Perspectives and Potential of the Adriatic Sea Ports

Perspektive i potencijal morskih luka u Jadranu

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Summary

The paper deals with a description of potential options of the Adriatic Sea ports. It characterizes the importance of international trade in ports on the Adriatic Seanorthern coast, particularly with a focus on the port of Rijeka. This paper also outlines statements that the position of this port would be strengthened by itsinterconnectingwith the Rail Freight Corridor 5 which now ends at the port of Koper. As a recommendation in the context of intermodal transport management, the paper presents especially the proposal to utilize services of the company RCO CSKD Intrans, s.r.o. which operatescombined transporttrains to several terminals and ports.

KEY WORDS

perspective
potential
Adriatic Sea ports
Port of Rijeka
Intermodal transport
Rail Freight Corridor 5

Sažetak

U radu se opisuju potencijali morskih luka u Jadranu. Ističe se značaj međunarodne trgovine u lukama na sjevernoj obali Jadranskog mora, s posebnim osvrtom na luku Rijeka. U radu se također spominje da bi se položaj ove luke ojačao ako bi se povezala s koridorom broj 5 za željeznički prijevoz roba, koji sada završava u luci Kopar. U kontekstu intermodalnog upravljanja transportom, predlaže se korištenje uslugama tvrtke RCO CSKD Intrans, koja upravlja vlakovima za kombinirani prijevoz do nekoliko terminala i luka.

KLJUČNE RIJEČI

perspektiva
potencijal
luke Jadranskog mora
luka Rijeka
intermodalni prijevoz
koridor broj 5 za željeznički prijevoz roba

1. INTRODUCTION / *Uvod*

Ports on the Adriatic Sea coast gradually gain the significant importance for Central and West European economiesdevelopment. Ports have enough depth to serve large-capacity ships with a 16-meter dive. In the case that these ports are quickly connected to efficient rail freight corridors, then goods transportation time from Asia to Europe will be shorten significantly. Similar case already occurred when the Suez Canal was putting into operation. It was built in order to shorten the route from Europe to India; currently, it is on the Asia-Europe route; the Port Said harbour was built near the Mediterranean Sea. Canal with the total length of 160 km reduced the route to North German ports by 11,000 km[1-3].

2. SIGNIFICANT EUROPEAN AND WORLD SEAPORTS / *Važne europske i svjetske morske luke*

According to results of the international project "Adriatic-Baltic Landbridge;Final Report - Summary of Project Findings" (2008) [4], the North-South intermodal corridors connecting the North Sea and Baltic Sea ports in Germany and Poland with the Mediterranean and Adriatic Sea ports will be operated in the future. Along these corridors, new technological and logistics areas (parks)have been and will bebuilt. Figure1 depicts the major European seaports[4-7].

