Odra river as an example of waterway for container shipping in the European transportation network

Polish waterways are a part of European inland transportation network. For many countries an access to the inland waterway has been a trigger of economic boom/boost for their neighbour regions. Western European river ports are vital part of the terminals container network. Basically this network consists of terminals that enable transshipping of containers from one mode of transportation to another (e.g. Land, road and trail transportation mode). Currently in Germany, Belgium, Holland, France, Austria and Switzerland operate 55 such a container terminals.

Over the past decades a share of container shipments of processed goods increased and inland ports adapted new handling technology standards to operate more efficiently. Due to this implementation shipping fleets got involved into the transportation chain and new routs of combined transportation have been created. The development of combined transport bringing together road, rail, inland waterway and sea transport generated creation of intermodal container management systems. Most of container terminals are located in economical well developed regions. While in Poland the convenient layout of inland waterways is not fully used/employed.

In Poland 2012, 4,7 mln tons of cargo was shipped by inland waterways, which is 0,3% of the total amount shipped goods. This rate defines Poland at the very last position within all UE countries in terms of inland waterways employment. However Odra River is a natural part of the pan European transport corridor connecting Scandinavia with Northern Italy and the Balkans and running through Poland, Czech and Austria. Both Odra canals: Odra Havel and Odra–Sprawl play an important role in connecting by the inland water Upper and Lower Schlesien to Szczecin and Germany and the Nederland. The Czech and Slovak Authorities initiated a project connecting three main rivers canal: Donau, Odra and Labe. This new canal would offer new transport waterways to transport goods within Poland and to South of Europe. At the moment Odra River is one of the best developed water inland way in Poland, that processes 80% of the local/native water shipments. However the most important part of 187 km (from Kozle to Brzeg Dolny) is really used for the transportation purpose. Although even the indicated main transit distance is splitted by 334km of a distance with limited shipping conditions. The main transit goods

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2 Reviewed paper.
shipped by the river are aggregates (sand and gravel), coal, ore, metals, fertilizers and oversized goods. The inland water container transport does not exist mainly due to lack of investment adopting new transport technologies. Unfortunately Oder River is believed to be out of European Union standards hence not optimal depth level. This view/opinion does not support Polish inland water modernization projects. On the other hand while analyzing and comparing ongoing European transit shipping inland waterways projects and intermodal transport conditions at Odra River it can be noticed that Odra doesn’t differ much from other European rivers in terms of transportation advantages and therefore should not be disqualified for container shipping. Oder river connects 6 big Polish agglomerations that generate processed goods transport needs: Katowice, Opole, Legnica and Głogów, Zielona Gora and Szczecin. According to the results of the survey within next 6 years container shipment will have the greatest share in the intermodal transportation structure. According to the assessment and estimation of the prognosis container goods stream, 4,7 mln ton could be processed in the regions located along Oder river (Dolnoslaskie, Lubuskie, Opolskie, Slaskie, Zachodniopomorskie) Table 1, chart 2.

**Tab. 1. Stream of goods at the Polish areas adjacent to the Oder Waterway**

<table>
<thead>
<tr>
<th>Województwo</th>
<th>Nadano</th>
<th></th>
<th>Przyjęto</th>
<th></th>
<th>Bilans przewozów</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ogółem</td>
<td>do przewozu wew. woj.</td>
<td>do innych woj.</td>
<td>za granicę</td>
<td>ogółem</td>
</tr>
<tr>
<td>Dolnośląskie</td>
<td>99 150</td>
<td>74 608</td>
<td>18 243</td>
<td>6 299</td>
<td>98 776</td>
</tr>
<tr>
<td>Lubuskie</td>
<td>27 563</td>
<td>15 600</td>
<td>7 746</td>
<td>4 217</td>
<td>128 158</td>
</tr>
<tr>
<td>Opolskie</td>
<td>32 876</td>
<td>17 444</td>
<td>13 484</td>
<td>1 948</td>
<td>27 430</td>
</tr>
<tr>
<td>Śląskie</td>
<td>139 426</td>
<td>96 392</td>
<td>35 434</td>
<td>7 602</td>
<td>139 069</td>
</tr>
<tr>
<td>Zachodniopomorskie</td>
<td>49 387</td>
<td>34 785</td>
<td>9 809</td>
<td>4 793</td>
<td>48 935</td>
</tr>
</tbody>
</table>

Source: own work on the basis of GUS, Transport 2012.

