SIGNIFICANCE OF LOGISTICS CENTRES FOR DEVELOPMENT OF INTERMODAL TRANSPORT SERVICES IN LITHUANIA

***Ieva Meidutė*[1], *Aidas Vasilis Vasiliauskas*[2]**

Vilnius Gediminas Technical University
Plytines Str. 27, Vilnius, LT-10105, Lithuania
Ph.: (+370)-52745076.
[1]E-mail: jevame@ti.vtu.lt [2]E-mail:aidasv@ti.vtu.lt

Nowadays, when market competition and tendencies of globalisation prevails, the concept of integrated logistics emerged. This concept is based on the consolidation of various actors involved in the system of goods delivery, in order to assure continuous goods flows from their origin to consumption places.
The same goal is expressed in the definition of intermodal transport. However, intermodal chains cannot be implemented without establishment of proper terminals that make possible coupling of different transport modes into single transportation chain.
This article examines significance of logistics centres operating on intermodal base in order to assure implementation of intermodal services on the territory of Lithuania.

Keywords*: logistics centres, intermodal transport, multimodal networks*

1. INTRODUCTION

After restoring the Independence in 1990, Lithuania and the other Baltic States undertook independent management of their transport systems, which soon started functioning according to the market economy laws. This conversion was not easy due to the absence of a clear development strategy of the sector, the lack of staff qualification, technical means and qualitative infrastructure. However, positive changes occurred quite soon. The process was determined by the favourable geographic location of the region bestowing the Baltic States an advantageous role of transit area. The transport and transit development strategy formulated in 1994 and specified later in 2002 and 2004 provides a number of measures enabling the establishment of a well-balanced, sustainable and interoperability-based transport system [5].

Regarding the fact that a rapid economic growth is envisaged in the future as well, it is very likely that the intensity of road transport traffic will be increasing respectively. Thus, on the main roads of the country may occur a situation analogous to that of the EU Member States old-timers, i.e.: a congested road network (with all negative aspects caused by it) and insufficiently used railway transport capacities.

To avoid this situation the most suitable measure should be the use of experience of the EU, the present transport policy of which is focused on the sustainability of transport system, i.e. the shifting of transport modes as well as their integration into a single transport chain thus enabling interoperability of transport modes, which is in fact the basis for intermodal transport [6].

2. CURRENT STATE OF INTERMODAL SERVICES IN LITHUANIA

Intermodality is a characterization of a transport system that allows at least two different modes to be used in an integrated manner in a door-to-door transport chain.

The European Commission's characterization of intermodal transport goes beyond earlier definitions that have been put forward by several institutions, such as the European Conference of Ministers of Transport (ECMT), defining intermodal transport as follows:

The movement of goods in one and the same loading unit or road vehicle, which uses successively two or more modes of transport without handling the goods themselves in changing modes.

On the basis of outcomes of the special studies the following main issues on the intermodal transport development in Lithuania can be concluded:

- the market share of intermodal freight transport in railway in very small and amounted to 1,1-1,2 %. The share of intermodal transport units (ITU) transporting by short sea shipping is more higher and amounts to 30 %;
- international transport is carried out along the I (mainly by roads) and IX B and D Pan-European Transport Corridors, as well as using short sea shipping lines;
- as far as the structure of ITU concerned , the transportation of containers with shares of 85 % an has the dominant position. The shares of swap bodies and semi–trailers amounted to 15 %.

Also the research proved that conditions for the development of intermodal road-rail transport in Lithuania are not so favourable. It is first of all related to the particularities of the railway network. The density of road network is much more extensive than that of railways. Furthermore, the configuration of railway network is not optimal: the main centres of goods attraction and generation are much easier and quicker accessible by road than by railway transport.

Another problem of railways lies in the difference of railway gauge from that of the EU. All this aggravates significantly the interoperability of the railway network of these countries with the network of the EU countries.

The same may be said about the condition of intermodal terminals and their capacity to ensure the interaction of separate transport modes.

Present situation of these terminals can be characterised in the following way:

- in terminals it is possible to load (not all) ITU only by vertical loading technology;
- a railway terminal can not operate as an independent unit, as it is a component of a usual railway station;
- the length of approach roads in the crane operation area does not allow the coupling of the whole train, therefore additional manoeuvring is required;
- standards of technical ITU handling equipment are too low for cost effective handling activities [1].

However the greatest shortcoming lies in the lack of political measures necessary for the development of intermodality. After 1st of May, 2004 all the directives and regulations related to promotion of intermodality in the EU came into force in the Baltic States as well. Regretfully, as far as now, one may draw the following conclusions: Lithuania envisages the development of intermodal transport as a priority task of the national transport policy, meantime however:

- there is no financing support for the development of CT activities;
- there are no discounts and exemptions for carriers combining road and rail or water transport;
- there are no other means of CT development and support.