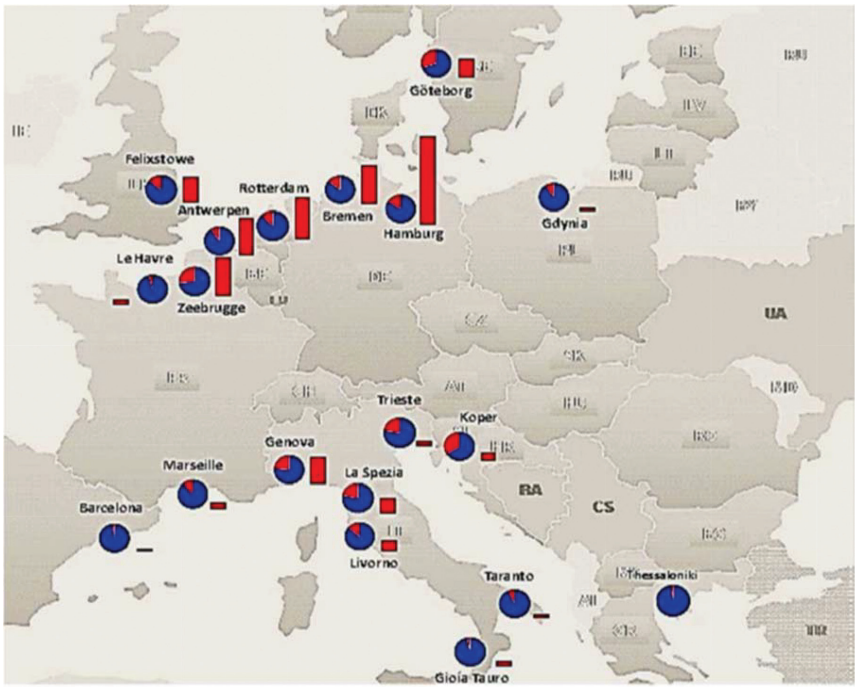

Figure 1 Illustration of the major European seaports
Slika 1. Ilustracija glavnih europskih morskih luka

Source: [4]

A statement can be declared that both sea and inland ports are of great importance for the development of industrial, technological and logistics parks. Land transport costs are much higher than those for inland waterway and maritime transport, which supports the large industrial and logistics centres development around emerging ports. As for the seaports, container terminals and logistics centres in general, "modal split"represents a characteristic indicator of transport which expresses the share of railway, road, inland waterway and possibly other modes of transport when goods collection and delivery [4,6].

3. DESCRIPTION OF THE NORTH ADRIATIC PORTS / *Opis luka na sjevernom jadranu*

Ports located in the northern part of the Adriatic Sea("North Adriatic Ports") are associated in the NAPA Association which was established in March 2010. It included these ports: port of Ravenna, port of Venice,port of Trieste, port of Koper andport of Rijeka. At present, Ports of Venice, Trieste, Koper and Rijeka are members of this association [8,9].

From the NAPA Association ports, the journey to the Far East is shorter by about 2,000 nautical miles (about 3,700 km) than from the European ports located in the North Sea, which means a voyage is shorter by 6 - 8 days. The goal of the NAPA Association ports is to create a significant competition for Northern European ports. The maximum depth of the sea in these ports reaches 18 m and ships of up to 6,500 TEU can be handled here [8-10].

The first international conference on logistics development in Central and Eastern Europe in Villach, Austria (November 14, 2012) gave rise to an important role of the NAPA Association for maritime transport in the Far East. At the logistics fair in Munich in 2012, an agreement on common support for the implementation of the European rail freight corridor "RFC 5" was signedbetween the NAPA Association and the Baltic Ports Association (BPA). This corridor is one of the ten core corridors includedwithin the new TEN- T European transport networkwith a prerequisite for the EU financial support for 2014-2020 [8-14].

From the port of Koper, direct sea lines to all important ports are operated. The problem consists in the poor railwayconnection between Germany and the port of Koper, especially in the section Koper - Divača. Reconstruction on a two-track line should be completed by 2018. Even in this situation,modal split is interesting regarding containers transportation, where the share of railway transport reaches up to68% and road transport has a 32% share [9-11].

The results of the NAPA Association in totaltranshipmentof goods and containersin 2011 - 2016 compared to the major European ports are summarized in following Table 1 [9-11,16-20].

4. THE IMPORTANCE OF THE PORT OF RIJEKA / *Značaj luke Rijeka*

Rijeka is the third largest city in Croatia. Rijeka represents a significant port, strategic transport hub and a starting point for ferries and shipping lines.

Total turnover for dry cargo in the port of Rijeka (see Table 2) in 2016, which includes Luke Rijeka d.d. and the associated company Adriatic Gate Container Terminal, amounted to 3,833,988 tons. This represents 11% lower turnover compared to 2015, when 4,304,884 tonsof dry cargo were transhipped. Dry goods turnover in the port of Luka Rijeka d.d. was 2,183,980 tons of cargo, which is a decrease of 24% [9,10,21].

4.1. General cargo turnover / *Ukupni promet generalnog tereta*

In 2016, the total turnover of handled general cargo totalled 989,384 tons, which represents a decrease of 7%. Metallurgy semi - products accounted for 33% of the total general cargo with331,492 tons transhipped. Transhipped volumes decreased by 3% due to developments in markets of the European steel industry.Wood with 410,096 tons transhippedindicates a decrease in turnover by 15% due to unstable political and financial situation in North Africa, especially in Egypt, Libyaand Middle East.