According to the above chart given by GUS the structure of container transport is 18,3% and the volume of 156,8 mln tons. The current 3 % share of Polish intermodal transportation is very small however in the regions located along Oder river this amount may result in 4,7 mln tons.

The main feature of inland waterway transport is its low unit cost. The freight cost on the Oder river could be 1,4–1,6 times smaller than freight to be paid by the current road transport (even if calculated with only one level of container at the barge). For example despatch cost of one 20” (feet) container from Wroclaw to Swinoujscie (417 km) is about 865 PLN while the same despatch costs by trail 1407 PLN [2].

The inland intermodal transportation is not only advantageous for entrepreneurs but also for the country. According to the paper “Polish transport policy 2006-2025” published by the Infrastructure Ministry, Warsaw 2005 “the more sustainable transport can be reached upon implementation of techniques of intermodal transportation, connecting rail, sea and inland water ways to the current transport network”. There are a lot of pros of combined transport, for the country one of the main advantages is alleviation of heavily-jammed and dangerous roads and development of more environmental friendly transportation system. In order to address this policy the implementation of low-energy-consuming transport branches is vital.
However in order to adopt Oder river to new transport challenges of combined transport several conditions should be fulfilled:

- Launching of new transport routes and its intensive promotion (the complex freight offer),
- Calculation of the competitive freight price,
- Upgrading of the existing transportation infrastructure.

The activation of Oder Water Way needs a systematic approach. Promotion of a new transportation model seems to be a priority. This model should be economy-based and operate using the most effective transport solutions while shipping large amounts of goods.

The win-win situation and a continuous need of investition into new technologies should be stressed when presenting the idea to the ship-owners and inland water port authorities. In the long term the competitiveness of enterprises would improve and this could result in the more strengthen branch. Moreover this approach is supported by the EU transportation strategy. The paper “A Strategy for smart, sustainable and inclusive growth” launched by the European Union 17 June 2010 recommend actions to be implemented by the member states to face future economy and transport challenges.

According to the document the economy should be developed based on knowledge and innovation (smart growth), as well as more on resource efficient, greener and competitiveness (sustainable growth) and fostering a high employment economy delivering social and territorial cohesion (inclusive growth). As transportation as a branch consumes 32% energy (mainly from fossil fuels) and is placed at the second position to address energy effectiveness. Poland developed its own national Strategy Development knows as “National Reform Program Europe 2020 (KPR). This document addresses correlation of national reforms to EU preferences and proposes guidelines for the government while creating framework for the effective economy and among others implementation of combined transportation in Poland [1].

Oder river runs through regions with great transportation needs, therefore it is highly recommended to adopt inland shipping ways to process in future container combined goods especially in light of the increasing share of the transportation structure. In order to move more goods from roads to water ways assessment and implementation of intermodal transportation concepts is needed. The closer approach of economy and ecology the better the chance to implement Europe 2020 policies.

Abstract

Despite the convenient system of waterways, the advantages of this branch of transport are scarcely used in Poland. As the share of goods transported in containers rose in the world, inland waterways in Western Europe were adapted to those new circumstances by changing the technology of transport so that it would allow shipping to participate in servicing new freight and new transport destinations. The development and implementation of intermodal concepts of transport opens for inland navigation the possibility to increase their share in transport. ODW [Oder Waterway], which runs through economic regions of great transport needs, is especially predestined to adapt to inland navigation by the development of combined transport of goods in containers.

REFERENCES