnected system, focusing shipyards and the shipping companies on unconditional observance of safety norms and environmental protection.

The solution of the formulated problems will demand considerable efforts from the European community, in view of many aspects of the marine industry, which some elements are submitted on Fig. 2. Various segments’ comparison of EU-15 & USA transport services markets are shown in Table 1. The analysis of this information allows to assert, that backlog of EU from the USA in all kinds of haulages takes place, except for maritime. Therefore development of BSR transport systems should:
- be directed on increase of mobile opportunities of all community residents living in this region without any restrictions of social, economic & political character.
- be capable to overcome any barriers, and "bottlenecks" with the minimal reduction of the transportation capacity in these places.
should reach the improve productivity without excess of allowable norms of negative impacts on environment.

plan use of renewed energy sources.

Table 1. Index of transport service market
[EU-15 & USA - 2001]

<table>
<thead>
<tr>
<th>Parametr</th>
<th>EU-15</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (mln)</td>
<td>375</td>
<td>270</td>
</tr>
<tr>
<td>Area (mln km²)</td>
<td>3.24</td>
<td>9.6</td>
</tr>
<tr>
<td>GDP (€ bl)</td>
<td>7,586</td>
<td>7,760</td>
</tr>
<tr>
<td>Investment in transport (as % GDP)</td>
<td>1.1</td>
<td>1.2</td>
</tr>
<tr>
<td>Road network (thousands km)</td>
<td>3,500</td>
<td>6,460</td>
</tr>
<tr>
<td>Railway network (thousands km)</td>
<td>156</td>
<td>240</td>
</tr>
<tr>
<td>Road transportation (bl t-km)</td>
<td>1,254 i.e. 44% from total</td>
<td>1,499 i.e. 28% from total</td>
</tr>
<tr>
<td>Railway transportation (bl t-km)</td>
<td>240 i.e. 8% from total</td>
<td>2,010 i.e. 37% from total</td>
</tr>
<tr>
<td>Inland transportation (bl t-km)</td>
<td>121 i.e. 4% from total</td>
<td>521 i.e. 10% from total</td>
</tr>
<tr>
<td>Pipeline transportation (bl t-km)</td>
<td>88 i.e. 3% from total</td>
<td>905 i.e. 17% from total</td>
</tr>
<tr>
<td>Short-sea shipping (bl t-km)</td>
<td>1,167 i.e. 41% from total</td>
<td>460 i.e. 8% from total</td>
</tr>
</tbody>
</table>


Tendencies researches and the analysis of transport services’ development, executed in Agende 21 for the BSR, have elicited essential disbalance in development of North-West and Central-East areas (See Table 2). On elimination plans’s development of the revealed contradictions it is necessary to take into account the following factors:

1. Uniqueness of the Baltic Sea as EU internal water-basin.
2. BSR’s seaports and terminals are a key part in intermodal transportations.
3. Expediency of the regular transportations’ organization in Short-Sea Shipping (SSS), that will allow to transform BSR from a natural barrier to the bridge, oriented on TEN-T’s development.
4. Functional unco-ordination of BSR’s ports, that restrains radical effectiveness increase of maritime transportations in this region.
5. Priority of ecological and safety requirements under plans’ elaboration for BSR development.
6. Projects’ conflictness of BSR maritime transport development with plans for development of coastal cities and rest zones.
7. Social, economic, etc. changes in BSR’s markets and, as consequence, formation of new freight traffics inside EU (endogenous / domestic factors), formation of the new freight traffics, for example, eastward (exogenous / foreign factors) etc.

Table 2. The BSR attribute (qualitative) characteristics

<table>
<thead>
<tr>
<th>Problem</th>
<th>BSR (North-West area)</th>
<th>BSR (Central-East area)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current situation</td>
<td>High transportation capacity</td>
<td>Low transportation capacity</td>
</tr>
<tr>
<td></td>
<td>Pollution-free, but power-consuming transport</td>
<td>Faulty transport</td>
</tr>
<tr>
<td></td>
<td>High density of the transport’s infrastructure (congestion, delays etc.)</td>
<td>Low density of the transport’s infrastructure</td>
</tr>
<tr>
<td></td>
<td>High quality of tracks, ships etc.</td>
<td>Poor quality of tracks, ships etc.</td>
</tr>
<tr>
<td>Tendencies</td>
<td>Growth of the transport services mar-ket, especially air &amp; high-speed ferry</td>
<td>Rapid growth of transport activity</td>
</tr>
<tr>
<td></td>
<td>Implementation of intermodal transport corridors</td>
<td>Expansion of demand for haulage</td>
</tr>
<tr>
<td></td>
<td>Activity outstrips technical potentialities of the transport infrastructure</td>
<td>Degradation of the infrastructure’s technical potentialities, as import’s result of out-of-date technologies and investment reduction</td>
</tr>
<tr>
<td>Predictable consequences</td>
<td>Sales slowdown for transport services</td>
<td>Accretion of demand for haulage</td>
</tr>
<tr>
<td></td>
<td>Exacerbation of a competition</td>
<td>Barriers elimination for the wide spread occurrence of transport corridors</td>
</tr>
<tr>
<td></td>
<td>High innovativeness level</td>
<td>The lowered competitiveness the next 10-15 years</td>
</tr>
<tr>
<td>The offered decisions</td>
<td>Demand’s stimulation on railway, waterborne and public transport service</td>
<td>Stabilization of railway, waterborne and public transport development</td>
</tr>
<tr>
<td></td>
<td>Quality improvement of management by traffic</td>
<td>Improvement of on-line control systems in all modes</td>
</tr>
<tr>
<td></td>
<td>Introduction &amp; implementation of innovative technical decisions, operational schemes &amp; novel technologies</td>
<td>Improvement of transport’s reliability &amp; operation safety</td>
</tr>
</tbody>
</table>


