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ROAD NETWORK AS THE BASIC FACTOR OF INTEGRATING CROATIA INTO THE TRAFFIC SYSTEM OF 21ST CENTURY EUROPE

ABSTRACT

Transportation of cargo and people, i.e. freight and passenger flows, belongs to the inevitable destiny of the humanity. In modern life and overall economic international integration, the role and significance of transportation branch is multiply complex, because free circulation of goods, people, capital and information, etc. are no longer a phenomenon which only follows the found needs, but it represents a hypothesis of the overall development of a certain area. In the presence of the tendency towards globalisation of the humanity, increasing emphasis is put on the concentration of the transportation efficiency at certain traffic corridors defined by favourable geographic and other conditions for creating optimal traffic system. Defining of certain traffic corridors is mainly carried out on the basis of traffic and transit conditions of the considered region (usually a country), as well as its physical infrastructure connections with the neighbouring communities.

This logically leads to the following questions: Will Croatia, when, in which way and to what extent, succeed in securing her place in the traffic network of the 21st century Europe?!

The discussion regarding possible answers to these questions is in fact the main topic of this paper.

KEY WORDS

road network, transport integration, European traffic system

1. INTRODUCTORY CONSIDERATIONS

The mutual interdependence of the mankind has never been more obvious than today. This interdependence has been most contributed by the economic and ecological awareness and knowledge that transportation (of goods and people), formulated in the appropriate traffic flows, presents the inevitable destiny of humankind, faced with the future of overall social, economic international integration in which the role of transportation branch is multiply complex since free movement (of goods, people, information, capi-

tal, etc.) is no longer a phenomenon which follows the found needs, but represents a hypothesis of the general development of a certain region. At the same time, people have created numerous other interdependences, and a respectable one is also the creation of the global economy, which is apart from the previous global trade characterised also by the global investment, and global diffusion of various technologies. More and more of the world is getting interdependent so that an important support to this process of global connectivity is precisely the development of a unique optimal and integrated traffic system. As a phenomenon and point of looking at the present-day situation, the global connectivity is the reason for different ideas about the development focusing on the well-known paradigm: sustainable development.¹ The proclaimed sustainable development is justified in setting high tasks for the transportation activities. In this context, sustainable transportation reflects the increase in transportation work with simultaneous reduction in negative influences (pollution of air, soil and water, level of noise and vibrations), and consequences of traffic accidents, including external costs of the overall transportation process. All this is because the modern way of living, on one hand, is based on transportation of all types and forms, and on the other hand, because modern development of the transportation system in its scope of reach is based on increased concentration of transport efficiency in certain transport corridors defined by favourable geographic and other conditions. Along with the increase in international trade, namely, the transportation needs grow as well, and so do the requirements for an appropriate optimal transportation system which is already today the centre of European occurrences.

This leads to the aspect of global system of high-serviceability roads in the Republic of Croatia regarding her position in the European road network.

2. GEOGRAPHIC AND TRAFFIC SITUATION IN CROATIA WITHIN 21ST CENTURY EUROPE

With its geographic location and peninsular shape of the territory, with two very indented coast fronts (the Atlantic and the Mediterranean), Europe is the most maritime continent on the planet Earth. Logical consequence of such a location are numerous maritime European countries which are either Atlantic or Mediterranean regarding their geo-traffic location, whereas just a small number of countries (mostly Central European) are land-locked, thus deprived of their own access to the world seas as the largest, cheapest and most open traffic route. In the mentioned geographical constellation of the European countries, Croatia (covering 56.5 thousand square kilometres of land) could, regarding the number of inhabitants, represent a suburb of a European metropolis. On the other hand, as a Central European, Danube and Mediterranean (Adriatic) region, Croatia has a very favourable geographic and traffic position which stands as a bridge providing paths through traffic corridors between north and south Europe, and the European and Asian continents, connecting the European developed West with the countries of the Near East all the way to Iran. Therefore, owing to her favourable natural and geographic conditions, Croatia is, regarding traffic, located at a specially exposed place as a Central European transit country (both in purely continental west-east-west transit and in the overseas transit through the Adriatic ports), and many important longitudinal, transversal and meridian national and international traffic corridors mark its territory. Therefore, one of the most significant values and richness of the Croatian territory results from her geographic and traffic location in the Central European, Mediterranean and Danube environment, at the borders of the historical and modern achievements. These advantages can be well exploited only in case they are accompanied by the appropriately developed traffic infrastructure. However, due to the former economic power and traffic policy, and mainly due to the funding policy regarding construction of the Croatian traffic routes (roads and railway lines), a substantial part of the acquired geographical and traffic advantages has been very much devaluated. If one adds the fact about the unnatural, specific, and, least to say, odd shape of the Croatian territory (although the baker is not to blame for making such a croissant), with two divergent parts or "arms" (the Pannonian and the Adriatic), with about 3 thousand km of land and sea state border and the height threshold between the north and the south of the country, with different configuration and climatic conditions - it is not difficult to conclude that the development of the Croatian

