TRANSPORT INFRASTRUCTURE DEVELOPMENT FOR A WIDER EUROPE

SEMINAR

PARIS
27-28 NOVEMBER 2003

SESSION 1 – PLANNING INFRASTRUCTURE DEVELOPMENT

CONTRIBUTION

“THE ROLE OF INLAND WATERWAYS IN THE PROCESS OF THE ENLARGEMENT OF THE EU”

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Introduction

Transport infrastructure plays an important role in economic growth. It may stimulate both social and economic development as well as integration processes. Development of the infrastructure itself may contribute to:

- resolving various social and economic problems such as unemployment;
- reducing the disproportion in the development levels of various regions through faster growth of underdeveloped areas;
- accelerating growth of construction materials industry through creating long-term demand for such goods;
- reducing external costs of transport through:
  - creating environmentally friendly modal structure of transport system,
  - reducing congestion,
  - increasing safety through adjusting infrastructure to modern standards and density of traffic (ensuring smooth traffic flow, additional lanes, proper quality of road surface, etc.);
- stimulating co-operation of border regions (e.g. creating Euro-regions, which play an important role in international economic co-operation and help reduce economic and social differences, as well as overcoming prejudice and various barriers);
- building foundations for international economic integration through:
  - creating convenient international transport links leading to an increase in goods exchange,
  - eliminating hindrances on border crossing points, hence facilitating free cross-border flow of people and goods.

In view of the role played by infrastructure in social and economic development as well as in economic integration of regions through leveling out differences in their development, the EU countries support infrastructure development and make efforts to reduce differences in infrastructure levels and to eliminate bottlenecks, as well as creating new connections and environmentally friendly structure of modal split.

The integration of new member states with the EU will lead to tighter social and economic relations between new and old EU members as various barriers on border crossings will be removed. Consequently, cargo and passenger transport will intensify between those countries, which will necessitate faster progress in developing an effective European transport system through adjusting its infrastructure to new demands and standards. Countries aspiring to join the EU have to follow the developments in transport systems of the EU countries and to actively participate in developing an adequate transport infrastructure. What role should be played in the process by waterways infrastructure? Observation of problems encountered
in European transport as well as trends prevailing in the European transport policy let us assume that the role of inland waterways will be quite significant.

Main factors in the development of inland waterways infrastructure

The main dilemmas to be resolved in the European transport policy are:

- combining sustainable and balanced growth with an increasingly destructive impact of transport upon the environment, which is connected especially with excessive increase in road transport,
- finding a solution to the problem of traffic congestion, bearing in mind that
  - on the one hand, infrastructure development is limited by various geographical factors, but
  - on the other hand, globalization and economic integration processes lead to growing demand for cargo and passenger transport (resulting from higher standard of living, development of tourism, changes in housing patterns, etc.),
- ensuring accessibility and overcoming the problem of numerous bottlenecks in the trans-European transport network (eliminating those problems is particularly difficult due to lack of adequate financial resources).

Development of inland and coastal navigation could solve many of the above-presented problems.

In the EU countries, development of pro-ecological transport systems very often includes inland navigation. It is an environmentally friendly mode of transport because of:

- relatively low consumption of energy,
- low emission of air pollutants,
- low external costs,
- capacity to take over some part of road transport loads, hence reducing congestion on motorways.

In inland navigation, 1 liter of fuel allows to carry 127 tons of cargo on a distance of 1 km, whereas road or rail transport means would carry only 50 and 97 tons of cargo respectively. Low energy consumption results in much lower emission of air pollutants in inland navigation as compared to road transport.

Inland navigation could take over part of road transport loads and consequently reduce congestion on motorways, especially in very busy areas of seaports hinterland, as there is often no free area to develop adequate infrastructure for other modes of transport. The capacity of waterways is very often not fully exploited.

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The bulk character and large carriage capacity of inland navigation allow to serve even the biggest sea vessels. One big river vessel or a push barge set can replace even a few hundred trucks. Smaller vessels used on local waterways may replace a few dozen trucks each. As a result, they can considerably alleviate the problem of congestion and road accidents.

Inland navigation can also help solve some problems of limited accessibility connected with bottlenecks and lack of connections in the trans-European transport system. As it was mentioned above, those problems cannot be solved through development of road or rail transport because of insufficient financial resources or unfavorable geographical conditions.

Although inland waterways network is considerably shorter and less dense than networks of other modes of transport, the majority of highly developed European areas are located close to waterways.

Coastal navigation may markedly increase access to those areas without crossing areas which are particularly difficult such as the Alps. (Fig.1)

Fig.1. Accessibility by water
Source: INE Europe 2003

However, the development of inland navigation has encountered a barrier of unfavorable changes in demand for transport.

Changes in style and organization of living lead to changes in preferences with regard to industrial production. Consequently, they also influence demand for transport services.
The industrial production and trade exchange between most developed countries, including the European Union, concentrates more and more on highly processed or semi-processed products. The share of bulk products is constantly decreasing. Another important element influencing the structure of cargo transport market is the dynamically changing services sector. The dispersion characterizing this sector results in a greater demand for small consignment carriages.

