CURRENT DIMENSIONS OF THE TRANSPORT POTENTIAL OF VARNA DISTRICT

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1. Introduction

Sustainable economic growth at regional level conditions the prosperity of a state, in this case Republic of Bulgaria, and the community into which it is integrated in the context of the European area. The hierarchic order of the territorial administrative units localizes their interdependence and suggests subordination to a carefully considered strategy which should contribute to the common goal consolidated around the initiative aimed at "smart, sustainable and inclusive growth" [1, p.2]. The Europe 2020 Strategy determines the leading role of transport and logistics systems through the "opportunities they offer for enabling the industry throughout the Union to have effective access to the Single Market and the international market beyond" [1, p.21]. This has given rise to the idea to outline the potential of Varna District which will allow it to fit properly in the European Transport Area by providing conditions for the development of modern transport solutions for connecting the various regions, towns and villages.

The objective of this paper is to outline the current state of the transportation alternatives developed in Varna District and stepping on this foundation to draw conclusions for each means of transport.

In order to achieve the objective thus set, the following main problems must be solved in relation to:

1. The study of the current dimensions of land, marine and air transport in Varna District.

2. Formulate conclusions as to the state of the various means of transportation.

Each administrative district is in itself "a deconcentrated structure of state administration…, which comprises one or more municipalities and is characterized by its territory, borders, population, name and administrative center" [2]. In the framework of this definition, Varna District has significance in national economy. Structurally its economy is highly diversified with the leading role of agriculture, shipbuilding and repair, food and manufacture of electrical appliances. Factories from the subsectors of metallurgy and machinery, chemicals, sewing, shoemaking, production of building materials, furniture, etc. have been built on the territory of the district. Of great significance for the local economy are transport, tourism and trade in view of the geographical location of the district at the western shore of the Black Sea, which makes it a multifunctional international transportation hub, an attractive destination for Bulgarian and foreign tourists and a center of attraction for traders of international, national and local significance.

The role of Varna District in the field of transportation is markedly fundamental in view of its key position in trans-European networks as an element in the current and future transport corridors and its excellent transport links which make the district an important logistics center boasting "the potential of the ferry lines through the Black Sea and the direct route which Varna offers to Ukraine, Russia, Georgia and Turkey" [3, p.6] and the rest of the countries in the Caucasus region, Near and Far East.

2. Current dimensions of land transport in Varna District

On the territory of the district there have been created and there exist infrastructural solutions which allow for the development of road, railway, marine, air and pipeline transportation, which is of strategic importance for the economy not only on the local, but also on the national and international scale. For transportation activities on the territory of Varna District, the necessary road and railway infrastructure has been created (Tab. 1).

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The development of the road network is related to the function of the town of Varna, which has resulted in the relatively large share of high-quality roads (27,2% for the district against the country average of 17,3%) [4, p.72]. Tertiary roads stand out for being the longest, and the shortest span goes to motorways, but we must bear in mind that "The classification of republican roads is done on the basis of administrative attributes and the technical specifications of the road and traffic intensity are not taken into account, with the exclusion of motorways" [5, p.8], but in terms of technical condition they are in line with art.1 of ORDINANCE no.1 of 26 May 2000 on road design which states: "Roads are sized in line with the estimated traffic intensity. It is determined as per the requirements of BSS 16578-87 "Motor roads. Determining traffic intensity" by using the active estimated coefficients approved by the executive director of the Road Infrastructure Agency. In the period of 2001–2012 on the territory of Varna District not a single kilometer of motorway, primary roads, secondary roads or railways was built. The transport map of Bulgaria shows the new 213 km of motorways, but the length of first-class and second-class roads is reported to have been reduced. Statistics shows that only 19 km new tertiary roads have been built and railway length has been reduced by 29 km.