traffic system up to now (mainly high-serviceability roads) depended first of all on its position within the former development. By gaining her independence, Croatia became a sovereign country, thus creating new chances and preconditions for managing her own traffic policy within the newly formed geopolitical environment. This should positively affect the desired, clearly articulated valorisation of the Croatian territory both nationally and within Europe, since the geographic and traffic position of Croatia represents the basis for her evaluation regarding traffic.

2.1. Croatian Traffic System

Respecting the fact that the traffic infrastructure represents a causal element in the economic development of every country - the Republic of Croatia has, since the very beginning of her independence, had to organise the new traffic development strategy adjusted to the new social, political and economic conditions. During the transitional period, namely, of Croatia and her wider geographical environment, new freight and passenger traffic routes emerged, requiring targeted reconstruction and construction of the appropriate infrastructure of the government traffic system in accordance with the planned needs of the forthcoming 21st century. The awareness that transport represents the basic logistic of the most promising economic activities and programs (e.g. tourism and transit traffic) classifies traffic development policy as the priority fields of the Croatian general economy politics. It is precisely the development of the traffic system, among others, which determines the position of Croatia within Europe. The primary function of transport is reflected in providing free economic development of a certain social community, integrating it into a certain economy organism of a wider international community.

Multiple, and above all, complex basic role of transportation in modern life and development of the civilised Croatian social community is reflected in the strategic development perspective of all the transport branches, and in the possibly most efficient integration of Croatia into the European traffic system.²

2.1.1. Sustainable development strategy of the road network in Croatia

As a complementary part of the Croatian traffic system, the extreme importance of the network of categorised roads represents one of the basic preconditions for a fast overall development of our country³. The geographic position, namely, of a specific shape of the Croatian territory, as well as the inter-regional arrangement and proclaimed Adriatic orientation - place the road traffic at a special position, mainly as a factor which will positively affect the wished for valori-

