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Traffic Planning
Review
U. D. C. 656.615(497.5)
Accepted: Mar. 16, 1999
Approved: Feb. 15, 2000

LOGISTICAL FACTORS IN DETERMINING THE SIGNIFICANCE OF OPERATION OF THE PORT OF RIJEKA

ABSTRACT

The basic logistical advantage of the Rijeka traffic route and port as its starting and end point is the geographical position at the crossroads of the Adriatic - Central Europe transport route, in the region where the Adriatic Sea enters deepest into the European mainland.

Apart from the favourable geographic position, the advantage of the port of Rijeka is its natural characteristic - sufficient depth.

The port of Rijeka belongs to the category of "old" ports with a long tradition and rich experience in its operation.

KEY WORDS

logistics, port of Rijeka, competitiveness, gravitation zone, Croatian port system

1. INTRODUCTION

Geographic location on the coast of the Rijeka bay, on the Kvarner interior, along with favourable maritime conditions, provide the natural predisposition for Rijeka as one of the significant transit ports for Central European countries, as well as the main Croatian port. The first roads between Rijeka and the hinterland in 18th and 19th centuries, as well as railway lines in 1873, were constructed by Austria, i.e. Hungary, which indicates the long tradition of their Adriatic traffic orientation.

Regarding the specific shape of the Croatian territory, Rijeka has become, due to its geo-traffic position, the junction of land and sea routes in the Croatian corridor of great significance for us, which, on the Rijeka - Zagreb relation has the key role in the Croatian traffic system.

2. LOGISTICAL FACTORS

The origin and development of the port of Rijeka is the result of a particularly favourable geo-traffic position of the port and numerous political and economic changes in these areas. The today's operation of the port of Rijeka, the starting and end station of the most vital Croatian traffic route, the main and biggest national port, is burdened by many problems caused by the changes in a series of factors from the macro system that logistically affect the port, and this influences significantly the development concept and strategy. The micro-logistic system has remained unchanged, with relatively bad characteristics with relation to the competitive ports and requirements of the modern transport technology and logistical principles which determine the conditions of the transportation market.

The basic logistical advantage of the Rijeka transport route and port as its starting-end point, is its geographic position at the crossroads of the Adriatic - Central Europe transport route, in the region where the Adriatic sea enters deepest into the European mainland. These are the shortest land paths to the emission industrial centres of Central Europe, i.e. the shortest sea paths to the overseas ports to the Middle and Far East destinations through the Suez Canal. It should be emphasised that the geographic position, as one of the logistical factors relevant for the operation and development of the port, in the conditions of modern transportation market, is losing its importance. Other numerous logistical factors (technical equipment, development of land traffic routes, the port front, tariffs) act in such a way that physically different locations become economically equal. Apart from the favourable geographical position, the advan-

tage of the Rijeka port is also its natural characteristic - the sufficient depth of the sea along the coast (7m at the grain terminal, 12m at the container terminal Brajdica, 18m at the terminal for dry bulk cargo in Bakar), which allows accommodation of large ships. This advantage is highlighted because of the problems with insufficient sea depth along the coast in the Koper port, the main competition to the Rijeka port.

The port of Rijeka belongs to the category of "old" ports with a rich tradition and experience in its operation up to now, which has often been very valuable and decisive in shipping the cargo through the Rijeka traffic route. This refers especially to the customers from Hungary, which has been traditionally linked to the port of Rijeka since its foundation as a "modern" port till the present times, and to the acquisition of wood and wooden products, especially hardwood for the national and foreign market (Austria).

Apart from the mentioned advantages that characterise the port of Rijeka and the Rijeka traffic route, there are many drawbacks which make the operation difficult, question the development possibilities and weaken the competitiveness of this port in relation to other ports, i.e. traffic routes.

The problems and drawbacks are both objective and subjective, some result from the attitude towards the port of Rijeka until the end of the 80s within the former state.

The main logistical drawbacks of the port Rijeka and the Rijeka traffic route are as follows:

- inadequate railway and road connections with the hinterland. This is an acute problem which has been burdening the operation for years, and which limits the development possibilities of this traffic route. In the 80s, when the port of Rijeka recorded a turnover of more than 7,000,000 tonnes of dry cargo, railway capacities were a bottleneck in the operation, since the railway could not handle the whole cargo gravitating towards the port of Rijeka, so that a certain amount of cargo had to be rejected. Today, when the port traffic is falling, this lack is less felt, since the throughput and transport capacities of the land roads is sufficient to absorb the port turnover of approximately 4.5 million tonnes of cargo.