The indicators of the density of the transport network, which are the major measurement of the infrastructure development, are almost constant. They gravitate towards the average values for the country – as at 2012 the motorway density at national level is 0,005 km/km2, and for Varna District – 0,015 km/km2; primary roads density in the district is higher than the average for Bulgaria by 0,008 km/km2; with secondary roads at national level the indicator for 2012 is 0,036 km/km2, while at regional level its value remains constant at 0,011 km/km2; tertiary roads at national level are approximately 0,109 km/km2, and at district level they are higher by 0,016 km/km2. The railway network indicators are higher than those for the country, which are 0,037 km/km2, while for Varna they are 0,051 km/km2.

The overall evaluation of the state of the republican road network in Varna District is "closer to good" since two-thirds of the road network are in good or average condition [6, p.57] and the road network of District Varna is characterized by the accessibility of the district capital from municipalities. The main role in this respect is played by Hemus Motorway on the entire territory of Varna District, as well as the rehabilitation of the motorway. Next comes Cherno More Motorway as part of the Black Sea motorway ring on the territory of Republic of Bulgaria and pan-European transport corridor VIII. The motorway is expected to ease the transportation between the Black Sea towns of Varna and Burgas.

Besides the territory of the district it might also be appropriate to consider the size of the population as an influential factor in the evaluation of the completeness of the transport infrastructure. The availability of roads for the population by types of roads shows a certain dynamics influenced by the changes in the number of people because the length of the roads has remained constant as it was already mentioned. For this indicator Varna District falls behind the national results for 2012 as follows: as to the degree of availability of primary roads, the district lags behind with its 1,233 km per 10 000 people; as to the degree of availability of secondary roads with 3,198 km per 10 000 people, the degree of availability of tertiary roads with 6,473 km per 10 000 people, and there is 0,482 km more motorways at district level than the results reported at national level.

This study aspect is of strategic importance since the population of Varna is growing progressively but not due to high-intensity factors, such as the positive population growth, but rather it is the result of the extensive influence of migration processes typical for the district. The concentration of the population in the district capital Varna is productive from economic point of view in relation mainly to salary levels and opportunities to exercising the right to employment. In the beginning of the XXI century our sea capital is titled one of the fastest growing towns in Europe with mechanical growth of 30 000 people a year, which exerts extra pressure on transport infrastructure and poses new problems related to traffic organization, parking spaces availability, amortization of roads, concentration of traffic incidents, etc.

Tab. 1. Indicators of density and availability of transport network in Varna District for the period 2001–2012

Indicators	Years											
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Motorways length (km)	58	58	58	58	58	58	58	58	58	58	58	58
Primary roads length (km)	135	135	135	135	135	135	135	135	135	135	135	135
Secondary roads length (km)	42	42	42	42	42	42	42	42	42	42	42	42
Tertiary roads length (km)	458	476	477	477	477	477	477	477	477	477	477	477
Railways length (km)	222	219	219	219	219	195	194	193	193	193	193	193
Motorway density (km/1000km^2 territory)	15,185	15,185	15,185	15,185	15,185	15,185	15,185	15,185	15,185	15,185	15,185	15,185
Primary roads density (km/1000km^2 territory)	35,345	35,345	35,345	35,345	35,345	35,345	35,345	35,345	35,345	35,345	35,345	35,345
Secondary roads density (km/1000km^2 territory)	10,996	10,996	10,996	10,996	10,996	10,996	10,996	10,996	10,996	10,996	10,996	10,996
Tertiary roads density (km/1000km^2 territory)	119,911	124,624	124,885	124,885	124,885	124,885	124,885	124,885	124,885	124,885	124,885	124,885
Railways density (km/1000km^2 territory)	58,123	57,337	57,337	57,337	57,337	51,054	50,792	50,530	50,530	50,530	50,530	50,530
Degree of availability of motorways (km/10 000 people)	1,255	1,261	1,265	1,265	1,267	1,269	1,262	1,252	1,246	1,247	1,223	1,225
Degree of availability of primary roads (km/10 000 people)	2,922	2,935	2,943	2,945	2,948	2,955	2,937	2,914	2,900	2,903	2,846	2,852
Degree of availability of secondary roads (km/10 000 people)	0,909	0,913	0,916	0,916	0,917	0,919	0,914	0,907	0,902	0,903	0,885	0,887
Degree of availability of tertiary roads (km/10 000 people)	9,913	10,348	10,400	10,406	10,417	10,440	10,378	10,297	10,248	10,256	10,056	10,076
Degree of availability of railways (km/10 000 people)	4,805	4,761	4,775	4,778	4,782	4,268	4,221	4,166	4,146	4,150	4,069	4,077

Source: DB of Territorial Statistics Bureau Varna with the National Statistics Institute.

