



## CONDITIONS DETERMINING THE DEVELOPMENT OF POLISH LOGISTICS NETWORK

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**ABSTRACT.** The concept of building a Polish network of logistics centres developed as part of the commissioned research project no. PZB-023-13 [1998-1999] is not implemented. The development of logistics infrastructure, uncoordinated in any way and without logistics centres as main nodal points, leads to the emergence of a national logistics network that only offers minimum opportunities for the expansion of intermodal transport. Therefore, the current concept requires modifications that would take into account the status quo development of the logistics suprastructure in Poland and the possibilities of promoting its development focused on increased intermodality. The article below explores the needs and possibilities of change.

**Key words:** logistics network, logistics centre, logistics park, container terminal, intermodality

### INTRODUCTION

Topics discussed at the latest Logistics Congress in 2004 prompted me to explore anew the issue of building logistics centres in Poland. Other sources of inspiration were my observations from visits to German, Austrian and Hungarian logistics centres, as well as frequent conversations with representatives of research, business and administration circles specialising in the topic. The main objective of this article is to provoke a discussion on the model of development of logistics networks and the unresolved issue of building national logistics centres in Poland. This is still a topical issue. A number of initiatives, including new ones, taken by private investors, give rise to a debate on a direction that ought to be taken with regard to the development of the Polish logistics network and the incorporation of logistics centres within that development. Yet another question that should be explored concerns the utilization of emerging initiatives that call not only for budgetary funds, as it used to be in the past, but also require clear and stable external conditions that would warrant a relatively safe investment of own financial resources.

### THE PROCESS OF SHAPING THE NATIONAL LOGISTICS NETWORK

Based on the definition of a logistics network proposed by J. Witkowski [2000], I have adopted the following definition for the purpose of this paper:

*A logistics network is a logistics suprastructure located in a specific area, mutually interconnected through transport infrastructure and independent enterprises that use it by means of organisational*

*and technical solutions, competing and cooperating in order to improve the efficiency and effectiveness of the flow of products and accompanying information, in accordance with the customers' expectations.*

Observations show that the Polish logistics network comes into being as a result of uncoordinated parallel actions taken by public administration and state institutions involved in the construction and modernisation of mostly linear transport infrastructure (roads, motorways and modernisation of selected railways) and actions undertaken by private investors building elements of point infrastructure (warehouse facilities, forwarding terminals and logistics parks) necessary for the achievement of business objectives of companies related to one another through cooperation within delivery chains. From the point of view of investors, this is the most effective location for point infrastructure in a logistics network configured in this way. In a long-term perspective, however, the situation may change, mostly in consequence of external factors that may affect the economic basis of transport, including intermodal transport. In the circumstances, in a period when the Polish logistics network is taking shape, greater attention should be paid to the need of ensuring a specific degree of intermodality, an issue of great significance also in view of the fact that in today's open markets and progressing economic globalisation, logistics networks in different countries should be well integrated and be free from barriers and bottlenecks impeding the flow of goods.

## **PRESENT-DAY IMPLEMENTATION STATUS OF THE CONCEPT OF BUILDING NATIONAL LOGISTICS CENTRES**

Due to the lack of decisions concerning the development of a national network of logistics centres, there is a need to work out a different solution that would increase the intermodality of goods transport in logistics networks. Growing political problems in oil-bearing regions and the ensuing rising oil prices may - sooner than expected - provide arguments in favour of reducing the volume of goods transport by road. Furthermore, such problems are also likely to support other actions aimed at road transport reduction, so far based mostly on ecological claims and growing congestion.

Let me remind that so far the emphasis was on the need to implement a programme of building logistics centres that would make use of locations indicated for main national logistics centres, based on the results of the research project no. PZB-023-13, which was commissioned to find out such locations [Mindur 2000, Fechner 2004]. Logistics centres were supposed to:

- function as nodal points for the national intermodal logistics network,
- make it possible to create multidirectional intermodal junctions with logistics centres located outside Poland,
- stimulate an increase of goods transport by rail and inland waterways,
- promote economic development in their direct surroundings and mitigate the consequences for local communities.

We know now that the objectives listed above, rational as they are, will not be achieved. The development of the logistics suprastructure in Poland followed a different route, based on the utilization of local opportunities and potential by logistics operators, which led to an emergence of informal logistics centres (logistics parks), characterised mostly by a single-branch transport structure based on road transport. The concentration of warehouse facilities in a number of cases corresponds to locations indicated by the authors of the above-mentioned research project, however a closer look also reveals a number of disparities, e.g.:

- some of the locations are far from rail infrastructure and rivers,
- buildings are scattered over a considerable area, often not even within a city, but within a municipality.