The problem of obsolete traffic routes is still present. They do not allow higher speeds and they lack modern transport technologies (piggyback technology on railway). Speed of transport along the whole transportation route is today the decisive factor in selecting the destination of certain goods, especially of expensive general cargo. This is even more important than the price.

- large available installed capacities (cargo handling capacity of the port of Rijeka is about 12 million tonnes of cargo annually), are technically and

technologically obsolete, so that, along with the reduction in the overall turnover, the expenses rise substantially, which has negative influence on the competitiveness of this traffic route. The most obvious drawbacks are the old and inefficient multiple storey warehouses, inefficient docks and their areas, and obsolete cargo handling machinery. Exceptions are the specialised port terminals Bakar, Brajdica and Raša, which are at the European level.

Apart from obsolescence of the capacities, the problem of the port of Rijeka lies also in the micro-location of the major part of the port in the centre of the city, which does not leave any possibility for insuring sufficient land space for location and optimal functioning of modern technologies of transport and cargo handling.

The problem present in Rijeka is that, on the one hand, the city core limits the operative and development possibilities of the port, and on the other hand, the port disturbs the functioning and modernisation of the city.

- the underdeveloped front of the port. The number of regular shipping lines through the port of Rijeka is falling, and the majority of ships is leaving the port of Rijeka. As much as cargo is important for a port, so much a ship is important as well. The cargo in a port attracts ship operators to the port, and on the other hand, the wide variety and frequency of the lines from the port attract the cargo because of the possibility of fast delivery overseas.

The competitive ports, Trieste and Koper, have a much better developed front. The comparison with the European Atlantic ports (Rotterdam, Hamburg, Bremen) is much less favourable. The front of these ports is greater than 1,000 ship departures, compared to Rijeka whose front in the last decade has ranged from 40 to 90 ships a month.

It is known that a port depends on its gravitation zone and that the success of operation and its development possibilities are related to the size and economic power of the gravitation area.

If a port, for any reason, is left without its gravitation zone, there is no need for its further existence. Elements which affect the size of the port gravitation zone are numerous, and can be classified into three basic groups:

- economic development of the hinterland and land traffic infrastructure connecting the port with its hinterland,
- level of development and equipment of the port, and
- port front.

Comparing the basic logistical drawbacks of the port of Rijeka with the elements that have significantly affected the size of the port gravitation zone,

one can notice the unfavourable position of the port in attracting cargo from a wider hinterland, and the competitiveness of the neighbouring ports and other traffic routes regarding common gravitation hinterland is emphasised.

In the gravitation zone of the port of Rijeka, national and transit, there have been significant political and economic changes over the past years, that have had negative reflections on the operation of the port, and the size and structure of the traffic, and that have additionally burdened the already unsatisfactory condition. The success of the port and the attractiveness of the transport route is reflected in the flow of traffic.

The traffic flow through the Rijeka transport route, i.e. the port of Rijeka over the last decade, has shown negative tendency in relative indicators compared to the competition, since, while the traffic in the port of Rijeka is stagnating, i.e. falling, the traffic in the competitive ports is rising.

Table 1 - Turnover in the port of Rijeka from 1960 to 1997 (in 000t)

Year	Overall turnover	Cargo handling
1960.	4.055	4.055
1965.	6.205	4.165
1970.	10.349	5.359
1975.	12.029	5.508
1980.	20.437	7.644
1985.	18.225	7.277
1990.	20.131	5.796
1993.	10.171	4.348
1994.	10.660	3.554
1995.	11.108	3.705
1996.	9.208	2.309
1997.	10.599	2.521

Source: Statistics of the "Luka Rijeka" (Port of Rijeka)

The reduction in the overall turnover and public cargo handling has been intensified over the last years also by political and economic changes in the gravitation hinterland, and these include:

- Political changes in the region of former Yugoslavia and war in Croatia and Bosnia and Herzegovina. Up to 1992, "national" market of the port of Rijeka was the whole area of the former state. When Croatia gained her independence and in the new conditions, the "national" market was reduced, and now it covers the region of the Republic of Croatia. A part of the former "national" transport has been lost, and one can certainly not take into account the cargo from the eastern part of the former state.
- There have been great changes on the transit market, especially in Czechoslovakia and Hungary.

There is a breakdown in socialism, and a transition to the market economy. Restructuring of the industry in neighbouring countries causes reduction in their foreign trade exchange, breakdown of big monopolistic companies, up to then main clients of the port of Rijeka, into numerous little companies that are "running in" their business activities. The consequence is the reduction of the overseas trade of these countries, which try to realise their import requirements on the European market.