Railway transport is not much different from road transport in terms of measured results of infrastructure availability. The degree of availability at national level exceeds the values of this indicator for Varna by 1,512 km / 10 000 people. The systematized data for railway transport show another adverse effect on reported results, namely the reduction of the railway tracks, i.e. not only isn't there construction of new tracks, but also existing tracks are being closed down, which is counter to the European transport policy, as well as to the advantages offered by this means of transportation. These findings are worrying in view of the strategic importance of the district as a transportation hub, which by means of the Sofia-Varna railway provides a link to all destinations in North Bulgaria. It connects the territory of Varna District with the railway tracks to Ruse, which is of great significance to the cargo transportation from Ruse to Varna Port. The third railway track – Karnobat-Sindel – ensures the links between Southeast Bulgaria and South Bulgaria and is generally part of pan-European Transport Corridor VIII within its railway infrastructure. In the near future a major rehabilitation of the road and railway network and a connection between Varna and Burgas by means of a high-speed road or motorway are expected, which presupposes significant improvement of transportation links in the district, but serious investment projects related to marine and air transport should be considered for implementation on the territory of Varna District.

3. Current dimensions of marine and air transport in Varna District

In view of the geographical location of Varna, marine transport is defined as strategically significant and therefore Varna Port is structurally determining for the transport sector in Bulgaria and its development is subordinate to a policy of continuous investment in modernization and technological development and improvement of working conditions. Varna is a multi-purpose port with modern technology and specialized terminals, running continuously, where all kinds of cargo are handled, including liquid. The main cargo turnover of the port is realized by handling grain, containers, chemical and general cargoes. With the volume of precisely these cargoes Varna Port is unmistakably the leader in Bulgaria and over the past years has registered growth, though inconsistent, both in relation to cargo turnover and in relation to the dynamics of handled cargoes (see Tab. 2 and Fig. 1). The most significant changes registered are in relation to the containers passing through Varna Port compared with the beginning of the period. Their number has been increasing through the years and at the end of the period it is three times as great as in the beginning of the period, and despite these results being still far from those registered in the peak year 2008, they correspond to the expectations that "container transport through Varna Port has the potential for increasing before 2020 up to 4 million tons or 406 thousand TEU" [7, p.2].

Tab. 2. Major indicators of the activities of Varna Port EAD for the period 2001–2013

Years	Cargo turnover	Containers	Grain
	tons	TEU	tons
2013	10 695 084	131 460	4 140 046
2012	8 589 000	128 390	2 317 940
2011	8 779 000	122 844	2 254 513
2010	7 634 000	118 702	1 993 018
2009	6 475 000	112 611	1 988 320
2008	7 539 000	155 326	1 335 501
2007	6 427 000	99 713	388 674
2006	7 570 000	94 046	1 433 498
2005	8 231 000	84 000	1 463 628
2004	7 320 000	78 599	859 889
2003	6 516 000	65 063	400 173
2002	6 534 000	59 061	1 205 272
2001	5 848 000	45 489	388 103

Source: Varna Port EAD http://www.port-varna.bg/index.php?l=2&m=1&p=6 (accessed on 13 May 2014)