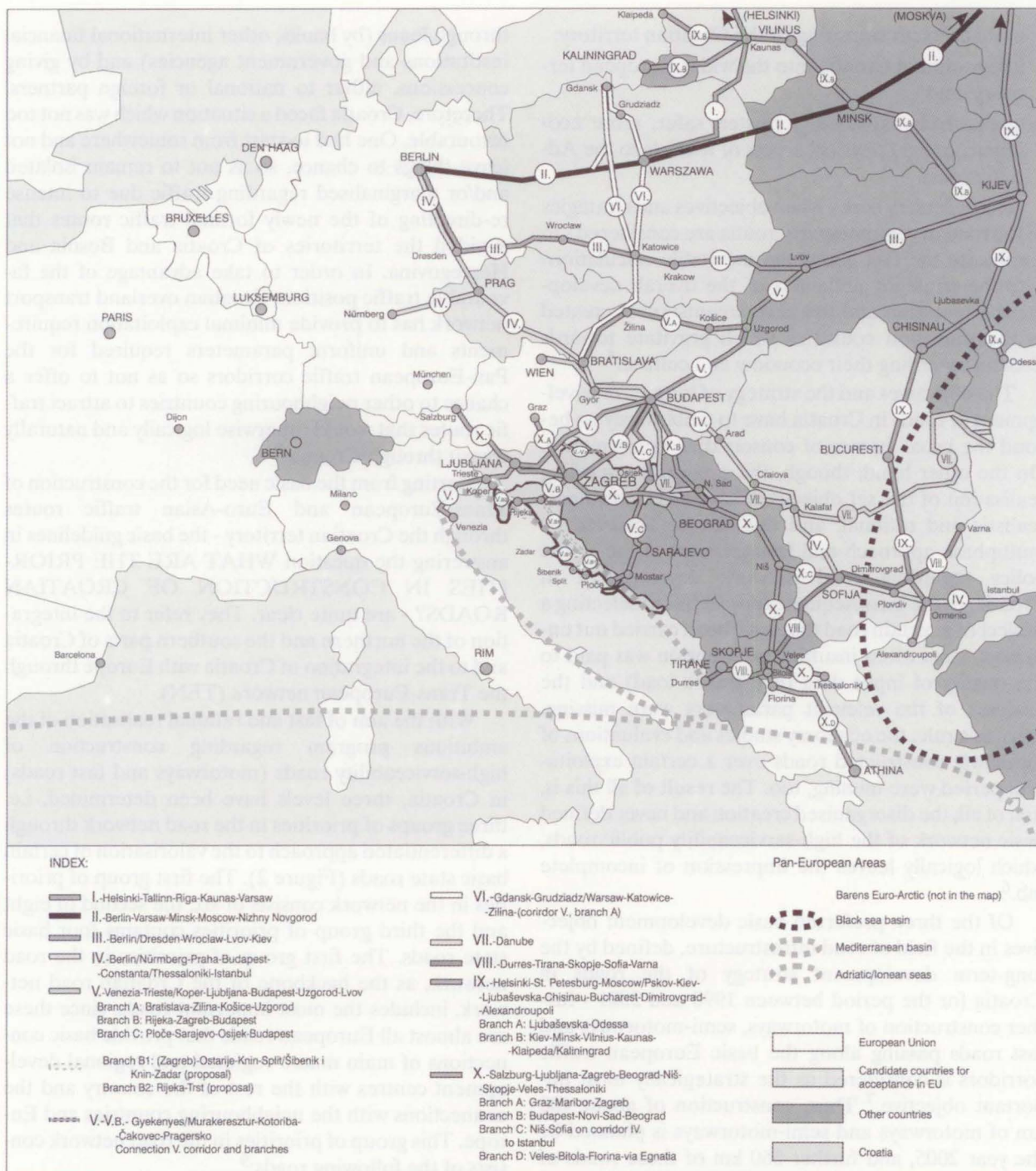


Figure 1 - Pan-European transport network (Crete 1994 and Helsinki 1997)

Source: J. Božičević, S. Kreč: Traffic Connections of Central Europe and the Adriatic, Proceedings of the Symposium "Integration of Central European Countries with the Adriatic", HAZU, Zagreb, 1998, p.155

sation of the Croatian territory within Europe. This is why the roads, during this medium term, represent the priority task in development. The starting point is the tendency that the development of road infrastructure (primarily the motorway network) has to meet the two basic requirements. One refers to the better inter-regional connections of the state territory, and the other requirement refers to faster and higher-quality inte-

gration of the Croatian road network into the European high-serviceability road system, especially along the main European traffic corridors⁴ (Figure 1). Thus, the defined objectives and strategy of the long-term road development in Croatia should, in the first place, provide:

- inter-regional traffic connecting of the Croatian territory as an integral whole;

- more efficient transiting of the Croatian territory;
- integration of Croatia into the wider European territory, and
- qualitatively satisfactory (faster, safer, more economic, easier) physical access of tourists to the Adriatic coast.

It is necessary here - when objectives and strategies of the road development in Croatia are considered - to emphasise the fact about the inevitable calculations with the strategic guidelines of the overall development orientation and the new circumstances created in the transition countries which gravitate towards Croatia regarding their economy and culture.⁵

The objectives and the strategy of long-term development of roads in Croatia have to ambitiously go beyond the usual frames of conservative performance. On the other hand, though, the programs regarding realisation of the set objectives have to be extremely realistic and rational, and this can be achieved by multiphase approach and transparency of the traffic policy regarding road network development in Croatia. In the inconsequent approaches to selecting a project of a certain road that have been carried out until now, most often insufficient attention was paid to the quality of input data (e.g. traffic load) and the analyses of the relevant parameters were missing. Also, as a rule, the economy studies and evaluations of the newly constructed roads over a certain exploitation period were missing, too. The result of all this is, first of all, the disorganised creation and never defined basic network of the high-serviceability public roads, which logically leaves the impression of incomplete job.⁶

Of the three preferred basic development objectives in the field of road infrastructure, defined by the long-term development strategy of the roads in Croatia for the period between 1998 and 2021 - further construction of motorways, semi-motorways and fast roads passing along the basic European traffic corridors is considered as the strategically most important objective.⁷ Thus, construction of about 400 km of motorways and semi-motorways is planned by the year 2005, and further 560 km of those roads of highest serviceability by the year 2013, i.e. about 760 km more motorways and semi-motorways by the year 2021.