EU’s system SSS is advanced sufficiently (See Table 1). However in Baltic Sea this kind of haulages takes only the third place (17% from total amount). At the same time, SSS haulages in Mediterranean Sea make 34% (662 million t/year), and in Northern Sea of 31% (605 million t/year)⁴. The most active participants of BSR system SSS are Sweden – 21% from total amount of transportations, Germany - 20% from total amount of haulages and

Holland - 13 % from total amount of transportations. Unfortunately other countries practically does not participate in this segment of transport services market. In many respects this fact is connected, that consignors do not accept those segments of the maritime services market at which “...moving time, flexibility and regularity are on a low level, and reliability on an average level...”\(^5\). In the circumstances it is difficult for SSS to raise the its attraction as type of a transport link. Especially it concerns the SSS functioning in logistical chains in the scheme “door-to-door” etc. 

Such conclusion is determined by the following factors:
1. Absence of intercoordinatiion between the separate shipping companies, ports, etc.
2. Small number and clients’ inconstancy of the maritime transport services market.
3. Variability of consignors & passengers preference’s systems, that result in necessity of concentrating companies attention to tactical decisions (to the detriment of strategics).
4. High level of the institutional and economic barriers limiting an opportunity of equal in rights participation on all segments of the transport services market.
5. Absence of spare funds and, as consequence, lack of perspective investment projects.
6. The limited innovative policy of the maritime industry companies.
7. Absence of the advanced transport infrastructure, that excludes an opportunity of effective cargoes delivery to the end - users.

Last decade at clients of the Polish haulage services market the steady requirements set to their quality was formed. Among these requirements it is necessary to allocate: transit time, transit safety, flexibility, regularity, attractive cost level, comfort, consignment etc. If last four parameters maritime transport has significant advantage, then on first four, considerably concedes to other types of transport. We shall consider them more in detail.

The long transit time is considered by the most consignors as the basic demerit of maritime transport. The way out from the circumstances can be in:
- active inclusion of Poland’s maritime transport into intermodal transport network.
- inclusion into Poland’s fleet of the the modern ships adapted to a cargoes overload in mode Ro-Ro, Flo-Flo etc.
- implementation in Poland’s ports of innovative technologies, e.g. the high-speed unloading/loading.

The high transit safety is the basic consignors requirement. It is connected with increase of the transport risk in following parameters of haulage services’ quality: “cargo safety” and

“cargoes delivery regularity”. Chances of Poland’s maritime transport relatively this parameter consist in:
- attention increase to the account of the human factor influence, by strict observance of ISM Code & ISPS Code requirements.
- ships mothballing, which service life-cycles has exceeded 12-15 years.
- implementation and maintenance of the risk-management system for ships’ qualities (e.g. seagoing ability, compatibility, profitability, interoperability, etc.).

The high transit flexibility. In opinion of consignors, maritime transport yields on this parameter, both road transport, and the railway. Chances of Poland’s maritime transport relatively this parameter consist in:
- New strategy’s introduction into rendering of haulage services, e.g., introduction and implementation of the “one-stop shop” principle.
- Use of river/sea ships, having ability to serve along with seaports, and to inland ports.
- Innovations’s introduction which are oriented on an possibility of ships’ universal use.

In the author’s opinion, it is expedient to use two-stage the plan for inclusion of the Polish maritime transport’s potential in the BSR haulage services market.

Stage 1.
Competitiveness’ increase of maritime transport’s infrastructure. It is offered four groups of actions for achievement of this purpose:
a) Functional. They are focused on transport’s “bottlenecks” elimination. By means of:
- pre-port infrastructure development,
- introduction of the device SUW-2000.
- increase of rivers’s throughput, especially routes, adjoining to seaports etc.
b) Technical. They are focused on purchase and installation of highly effective navigation, communication and information systems.
c) Interoperational. They are directed on all-round introduction of technical and operational TEN-T’s standards.
d) Legal. They are focused on:
- harmonization of the European and Polish transport norms.
- updating of the Polish education system on various transport specialities.