The situation outlined above favours road transport and no claims that this transport type does not incur full costs of functioning and is, therefore, more competitive than other transport branches, will

change anything. The geopolitical situation briefly sketched above demonstrates a potential instability and high sensitivity of the costs of transport to the prices of oil-based fuels, a factor affecting road transport with particular severity. Advocates of intermodal transport thus have another strong argument in their struggle to increase the share in transport.

## **POSSIBILITIES OF SHAPING THE LOGISTICS NETWORK IN ACCORDANCE WITH ITS INTERMODALITY NEEDS**

We are now facing a situation in which the national logistics network model realised so far must be assessed as failing to reflect the initially set target to a full extent. Therefore, actions must be taken with regard to the concept of realisation of national logistics centres. Firstly, the idea of a creation of a national network of logistics centres must be reviewed and the concept needs to be modified both in terms of the number and the location of different links in the planned chain. Secondly, experience gained from the functioning of existing logistics centres and pro-development actions taken by them must be taken into consideration.

Overall, the verified concept should take into account the factors listed below:

- directions of development for goods transport and types of goods transport preferred under the EU transport policy,
- rationality of actions, including aspects listed below:
  - existing potential of intermodal transport and experience gained by intermodal operators,
  - areas of logistics suprastructure concentration,
  - grassroots initiatives concerning construction of logistics centres,
  - possibility of using public resources in investments of this type,
- possibilities of public and private partnership and programmes that offer funds for individual elements of the EU common policy.

In particular, the plans existing so far for building the national logistics network, assuming the establishment of 6 to 9 logistics centres, must be verified and assessed as unrealistic, for state administration is persistently uninterested in the problem, the condition of public finances is poor and changes have taken place to the surroundings of previously indicated locations. In the circumstances, the programme of building logistics centres should be replaced by a new scheme assuming the development of a national logistics network that will not focus on a narrow problem of logistics centres, but will take into account other needs and possibilities of the provision of logistics services within the framework of integration of this activity coordinated by 4PL operators.

A programme of this type has several advantages listed below:

- it may flexibly affect the development of various elements of both linear and point infrastructure, as well as suprastructure, which will facilitate the implementation of logistics processes, and thus support more effectively other types of business activity,
- through the development of other elements of network infrastructure, it may help logistics centres to take off and be an incentive for private companies to build them (a good example here is BILK, a container terminal and logistics centre located near Budapest, built by a consortium with a major share of private capital),
- it entails a lower risk of failure, since transport infrastructure will be used one way or another,
- it allows for an integration with the national logistics network of these areas of logistics activity that have already been established or are being established in isolation from the existing trans-European intermodal transport corridors.

The scheme should focus on three main goals:

1. Transfer of shipments from road transport into rail and water transport.
2. Contribution to an increase of local demand for logistics services.
3. Support of real investment undertakings - logistics centres in Gliwice and Konin existing in their initial phase of development in the form of commercial companies and other, more or less advanced initiatives (Szczecin, Sławków, Pomerania Province).

Within the general framework of the goals listed above, various tasks ought to be implemented. For example:

As for goal number 1: **Transfer of shipments from road transport into rail and water transport:**

- Modernisation of existing rail container terminals that meet current location criteria and construction of new terminals in locations characterised by a large demand for logistics services (areas of existing logistics parks) - **a task for forwarding companies and logistics firms,**
- Legislative and financial support of combined transport - **a task for state administration,**
- Building and modernisation of a network of access roads with high traffic capacity around container terminals, according to the needs of delivery transport - **a task for local and regional authorities,**
- Expansion and modernisation of rail infrastructure between container terminals - **a task for rail infrastructure administrators,**
- Organisation of permanent international intermodal connections between container terminals - **a task for forwarding companies and logistics firms,**
- Restoration of navigability of the Oder and its tributaries; renovation of wharfs and infrastructure in ports and inland harbours (in realistic, i.e. limited scope and in a long-term perspective) - **a task for state administration and logistics operators,**
- Development of joint products in order to eliminate barriers to intermodal transport and streamline the flow of shipping units (e.g. to unify procedures, transport tariffs, rates for cargo handling, transport, delivery to and from the terminal, create unified electronic cargo documents, accelerate customs clearance procedures, ensure cargo security and monitor shipment status, etc.) - **a task for forwarding companies, logistics operators and state administration,**
- International harmonisation of actions aimed at promoting intermodal transport - **a task for state administration, forwarding companies and logistics operators, as well as business organisations.**

As for goal number 2: **Contribution to an increase of local demand for logistics services:**

- Establishment of industrial zones and conditions favourable for their settlement (development of infrastructure, allocation of land for investments, stabilisation of conditions for conducting business activity, promotion, local pro-investment policy) - **a task for local authorities and state administration,**
- Renouncement of the idea of building logistics centres in locations characterised by a concentration of logistics suprastructure in favour of the idea of supplementing the existing transport infrastructure with intermodal elements - **in view of the fact that there is, as yet, no concrete scheme to this end, the task is addressed to many entities.**