As a result, the today's Croatian traffic policy is facing two big, mutually contradictory problems: the level of needs and requirements for constructing modern road network and the impossibility of the government to financially meet these requirements. Namely, the very impressive program for the construction of a modern road network (planned and/or partly implemented by Croatia) requires also high financial investments which, due to the lack of proper financial means, have to be secured by attracting foreign capital

through loans (by banks, other international financial institutions and government agencies) and by giving concessions, either to national or foreign partners. Therefore, Croatia faced a situation which was not too favourable. One had to start from somewhere and not leave things to chance, so as not to remain isolated and/or marginalised regarding traffic due to intense re-directing of the newly formed traffic routes that avoided the territories of Croatia and Bosnia and Herzegovina. In order to take advantage of the favourable traffic position, Croatian overland transport network has to provide minimal exploitation requirements and uniform parameters required for the Pan-European traffic corridors so as not to offer a chance to other neighbouring countries to attract traffic routes that would otherwise logically and naturally transit through Croatia.⁸

Starting from the basic need for the construction of Trans-European and Euro-Asian traffic routes through the Croatian territory - the basic guidelines in answering the question WHAT ARE THE PRIORITIES IN CONSTRUCTION OF CROATIAN ROADS? - are quite clear. They refer to the integration of the northern and the southern parts of Croatia and to the integration of Croatia with Europe through the Trans-European network (TEN).

With the aim of fast and rational realisation of the ambitious program regarding construction of high-serviceability roads (motorways and fast roads) in Croatia, three levels have been determined, i.e. three groups of priorities in the road network through a differentiated approach to the valorisation of certain basic state roads (Figure 2). The first group of priorities in the network consists of six, the second of eight and the third group of priorities contains four basic state roads. The first group of priorities in the road network, as the backbone of the Croatian road network, includes the most important roads, since these are almost all European roads that provide basic connections of main macro-regional and regional development centres with the rest of the country and the connections with the neighbouring countries and Europe. This group of priorities in the road network consists of the following roads:⁹

1. "primorsko-goranski" (coast-mountain) and "prigorsko-medimurski" (mountain-Medimurje) (E-65, D-3),
2. "zagorski" (Zagorje) and "ličko-dalmatinski" (Lika-Dalmatia) (E-59, E-71, D-1, D-8, D-27),
3. "posavski" (Sava region) (E-70, D-4),
4. "jadranski" (Adriatic region) (E-65, E-80, D-3),
5. "slavonsko-neretvanski" (Slavonia-Neretva region) (E-73, D-7) and
6. connection between Split and the Dalmatian and Herzegovina hinterland via Trilj and via Knin (D-1, D-80, D-220).



Figure 2 - High-serviceability roads in Croatia

The needs priorities in gradual construction of the motorway and fast roads network in Croatia have to be defined by traffic studies, studies on the impact of roads on the environment and financial studies, i.e. complex studies of the social and economic justification for the construction of a certain road, since traffic projects (first of all regarding infrastructure) are very demanding and time-consuming, and require high financial investments. Justification and feasibility of realising a concrete project i.e. decision is often in a gap between the wishes and the possibilities, and therefore questionable. Therefore, the obvious disharmony is avoided and necessary objective decisions and conclusions made by treating the issues in more general terms, so as not to bring into question the realisation

of the imperative and actual plan and program of the medium-term development of the land traffic system of Croatia - due to obvious ambitions and subdued enthusiasm of the nation on the one hand, and chronic lack of available proper financial means on the other hand. Since even the richest countries lack sufficient financial means to implement the planned Projects, solutions are sought in a variety of sources of capital so as to complete the necessary financial structure.

Since, in order to provide equal integration of Croatia into the European economic and tourist flows, the construction of about 1,000 km of motorways and semi-motorways as well as about 1,300 km of fast state roads is planned for the next ten-year medium term, the existing proposal for the basic roads of

high serviceability has to be corrected and a new one developed. This proposal should focus on the necessary hierarchy of selective determination of the priorities and logical sequence in constructing certain roads balancing, on one hand, between the national (financially restrained) cravings, and on the other hand, the interest of the international community who considers capital as the dominant sacred orientation regarding investing into a Project, in which national euphoria simply has to be left out. The incomplete roads, namely, represent "wasted" money, and it is necessary and clever to focus on one road and lead it to full completion.