Therefore the danger occurs that due to the lack of a general measures; implementation of intermodal services on the territory of Lithuania could be indeed problematic. However, some promising tendencies in regard to the development of intermodality can be seen anyway. And though these positive impacts are not directly linked to intermodality as such, they should be considered anyway. It is strongly believed, that current activities performed in order to develop logistics centres (LC) can also have favourable impact on the further development of intermodal services.

3. CONCEPT AND FUNCTIONS OF LC

A number of basic concepts of LC are well known all over Europe. Differences exist not only in names, but also in concept of detailed solutions. Variations in the definition of the terms are partly due to evolution process and new types of centres that have been developed in recent years. Such a variation is a result of the fact that LC is very difficult to define. So here should be noted, that creation of an overall definition of LC is very problematic.

From functional point of view LC is simply defined as concentration point of logistics flows (or node that concentrates traffic flows). Also it can be defined as a defined area within which all activities related to transport, logistics and distribution are carried out by various number of operators and companies on commercial basis.

LC is an organization of a business unit rendering logistics services and having the following:

a) specific infrastructure;
b) technological equipment for handling and storing cargoes;
c) operational personnel.

Services provided by LC depend on the predominant function, size and range of operation of the LC. According to these criteria, LC can be divided into:

a) International Logistics Distribution Centres, which are characterized by:
- operating range of 500-800 km;
- area of 100-150 ha;
- fully developed infrastructure, IT system and full scope of logistics services.

b) Regional Logistics Distribution Centres, those are intermediate link in the logistics channels, and fulfilling regional distribution service tasks. They are characterized by following features:
- operating range of 50-80 km;
- area of 20-50 ha;
- well developed logistics infrastructure;
- selected logistics services.

c) Local Logistics Distribution Centres, those in most cases are end links of a distribution network. They are characterized:
- operating range of 5-8 km;
- area of 2-10 ha;
- limited logistics infrastructure;
- limited scope of logistics services.

As we can see from the provided above definitions, in every case functional structure of the LC is a set of its handling and storage facilities for specific type of cargo and vehicles (simply saying – all its resources used for the required cargo and vehicle operations).

However it must be noted, that storage function is not the most important in the LC. Of much greater importance is a matter of assurance of fast flow of cargo through the LC, as it is an integral part of a modern distribution system. The present time world tendencies indicate intensification of raw materials and finished products flows. This intensification requires seeking new organizational and technical solutions that would guarantee effective fulfilling of customers transport needs.

So in fact LC functional structure has 3 basic organizational and functional spheres:
- intermodal transport system;
- multi-functional logistics service system;
- integrated telecommunication system [1-3].

As we can see, development of proper LC's storage area handling equipment, operating software and labour force and transport facilities could bring sufficient logistics costs reduction. On the other hand it is not quite clear how all these features can impact development of intermodality. The following section is devoted to bring some light on this issue.

4. AFFECT OF LC ON DEVELOPMENT OF INTERMODAL SERVICES

Intermodal carriages foresee close cooperation and integration between all the actors involved into transportation chain, development of infrastructure capacities and establishment of information chains supporting the movement of goods.

The main element of transport infrastructure in the case of intermodal carriages is intermodal terminals. They often are situated in the main transport nodes, and provide the costumers with the storing and warehousing facilities for all types of intermodal loading units.

Assumption can be made that transportation of goods in case of intermodal transport is carried out through the network of intermodal terminals, where consolidation and transhipment of intermodal loading units from one transport mode to another take place.

However, during the implementation and development of intermodal services some additional operations related to transhipment of goods from one transport mode to another appears. Of course, these additional operations stipulate additional costs that in turn could increase overall costs of transportation chain. In this case attractiveness of intermodal carriages could significantly decrease.

In order to avoid such a situation additional resources are required. Providers of additional services (i.e. third part logistics) are recognized due to these resources. According to the sense of logistics these actors have to provide their services at the right time and right place. This means that such services providers have to be found in (or near) intermodal terminals every time customers require their services. This allows assuming that intermodal terminal as a core infrastructure element should be surrounded by companies providing different logistics services. Simply saying ordinary intermodal

terminal becomes logistics centre, where conventional transport terminal operations such as transhipment and storing are supplemented with the full set of additional logistics services provided on the commercial base. Such LC assures coordination of performance of different transport modes and integrates all the modes and actors providing transport related services into single transportation systems functioning on the multimodal base. This could be reached because of ability of terminals to assure:

- collaboration between different parts of logistics chains on the basis of coordinated time table;
- concentration of cargo flows and related services in certain nodes;
- better exploitation of existing infrastructure capacities and handling equipment [4].