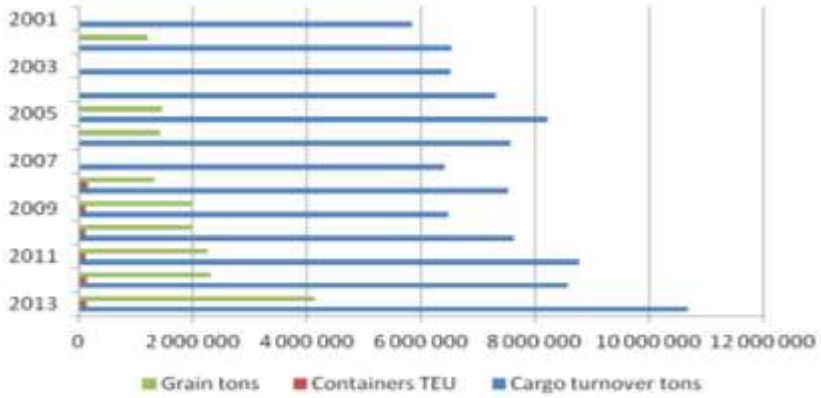

Fig. 1. Dynamics of the development of the main indicators of the activity of Varna Port EAD in the period 2001–2013

The future development of Varna Port is expected to unfold according to two main scenarios, one of which is optimistic in terms of cargo carriage and namely of containers, which is expected to grow, which necessitates the opening of a new terminal in order to gain competitive advantages over the port in Constantza in Romania.. The other scenario estimates the position of the Romanian port as strong in the segment of container carriage and builds the future of Varna in relation to one of the most radical urban development ideas underlying the general development plan of Varna, which envisages in place of the current port to have a recreation and entertainment zone, as well as a yacht marina. Both alternatives paint a picture of favourable development prospects for marine transport in Varna, one emphasizing cargo carriage, the other – passenger, which are also realized by air transport and which in terms of infrastructure is provided for by the third biggest airport in Bulgaria (following Sofia and Burgas) – Varna Airport.

The airport is located 8 km west of the sea capital and on the territories of Varna and Aksakovo municipalities. Varna Airport was opened in 1948, and since 2006 it has been given in concession for 35 years to a German-Bulgarian consortium, in which 60% of the shares belong to the leading airport operator Fraport AG.Typical of the traffic of this airport is that most of it is realized during summer since the airport is close to a large number of popular sea resorts visited by Bulgarian and foreign tourists (Fig. 2).

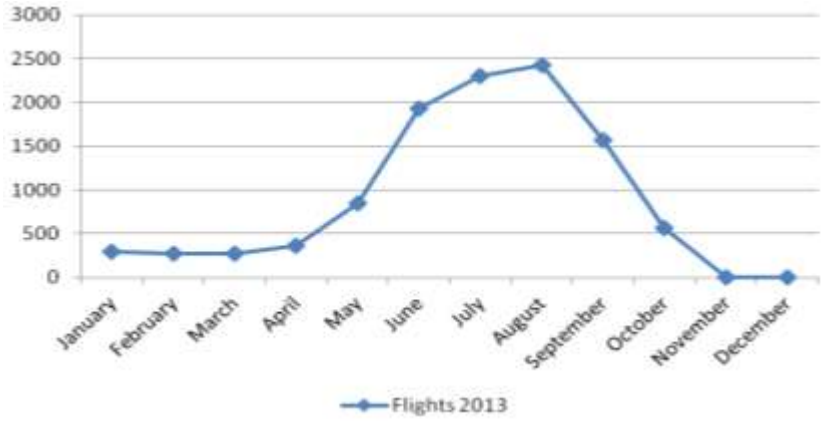

Fig. 2. Dynamics of the development of flights handled in Varna Airport in 2013

Source: http://www.fraport-bulgaria.com/RecentInformation/Statistics/Monthly/tabid/157/language/bg-BG/Default.aspx (accessed on 11 May 2014).

The airport services more than 100 destinations in 57 countries. There are four airline companies operating permanently – BulgariaAir, Wizzair, AustrianAirlines and S7 Airlines. The regular summer lines are carried out by 12 airlines including AirBerlin, NorwegianAirShuttle, Jetairfly, UralAirlines, Germanwings, EdelweissAir. Chartered flights to and from Varna are carried out by

43 companies, the most notable ones being BH Air, Belavia, Finnair, Globus, Jettime, LOT, MalmoAviation, Red Wings, SAS, Transaero, VIM Airlines, XL Airways, etc. In 2013 Varna Airport served 10 839 flights, and 1 303 865 passengers, mainly in chartered flights (Tab. 3).