Luka Rijeka handled a total of 69,760 tons (36,947TEUs). As for the transhipment of livestock, i.e. live animals(exports from Croatia and transit from Hungary), and transhipped quantities related to high profitable cargo (non-standard shipments),a significant increase of 56% occurred. Investment units represented an increase of 31% [9,10].

Table 1 Transhipment of goods in tons and containers in EU portsin 2011 – 2016

Tablica 1. Prijevoz roba u tonama i kontejnerima u EU lukama od 2011. do 2016.

Transhipment of goods in millions of tons					
Port	2011	2013	2014	2015	2016
Rotterdam	434.6	440.5	444.7	466.4	461.2
Antwerp	187.2	190.8	199.0	208.4	214.1
Hamburg	132.2	139.0	145.7	137.8	138.2
NAPA Ports	124.2	108.0	106.0	113.9	117.7
Marseille	88.1	80.0	78.52	81.7	81.0
Bremerhaven	80.6	78.8	78.3	73.4	75.2
Transhipment of containers in millions of TEUs					
Rotterdam	11.88	11.62	12.30	12.23	12.39
Antwerp	8.67	8.58	8.98	9.65	10.04
Hamburg	9.01	9.26	9.73	8.82	8.91
Bremerhaven	6.11	5.82	5.76	5.46	5.53
NAPA Ports	1.8	1.6	1.8	2.1	2.2
Marseille	0.944	1.1	1.18	1.2	1.25

Source: author, based on [12,16-20]

4.2. Bulk cargoturnover / *Ukupni promet rasutog tereta*

In 2016, total turnover of handledbulk cargo amounted to 1,194,596 tons, which is a decrease of 34% compared to 2015 due to a significant reduction in iron ore transportationwhich has the turnover of 249,367 (25% reduction compared to 2015). During 2016, Hungarian company Dunaferr did notperforman import of iron ore from overseas destinations, which reflected on trafficof Luka Rijeka d.d. Unlike iron ore, coal turnover amounted to 347,095 tons, which represents an increase of 219%. Turnover of crops and oilseed amounted to 125,966 tons, which is adecrease of 35%. The primary reason for this was causedby a competition of Russian andUkrainian grain and high purchase prices of grain. Unlike grains, oilseeds (soybeans) transportation increased by 40%. The total volume of other bulk cargo handled is amountedto 472,218 tons, which is an increase of 7% [9,10].

4.3. Container turnover / *Promet kontejnerima*

In 2016, the total turnover of handled containersof the port of Rijeka was 1,719,768 tons (214,348 TEUs). This is the best result since in the port of Rijeka started containers transhipment. Compared to 2015, the total containers turnover in TEUsincreased by 7%. Adriatic Gate Container Terminal and the BrajdicaContainer Terminal had the share on this turnover of 177,401 TEUs and other terminals of Luka Rijeka d.d. (direction shore - to - shore)achieved the turnover of 36,947 TEUs. The reason for agrowth of containers turnover consists in the increasingutilization of hinterland terminal Škrljevo, its good transport connections and better function of intermodal transport [9,10].

5. INTERMODAL TRANSPORT / *Intermodalni prijevoz*

Rail Cargo Operator - CSKD s.r.o. is the operator of integrated container trains from the German ports of Bremerhaven and Hamburg and from the Slovenian Koper to the Czech Republic. This company hasexpanded its portfolio of services with a new product - the train between the Polish port of Gdansk and the Czech container terminal in Ostrava-Paskov [22,23].

Integrated container trains ofthe Rail Cargo Operator - CSKD s.r.o. transport goods from the German ports of Bremerhaven and Hamburg to the container terminal Mělník and back, from Žilina (Slovak Republic) to Kaliningrad (Russia). Other major destinations in the Rail Cargo Operator portfolio - CSKD s.r.o. include container terminalsDobrá, ČiernanadTisou (Slovak Republic) and Małaszewicze (Poland). The company operates combined transport trains from the Slovenian port of Koper to Bratislava, container terminalsŽilina, Paskov and back,and within the partners' network of the Rail Cargo Operator - CSKD s.r.o., even to the Italian port of Trieste, the Croatian port of Rijeka and other western, southern and eastern European destinations [22-26].