Stage 2.
Creation of conditions for competitiveness’ growth of the Polish waterborne transport.
For achievement of this purpose it is offered:
- To follow to complex perfection’s principles for technological links of transport chains.
- To develop and realize projects on introduction of system CCL (Cassette Container Loading) in the Polish ports.
- Diffusion of such automated systems, as AET (Automated Equipment Identification), TrAMS (Transportation Automated Measurement System) & ITS (Intelligent Transportation System).
- To introduce such novel systems of cargoes automatic stacking, e.g. ASPH (Automatic Seaborne Pallet Handling System) & PLS (Palletized Loading System).

Offered actions should promote use of the Poland’s marine fleet on BSR’s haulage service market. On preparation of these actions it is necessary to take into account the following principles:

Principle 1. The all-round analysis of measures expediency.
Principle 2. Strategic planning and co-ordination by transport, loading etc. innovations.
Principle 4. Investments project’s profitability (e.g. min. PBP, max NVP etc.)
Principle 5. Ethical norms’ observance.
Principle 6. Social utility and interests’ observance of consignors, passengers etc.
Principle 7. The state interference moderateness.
Principle 9. Safety and ecological protectability for coastal areas.
Principle 10. Adaptibility to appearance of objective & subjective threatening factors.

Conclusions
1. The BSR transport infrastructure has unique value for economic development of EU-25.
2. Plans’ success of the accelerated development of Poland substantially depends on efficiency of its maritime transport, which future sees in use intermodal transport chains as not replaced link.
3. Full harmonization of intermodal transport chains is restrained because weakly developed of the Poland’s transport infrastructure, having low reliability, flexibility, long transit time.
4. Change of the circumstances demands innovative approaches to efficiency increase of Poland’s maritime transport.
5. At rational use of the funds allocated for maintenance of haulage market services efficiency, it is possible to raise on 50-70 % functional efficiency of maritime transport till 2020, especially, at its use on short and middle routes.

Acknowledgements
This paper was supported by State Committee for Scientific Research, Poland BW-2004.

Documents
7. VASAB 2010: Vision & Strategies around the Baltic Sea Region.

Literature

Żegluga bliskiego zasięgu jako szansa przyspieszenia rozwoju regionów Środkowej i Wschodniej Europy

Streszczenie
Zgodnie z Dyrektywą UE 1692.98 w XXI wieku największą uwagę trzeba poświęcić rozwojowi i konsolidacji europejskich sieci transportowych. Spełnienie tego wymaga 350 miliardów € na inwestycje do 2010 roku. Taki poziom inwestowania pozwoli zwiększyć przepustowość transportową, obniżyć kongestię na drogach, oraz w dużym stopniu zredukować zanieczyszczenie środowiska. Ogólny efekt ekonomiczny związany z rozwojem sieci transportowych ocenia się na 0.23% PKB wspólnoty krajów europejskich rocznie.

W artykule zwrócono uwagę na istotną różnicę w poziomie rozwoju Północne-Zachodniej a Środkowo-Wschodniej części regionu morza Bałtyckiego (RMB). Przedstawiono propozycje skierowane na jej wyeliminowanie. Dotyczą one włączenia potencjału transportu morskiego Polski, w szczególności żeglugi bliskiego zasięgu, do rynku usług transportowych RMB wg dwu- etapowego planu. Pokazano, że sukces tego planu zależy od sprostania szeregow wymogów konsumentów usług rynku transportowego, w tym minimalizacji czasu tranzytu oraz kosztów przewozu ładunków, maksymalizacji bezpieczeństwa podróży, jej komfortu itp. Zaproponowane przedsięwzięcia są szansami dla podwyższenia konkurencyjności transportu Polski co spowoduje przyspieszenie rozwoju Środkowej i Wschodniej części RMB.

Abstract

According to the Communication /EU 1692.98/, from the beginning of XXI centuries the greatest attention should be given to development and consolidation of the European transport networks. Achievement of these goals will demand 350 billion € of investments up to 2010 on various trans-european projects. Such level of investments will allow to increase transport capacity, to reduce congestion on EU’s roads, and also substantially to reduce environmental pollution. Increase stimulation of the GDP’s is estimated by 0.23 % / year.

Existence of distinctions in transport services development of Western and Central- East BSR’s areas is marked in article. Offers on elimination of these contradictions are submitted. In the author’s opinion, it is expedient to use two-stage the plan for inclusion of the Polish maritime transport’s potential, of the Short-Sea Shipping especially, in the BSR transport services market. It is shown, that success of these plans depends on their conformity to requirements of transport market clients, namely to decrease of transit time, to reduce of transportation cost, increases of transport safety, comfort, etc. The offered actions are chances for competitiveness increase of Poland transport, that will lead to acceleration of Central and East BSR’s areas development.