Table 3. Dynamics in the development of passenger traffic at Varna Airport in the period 2001–2013

Years	Domestic traffic	Chain changes in %	International traffic	Chain changes in %	Total	Chain changes in %
2001	48121	~	884428	~	932549	~
2002	45457	5,536	1045252	-18,1840	1090709	-16,960
2003	41583	8,522	1144766	-9,5206	1186349	-8,769
2004	47575	-14,410	1271552	-11,0753	1319127	-11,192
2005	49705	-4,477	1496175	-17,6653	1546925	-17,269
2006	54243	-9,130	1468415	1,8554	1522658	1,569
2007	79058	-45,748	1399035	4,7248	1478093	2,927
2008	119459	-51,103	1313244	6,1322	1432703	3,071
2009	155734	-30,366	1050801	19,9843	1206535	15,786
2010	154974	0,488	1043982	0,6489	1198956	0,628
2011	117431	24,225	1046453	-0,2367	1163884	2,925
2012	126952	-8,108	1084244	-3,6113	1211196	-4,065
2013	131183	-3,333	1172682	-8,1567	1303865	-7,651

In relation to cargo carriage the airport has failed to register significant results through the years, for which Fraport AG has published data (Fig. 3), which is evident also from the relative share of this indicator in the total cargo turnover of the airport operator, which is within the range of 0.001 to 0.003%. However, this can be seen as a serious indication of the possibilities that exist in this respect.

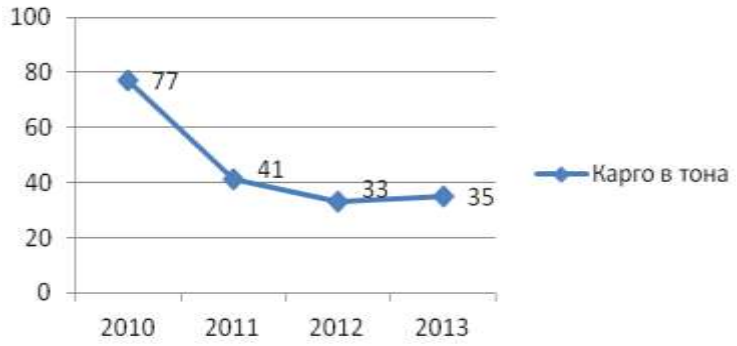

Fig. 3. Dynamics of the development of cargo carriage carried out through Varna Airport

Source: http://www.fraport.com/en/investor-relations/financial-and-air-traffic-figures/traffic-figures.html (accessed on 21 May 2014).

4. Conclusion

The current state of the transport potential of Varna District during the studied period shows a road network sufficient for the district in view of the fact that it provides for good accessibility of the district capital from its municipalities. The measured indicators of transport network density are almost constant values and gravitate around the average values for the country by taking into consideration the dynamics of the indicators of availability of the transport network for the population of Varna District, which is influenced by the mechanic growth of the population, since

the length of the roads was found to have not changed. In terms of marine transport it can be pointed out that Varna Port and the respective transport infrastructure should attract a certain investment activity, since its role in the future has transit function and it will connect the European Union and the countries in Central Asia, Near, Middle and Far East, as well as the countries around the Black Sea basin. The air transport carried out by Varna Airport shows potential for development which remains unused especially with regard to cargo carriage. It is reasonable to say that Varna has its place in the common European Transport Area, but we must not ignore the need to increase the degree of completeness and availability of the transport network on the territory of the district, as well as to boost the role of marine and air transport as excellent alternatives for cargo and passenger carriage.

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Summary

This paper outlines the current state of the transport potential of Varna District by types of transport. In this context the infrastructural availability for road transport is sufficient, the values of the indicators of the transport network density are constant and gravitate around the average for Bulgaria. In the end we draw the conclusion that Varna has its place in the common European Transport Area, but we must not ignore the serious challenges which transport is facing and which are accompanying its development on the territory of the district.

Keywords: transport, infrastructure, transport potential.

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