3. GEOPOLITICAL SITUATION OF CROATIA WITHIN 21ST CENTURY EUROPE

Beyond any doubt, the fact is that the traffic policy in a strategically interesting space has been and will be greatly influenced (apart from economic processes) by certain political processes. Therefore, it is still popular today to speak of the geopolitical importance of a country or its single regions.

The geostrategic importance of the political processes in Croatia concretely means that this part of the European continent (as the joining point of the Central Europe and the Mediterranean and the Balkan) can be used in the most profitable way by means of traffic valorisation, since Croatia is a very important TRANSIT COUNTRY, both in the continental frames of the longitudinal west-east-west direction, and in the overseas transit frames of transversal direction through the Adriatic ports.

The previous options lead to an obvious conclusion that the real and actual reason for the European interest in Croatia lies primarily in her geographic and traffic position at the cross-roads of the Trans-European traffic corridors that connect Europe, Asia and Africa, rendering thus a PROMINENT TRANSIT SIGNIFICANCE. Thus, as a Danube, Mediterranean and Central European country, Croatia has great possibilities precisely in the field of regional traffic connections. In this case, any institutionalising of relations between Croatia and the EU would depend not only on the general political conditions, but also on the level of economic co-operation with the neighbours and other countries in the region. In operationalising this co-operation, there is a possibility of forming a free trade zone, thus again "gathering and connecting" the "countries in the region" and Croatia would be no exception here.

4. POSSIBLE GUIDELINES FOR AN INTEREST CO-OPERATION OF CROATIA AND THE EUROPEAN UNION REGARDING TRAFFIC POLICY

Planning and construction of the optimal public road network are dynamic categories subjected to newly developed current possibilities and needs, so that the construction of roads need to be considered within the strategy of the overall development of Croatia whose highest priority is integration into the European motorway network, to which we have no direct access yet.

Regardless of the fact that a relatively long construction period is considered (some ten years), and gradual construction and participation of proper civil engineering potentials - the construction of the motorways and high-serviceability roads in Croatia requires large financial means and it would be an illusion to expect that all could be collected from national sources (tax from the consumer price of the fuel, tax for vehicle registration, tax for heavy cargo transport and tolls, tax for foreign vehicles, income from services along the roads, of import duty on vehicles, from concession, and loans of national and foreign banks). All this is not sufficient, and so what is left is foreign material support (International Monetary Fund, World and European Bank for Reconstruction and Development and certain foreign companies and Croatian emigrants i.e. Diaspora) in order to continue or to start with the construction of key sections on the roads that would integrate Croatia into the important European traffic corridors.

Respecting the geostrategic, political and national significance of constructing a modern road network, as well as the international significance of defining traffic connections between Croatia and Europe - the following are considered as absolute priorities of Croatian road construction:

- completion of the Maribor route,
- completion of the Zagreb - Rijeka road,
- connection with the European traffic system through North Italy,
- completion of the Sava route to Bregana, to the Croatian-Yugoslav border (Bajakovo),
- construction of the Split road.

Of course, there are and there will be doubts regarding the suggested priorities, due to various influencing factors. In the context of socio-economic justification of the concrete priority in the construction of certain roads within the traffic network of Croatia, it is to be expected that the Sava connection will top the list, that is, that the real socio-political everyday will focus precisely on this traffic route that could, due to

its international exploitation, return the invested financial means most quickly and most easily, and positively influence the wider national development of Croatia.

The earlier mentioned hypothesis about the sequence of priorities regarding the construction of certain roads within the state network of Croatian motorways and semi-motorways, is based on the economy logic, but also on certain political interests (to the extent which justifies the selective objective).