Container Terminals of the company Rail Cargo Operator - CSKD s.r.o. are located in Mělník, Přerov, Brno, Bratislava, Žilina, Ružomberok and Košice. From these reloading objects, contract operators (carriers) deliver containers "to door" across whole Central Europe. Container trains services are provided throughout Europe in cooperation with customers such as shipowners(maritime carriers) and freight forwarders. Logistics services are provided to significant companies such as Škoda Auto, Hyundai Motors, Samsung, FIAT, BMW, Philips, HP, Tesco and others [23,25].

Moreover, two pairs of container trains are operated from Koper (Slovenia) to Sládkovičovo(Slovak Republic) weekly. Rail freight corridor (RFC 5) is considered very important for intermodal transport.

6. BALTIC-ADRIATIC RAIL FREIGHT CORRIDOR (RFC 5) / *Baltik-Jadran koridor željezničkog prijevoza roba (RFC 5)*

The Baltic-Adriatic Rail Freight Corridor (see Figure 2) goes through six EU countries: Poland, the Czech Republic, the Slovak Republic, Austria, Slovenia and Italy. It consists of 4,825 km of railway lines connecting the most important Baltic and Adriatic ports with the major inland terminals and economic centres of individual countries. Itsinitial pointis located in the Baltic ports of Świnoujście, Szczecin, Gdynia and Gdańsk, and passes through Poland, the Czech Republic, the Slovak Republic and Austria. From Austria, it passes to Slovenia and Italy and ends in the ports of Koper, Trieste, Venice and Ravenna in the Adriatic Sea. The entire Baltic-Adriatic rail freight corridor interconnects 61 terminals and includes 8 seaports [12,23].

Representatives of six ministries in charge of transport or infrastructure are engaged in cooperation in bodies of this rail freight corridors,the same number of infrastructure managers: PKP Polskie Linie Kolejowe Spółka Akcyjna, Správa železniční dopravní cesty, státníorganizace (Czech Railway Infrastructure Administration, state organisation), Železnice Slovenskej republiky, ÖBB-Infrastruktur AG, RFI Rete Ferroviaria Italiana S.p.A., SŽ-Infrastruktura, d.o.o., and one capacity allocation body Javna agencija za železniški promet Republike Slovenije [12,23].

Since November 10, 2015, applicants are able to order train routes (paths) for the entire corridor from asingle contact point –"Corridor One Stop Shop" (C-OSS). C-OSS is a functional interface for international rail freight transport across the Baltic-Adriatic corridor. At the same time, it is the only contact point where customers may submit applicationsregarding capacity allocation for international freight trains along this corridor. This contact point of the corridor offers following productsof the Baltic-Adriatic rail freight corridor [12,23,26-28]:

(A) reserve capacity for "ad hoc transport";

(B) pre-arranged routes for the annual timetable.

In practice, it means that the customer may order a route at a single contact point, for instance, from Ostrava to Trieste using a modern application – the Path Coordination System, developed by the international railway organization RailNet Europe (RNE).

The first offer of the Baltic-Adriatic rail freight corridor, including reserve capacity for the timetable in 2016, was published in the PCS systemon November 10, 2015. The pre-arranged routes offer was published as a catalogue of these routes (PaP) on January 11, 2016 for the timetable 2016/2017 in the PCS system as well [12,23].