Hence a conclusion can be made, that in order to assure high quality transport services along the main transport corridors crossing territory of Lithuania, in line with the improvement of quality of the road standards, establishment of intermodal terminals (or logistics centres in wider sense) is a primary objective. Only in this case transportation service together with additional logistics services could create total set of high quality services that in turn will attract more transport and assure attractiveness of the whole Lithuanian transport system.

5. ACTIONS TOWARD LC DEVELOPMENT IN LITHUANIA

As it is well known, Europe faces new objectives for transport development, such as restoring the balance between the modes of transport and developing intermodality, combating congestion, putting safety and quality of services on the top of efforts of transport companies as well as public institutions. The task "turning intermodality into reality" is one of the basic issues and one of the main measures of development of common transport policy presented in the White Paper. The priorities must be given to ensure complete integration of the different transport modes, as well as the technical harmonisation and interoperability between infrastructure and operational systems, particularly for loading units.

Another aspect of this Common European Transport Policy is the development of multimodal transport systems. This involves the establishment of Logistic Centres (LC), where the separate modes of transport can be connected, making the movement of freight much easier.

Lithuania in turn is intending to develop and reform the transport sector considering its national needs, as well as taking into account the main trends of the European Union transport policy.

The task to change basically the present situation is reflected in new Lithuanian "Long term (until 2025) transport system development strategy". According to this document, one of the main priorities of development intermodal transport in Lithuania is formation of intermodal transport centres ("freight villages") nearly I and IX Pan -European Transport Corridors in the industrial areas.

Following the recommendations of NeLoC project (chapter: National Case Study: Lithuania) it is foreseen to establish four intermodal LC ("freight villages") in Kaunas, Klaipėda, Panevezys and Vilnius Counties.

At present time there are prepared the feasibility studies for all four LC in Lithuania.

Unfortunately the real process of establishment LC in all mentioned regions is very slow.

According to investigations made in the InLoC project framework the main reasons caused such situation can be as follows:

- undeveloped legal basis for establishment LC management companies based on PPP model;
- lack of administrative capacities and low knowledge level on modern LC development issues;
- a small number of the supporters of LC idea from the side of private sector.

6. CONCLUSIONS

1. A large scale of economic activity of individual countries as well as increasing importance of international cooperation create a demand for new quality of transport system services, which to some extent can be guaranteed by modern LC.

2. Political, social, and economical changes that have taken place recently in the Baltic States are very significant. New EU transport policy priorities in relation to the region, new transport corridors are just a few important developments taking place in this region. Therefore new innovative

transport technologies as well as innovative organizational solutions are required to streamline the movement of freight flows through the Baltic States.

3. From the analysis of the west European LC, following conclusions can be made:
   - LC should have area 50-150ha for proper operation and development;
   - should be situated on the perimeters of large cities, away from residential quarters;
   - should be located close to international transport routes;
   - in case it is in a port-city, it should be located as close to port as possible;
   - big urban agglomerations should have few LC located closer to the end customers.
4. The main reasons for current low share of intermodal transport in Lithuania are following:
   - strong competitive position of road transport on the markets;
   - still low quality of railway services provided within intermodal transport chains;
   - lack of co-ordination between the road haulers, shipping companies and the railways;
   - insufficient government support for intermodal transport, both in the terms of administrative and financial promotion instruments.
5. Despite current backwardness of Lithuania in the field of intermodal transportation, it is quite close to the establishment of intermodal transport system. It is believed that further growth of carriages and attractiveness of countries transport system as whole to a major extent depends on the implementation of intermodal services. These in turn depend on the further realization of the idea to establish LC functioning on intermodal base in the main transport nodes.

References

[1] Šakalys A., Bačiauskienė S., Baranauskas V. National Case Study: Lithuania. In: *Best Practice Handbook, 2nd Edition. Networking Logistics Centres in the Baltic Sea Region (NeLoC).* BSR INTERREG III B, 2003.

[2] Konings J.W. Integrated Centres for the Transhipment, Storage, Collection, Distribution of Goods, *Transport Policy*, Vol.3, No 1/2, 1994, pp. 3-11.

[3] TERMINET. New Generation Terminal and Terminal Node Concepts in Europe. TERMINET Research Project, European Commission, Brussels, 1997.

[4] Прокофьева Т.А., Лопаткин О.М. *Логистика транспортно-распределительных систем: региональный аспект.* М.: Рконсульт, 2003, 400 с.

[5] Long-term (until 2025) Development Strategy of the Lithuanian Transport System. Regulation No 692/2005-06-23. Vilnius, 2005.

[6] European Commission. White Book. European Transport Policy till 2010: Time to Decide, COM (2001) 370. European Communities, Brussels. 2001.