As for goal number 3: **Support of real investment undertakings:**

- Reduction of quantitative plans concerning the establishment of logistics centres - **a task for interested academic centres, institutions and initiators of building logistics centres,**

- Public financial support of two existing logistics centres and advanced grassroots initiatives that are well accommodated within the location concept developed as part of the commissioned research project using competence and potential of logistics operators in charge of rail infrastructure, rolling stock and land available for the construction of buildings - **a task for state administration, initiators - including local authorities and investors, academic centres and business environment institutions.**

## **SUMMARY**

The attempts to build logistics centres in Poland undertaken so far have mostly been based on models implemented by Western European states. It is still useful to watch closely and use the wealth of experience accumulated there, particularly in view of the fact that even Western European states, which have considerable achievements in building logistics centres, are introducing changes to the schemes that are already under way. A new interesting example can be logistics centres scattered over several locations within one city or sub-region that are now under construction in the eastern regions of Germany (Dresden, Glauchau). For some time now, a number of Eastern European countries whose political and economic origins are similar to Poland's, have been coping increasingly well with the problem of logistics centres, implementing special schemes to this end. A good example is that of Hungary and the Czech Republic, with emphasis on the concentration of economic activity creating demand for logistics services through a development of industrial zones built with a major share of public resources.

There is a danger that if the passive attitude of decision-making authorities is maintained, the Polish logistics network will assume a configuration different from the majority of European countries, which may result in a reduced effectiveness and thus lower competitiveness of logistics processes carried out within this framework.

## **REFERENCES**

- Commissioned research project no PZB-023-13 1998-1999 entitled "Koncepcja lokalizacji centrów logistycznych w Polsce" [The Concept of Location of Logistics Centres in Poland]. Supervised by prof. zw. dr hab. Maciej Krzyżanowski.
- Fechner I., 2004, Centra logistyczne. Cel - Realizacja - Przyszłość, Biblioteka Logistyka, Poznań.
- Mindur L. (red.), 2000, Metodyka lokalizacji i kształtowania centrów logistycznych w Polsce, Kolejowa Oficyna Wydawnicza, Warszawa.
- Witkowski J., 2003, Zarządzanie łańcuchem dostaw, PWE, Warszawa.

## **UWARUNKOWANIA ROZWOJU KRAJOWEJ SIECI LOGISTYCZNEJ**

**STRESZCZENIE.** Koncepcja budowy krajowej sieci centrów logistycznych opracowana w ramach zamawianego projektu badawczego nr PZB-023-13 [1998-1999] nie jest realizowana. Nieskoordynowany w żaden sposób rozwój infrastruktury logistycznej pozbawionej centrów logistycznych jako głównych punktów węzłowych prowadzi do takiego kształtowania się krajowej sieci logistycznej, która w minimalnym stopniu tworzy możliwości rozwoju przewozów intermodalnych. Dlatego dotychczasowa koncepcja wymaga weryfikacji, która uwzględni aktualny stan rozwoju suprastruktury logistycznej w Polsce oraz możliwości oddziaływania na jej rozwój ukierunkowany na wzrost intermodalności. Artykuł prezentuje potrzeby i możliwości zmian.

**Słowa kluczowe:** sieć logistyczna, centrum logistyczne, park logistyczny, terminal kontenerowy, intermodalność

## **WELCHE BEDINGUNGEN BESTIMMEN DIE BILDUNG VON LOGISTISCHEN NETZWERKEN IN POLEN?**

**ZUSAMMENFASSUNG.** Das Konzept zur Bildung eines Polnischen Netzwerkes von Logistikzentren entwickelte aus dem in Auftrag gegebenen Forschungsprojekt PZB-023-13 [1998-1999], wurde aber als solches noch nicht umgesetzt. Die Entwicklung einer logistischen Infrastruktur, die unkoordiniert ist und ohne Logistikzentren als Zentrum auskommen muss, führt zum Entstehen eines nationalen Logistiknetzwerkes, das nur minimale Möglichkeiten zur Erweiterung im internationalen Transport hat. Darum benötigt das bisherige Konzept Modifikationen, die den Status Quo der Entwicklung der logistischen Gesamtstruktur in Polen entsprechen und die Möglichkeiten zur Förderung der konzentrierten Entwicklung auf die steigende Intermodalität miteinbeziehen. Dieser Artikel beschreibt den Bedarf nach Veränderung und dessen Chancen.

**Codewörter:** Logistiknetzwerk, Logistikzentrum, Logistikpark, Containerterminal, Intermodalität

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