The management board of the RFC 5 Corridor has created two advisory groups [12,23]:

(A) the first one covers the railway undertakings - carriers (Railway Undertakings Advisory Group = RAG);

(B) the second one includesmanagers and owners of terminals and port

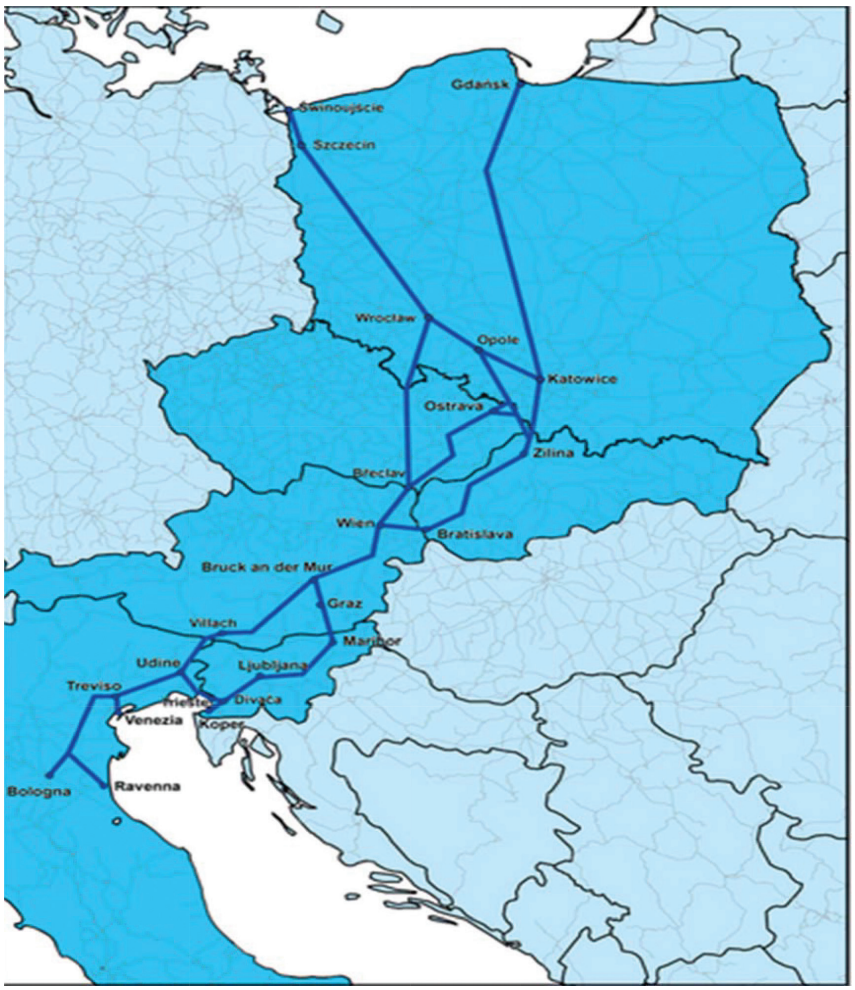

Figure 2 Paths of the Baltic-Adriatic Rail Freight Corridor
Slika 2. Pravci Baltik-Jadran koridora željezničkog prijevoza roba
Source: [12]

authorities (TerminalAdvisory Group = TAG).

These advisory groups were created to facilitate the exchange of information, giving recommendations and mutual understanding in a non-discriminatory way.

7. CONCLUSION / *Zaključak*

As already mentioned, both sea and inland ports are of great importance for the development of industrial, technological and logistics parks. Land transport costs are much higher than those for inland waterway and maritime transport, which supports the large industrial and logistics centres development around emerging ports [29-31].

Recent activities and measures have given rise to an important role of the NAPA Association for maritime transport in the Far East. From the NAPA Association ports, the voyage to the Far East is significantly shorter compared to the scenario carried out from the North Sea ports. The goal of the NAPA Association ports, especially the port of Koper and port of Rijeka, is to create a significant competition for Northern European ports in regard to general cargo, bulk cargo and containers transhipment and transportation [9-11,32,33].

This research study presents outcomes dealing with the increasing importance of the Adriatic Sea ports. It characterizes the importance of international trade in ports on the northern coast of the Adriatic Sea with an accent on the port of Rijeka. It states that the position of this port would be enhanced by connection with the RFC 5. In terms of intermodal transport management, it is recommended to use services of the company RCO CSKD Intrans, s.r.o. which provides, except other logistics activities,carriages of combined transport trains to other ports and terminals.

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