Removal of trade barriers and transfer of new technologies have substantially increased access to many products of similar quality. Consequently, the average carriage distance has decreased. At present, the average carriage distance in land transport (rail, road, inland navigation, pipeline) in EU countries is 120 km.\(^2\)

The developments mentioned above have also led to more demanding requirements with regard to quality of transport services. With very tough competition on the market, the manufacturer can gain competitive advantage through delivering his products to the right place, in the right time and in the right condition.

The above-presented changes in the demand for cargo transport carriages have favorably contributed to the development of road transport.

What factors will influence the demand for cargo transport in the EU in the future? The present tendencies will most probably continue with respect to:

- changes in the type of stock carried (an increase in the share of processed goods and diminishing demand for transport of bulk loads),
- development of the services sector (further dispersion of transport services),
- more demanding requirements with regard to the quality of transport services leading to:
  - development of logistics services,
  - development of distribution centers/depots,
  - longer carriage distances,
  - growing demand for professional forwarding and transport services.

The future changes will affect:

- transport relations – more trade connections between the EU countries and the CEE countries, especially the new member states,
- terms and conditions offered by various modes of transport – due to implementing the European transport policy (supporting environmentally friendly modes, internalizing external costs of transport, deregulating the transport market).

The prospects for inland navigation are relatively optimistic in terms of carriage distance. However, it is crucial that adequate infrastructure conditions should be developed, which means new inland waterway connections with the CEE area.

Development of waterways infrastructure - key challenges

If inland navigation is to retain its position on the transport services market, it is necessary to adjust it to new conditions on this market. First of all, new technologies are required to enable inland navigation to carry new types of cargo and to operate on new connection routes. It should also strengthen its position on its traditional markets. The necessary developments include:

- development of combined transport,
- including inland navigation in the sea short shipping,
- development of sea-river transport connections.

As inland navigation can help to alleviate some fundamental issues encountered in the development of European transport, this mode is more and more often supported in the EU countries.

The future development of inland navigation depends crucially upon implementing the policy of creating:

- an integrated European network of waterways of international AGN status,
- a network of waterways for combined transport,
- logistics centers in river ports and sea-river ports.

Thus, eliminating bottlenecks and developing new connections may ensure stable growth of inland navigation. Investments into waterways, such as the Waterway Cross Magdeburg (Fig.2), which is to be completed in 2003, or connecting Berlin with the Oder, should make it possible to vastly increase carriages on the modernized waterways (e.g. on the Elbe-Havel Canal from 4m tons in 1995 to 19m tons in 2010, and on the Mittellandkanal from 6m tons to 33m tons in the same period.\(^3\)

Consistent environmentally friendly transport policy of the EU countries is now proving successful. Supporting the development of inland navigation has let it enter new markets such as transport of containers and smalls.

Despite unfavorable demand-side changes in the types of cargo and average carriage distance, many countries have managed not only to retain the position of inland navigation on their transport markets, but often also to stimulate marked growth of this mode. Especially, the development of combined transport has surpassed any expectations or forecasts.

In 2001, the number of containers carried by inland navigation serving the Antwerp port equaled that forecast for 2010. In the Rotterdam port it was even higher (Fig.3).
In 2001, inland navigation carriages grew by 13\%, and the share of inland navigation was quite substantial in areas accessible through waterways:

- the Netherlands - 42\%
- Belgium – 12\%
- Germany – 14\%
- France, in the area of waterways - 15-20\%
- Austria, in the area of waterways - 18.5\% \(^4\)

In Germany the share of inland navigation achieved in 2001 was equal to that forecast for 2010. New forecasts predict that by 2010 container transport by inland navigation should have increased by 40\%.

Another mode of transport which may replace road transport in some areas is sea short shipping. On the European market this mode may have competitive advantage over land transport. Hence, connections eliminating bottlenecks (e.g. in the Alps and the Pyrenees) should be incorporated into the trans-European network, similarly to railroad and highway connections. Even today sea short shipping accounts for 40\% of carriages within the EU. It increased its share of cargo carriages by 27\% in 1990-1998. (The only other mode which increased its share in that period was road transport.) \(^5\)

The idea of developing motorways of the sea assumes the development of sea carriages combined with inland navigation. In the enlarged EU there will be 12 countries in which transport carried by sea and inland navigation could grow. The total cargo carried by those modes could amount to 425m tons yearly. \(^6\)

\(^4\) INE Europe 2003  
\(^5\) 2003White Paper..., s.41-42  
\(^6\) Ibidem, s.42
The development of such carriages would be financially supported by the Marco Polo Program and Structural Funds.

However, a growth in importance of inland navigation in Europe depends directly on active participation of the CEE countries in the process of developing environmentally friendly technologies of transport. It refers mainly to developing the infrastructure of inland waterways and setting up logistics centers in river ports.
Polish inland waterways should play an important role in the process as they constitute a central element in the AGN. (Fig.4) However, it is necessary to radically transform Polish transport policy and to appreciate the importance of inland navigation.  

So far, the development of the inland waterways infrastructure in Poland is far too slow. There is no clear idea or detailed plan how to develop this transport mode and its infrastructure. Although the program for modernizing the Oder till 2006 has finally been approved, the scope of the modernization is very limited. In the first stage the waterway is to achieve parameters of 3rd class, whereas main waterways in the EU are already in 4th or 5th class. The Oder waterway could integrate West European network of waterways with the system of waterways in the basin of the Danube and other waterways in Eastern Europe.

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