Besides national transport, the port of Rijeka has based its operation and development traditionally on the transit as well (and in "good" years about 50% of overall traffic referred to transit). The national cargo, although important and relatively safe, is not sufficient to optimally engage the installed modern port capacities. Moreover, transit, as non-commodity export, realises foreign currency returns. The transit market of the port of Rijeka is an insecure and demanding gravitation hinterland, since it provides the possibilities of selecting among more than one port and more than one traffic routes for the destination of cargo out of its foreign trade exchange and in the selection of the transport route, the obvious advantage belongs to the ports which satisfy the conditions of modern logistical market of the transportation services.

Therefore, and also due to the fact that the basis for efficient operation and development is the strengthening of the position on the transit market, it is necessary to sustain the existing markets and acquire new ones, as well as new customers in the hinterland countries.

3. PROBLEMS OF COMPETITIVENESS OF THE PORT OF RIJEKA

The presentation of logistical elements that determine and structure the Rijeka traffic route and port, as well as the tendency of port traffic over the last decade, emphasise many difficulties that burden the operation of the main and biggest Croatian port.

The problem of competitiveness of the port of Rijeka needs to be considered at three basic levels:

- within the system of the Croatian port system,
- in relation to the neighbouring northern Adriatic ports, Trieste and Koper,
- in relation to other European and world criteria, the port of Rijeka belongs to the category of small ports.

Within the Croatian port system, the port of Rijeka is the biggest and main national port, which has been expressed in many statements by the Croatian government. Due to the development of the north-Adriatic traffic route through the port of Rijeka, the construc-

tion of the semi-motorway Rijeka-Karlovac is being continued, the project of the roads Zagreb-Šentilj and Zagreb-Hungarian border, as well as Rijeka-Trieste is being realised.

The competitiveness among the neighbouring north-Adriatic ports is getting stronger, first of all, as the result of reduced traffic through the north-Adriatic traffic route.

The ports of Rijeka, Trieste, and Koper have a common gravitation hinterland and they are fighting for the acquisition of the same cargo. In relation to the port of Rijeka there is special competitiveness expressed by the port of Koper which is trying to acquire as much cargo as possible in co-operation with the Slovenian railways and by providing preferential tariffs. The competition of the port of Trieste is specially emphasised with regard to the Austrian market - the completion of the railway line Pontebana (Trieste - Munich), and the preparation to joint the European Union.

Table 2 - Traffic in the ports of Rijeka, Trieste and Koper and ports of Rotterdam and Hamburg
(in 000 tons)

Year	Rijeka Koper Trieste	Rotterdam	Hamburg
1990.	56.887	287.787	61.360
1996.	57.210	291.990	70.919

Source: Statistical data of ports of Rijeka, Trieste and Koper, Journal dela Marine Marchande 12/1991 and 12/1997

The competitiveness of the European Atlantic ports and the Black Sea ports is growing with regard to the north-Adriatic ports.

The north-Adriatic traffic route is losing its importance in the European cargo flows as a result of the fact that the geographic distances are no longer deciding factors for the destination of cargo through a certain port, and that the overall logistical characteristics of the traffic route and ports as starting and end stations, determine the selection of the transport route and port.

In the conditions of modern transport and harbour market, the rule is that cargo attracts cargo to a certain transport route, and as a rule bigger ports provide lower tariffs.

The opening of the waterway Rhine-Main-Danube will intensify the significance of the north-European

routes, and the Black Sea traffic route, and will certainly influence the north-European and Black Sea port system.

4. CONCLUSION

The obsolescence of a part of capacities needs to be stressed, so that certainly, the equipment has to be modernised and there should be a stronger implementation of modern transport technologies of cargo handling and transportation. The primary task in reviving the port of Rijeka and strengthening the Croatian north-Adriatic traffic route is in modernisation and construction of road and railway traffic routes from the port towards the hinterland. One of the measures in attracting foreign cargo and capital is in organising a free port zone.

SAŽETAK

LOGISTIČKI ČIMBENICI ZA ODREĐIVANJE VAŽNOSTI POSLOVANJA RIJEČKE LUKE

Osnovna logistička prednost riječkog prometnog puta i luke kao početno-završne točke tog pravca, zemljopisni položaj na križanju prometnog puta Jadran-Srednja Europa, na području gdje se Jadransko more najdublje uvuklo u europsko kopno.

Uz povoljan zemljopisni položaj, prednost je riječke luke i njeno prirodno obilježje – dovoljna dubina.

Riječka luka ubraja se u kategoriju "starih" luka s bogatom tradicijom i iskustvom u dosadašnjem poslovanju.

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