5. CONCLUDING REMARKS

Regarding the mentioned arguments on justification of the represented hypothesis about the complexity of development issue (construction) of motorways and semi-motorways in Croatia, with the proclaimed official Adriatic orientation - the following may be deduced from the presented options:

- 1) The world traffic is at the moment marked by explosive development in all its forms. The directions of the world and European traffic flows have significantly changed over the past years, and new important economy markets have been created. Large financial means have been invested in the construction of motorways, railway lines, airports, river canals and container terminals. Moreover, Man had never before had so many cars (over 500 mill.), railway vehicles (5.3 mill.), ships (400 mill. gross register tonnage), aircraft (10 thousand), telephones, etc. The result is also significant redirection of traffic flows.
- 2) The majority of professionals agree (and this has been proven by many studies as well) that there is a strong connection between the traffic and the level of economic development, since most of the economic activities cannot function properly without the appropriate traffic infrastructure. This is why the construction and modernisation of our road network (primarily of the high-serviceability roads) is preferred, as an important factor in the overall flows of social reproduction, primarily on the roads defined by the common development strategies important for the whole country, both in the national and in the European framework.
- 3) For the integration of Croatia into the European traffic corridors, thus making our roads a part of the European traffic network, one of the main problems in the further development of road network is the lagging behind in the construction of high-serviceability roads, as a consequence of the long lasting previous insufficient investment in the road network.
- 4) Having in mind on one hand the high foreign currency influx from the transit traffic, and on the other hand the fact that since 1991 Croatia has been mainly taking over the traffic routes between north-west and south-east Europe along the longitudinal Sava traffic corridor - one of the resources that might be better used by Croatia regarding her integration into the Central European traffic is her transit position. This is in accordance with considerations of giving this road along the Sava region a certain priority in construction, since the existing situation lacking motorways in Croatia represents a "bottleneck" of the safe throughput of the European road traffic.
- 5) The fact that Croatia with her geo-traffic position represents the territorial discontinuity between the member countries of EU and OEDC, whose interest in the economic activating of the mentioned position and its integration in the common economic flows is reflected first of all regarding traffic - requires urgent construction of the road along the Sava region.
- 6) And finally, no doubt the Sava and Pannonia-North-Adriatic traffic corridors in Croatia have also an alternative traffic route which allows the traffic to flow around Croatia, thus reducing her geo-traffic significance in this part of Europe. Alternative traffic corridors, in relation to those that pass through the Croatian territory, are not much longer nor are they of lower throughput capacity. Namely, the main logistic principles present today on the world transportation market have reduced the previous significance of the geographic distances in selecting the transport path for freight and passenger destination. All this could, in the near future, influence also the re-directing of transit traffic flows between the countries of Europe and the Near and Middle East to the road network of the neighbouring countries. Fighting against traffic isolation of our country, and its compensation, impose on Croatia as her imperative task the necessity for her affirmation as a TRANSIT COUNTRY. In order to avoid traffic subordination of her position, and to geo-trafficly impose herself in the region, Croatia needs international support, but also a much better inner traffic and general economic organisation. Wider affirmation of the Sava traffic corridor requires also the agreement of SRY controlling its eastern gate. Even the Croatian government is aware of this fact, promoting traffic with SR Yugoslavia although the mutual political acknowledgement is missing. Most probably this was also the key reason for signing a Memorandum on the part of the department representatives of Croatia and SR Yugoslavia about the traffic package so that the traffic isolation of our country would not slowly, but certainly change from threat to an undesired reality. The indicated

possible danger imposes the necessity to adapt the physical, technical and exploitation characteristics of our road network to the European standards and on this basis to attract foreign capital for the construction of the road (and railway) longitudinal. Otherwise, due to the lack of proper financial means, the plan and program for constructing motorways and semi-motorways (mainly oriented towards the Adriatic), could simply fail to be realised.

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2. The global entirety of the today's traffic system of Croatia consists of: about 32 thousand km of roads (state roads - about 7.2 thousand, and county and local roads about 24.8 thousand kilometres), about 2.5 thousand km railway lines with normal track gauge (double tracks - about 500 km), about 600 km inland waterways (for vessels of up to 1.5 thousand tons capacity), eight international airports, seven large sea ports, four major river ports, about 1.1 thousand postal organisations, and about 850 telephone centres and almost a million of telephone switches.
3. The Act on public roads of the Republic of Croatia, accepted in the Croatian Parliament at the end of 1996, public roads are classified as state roads (D), county roads (Ž) and local roads (L) thus revoking the previously accepted categorisation of roads into main (M), regional (R) and local (L) roads. Out of a total of 7.2 thousand of modern roads of state category, currently about 475 km of high-serviceability roads (about 325 km motorways with full profile and about 150 km semi-motorways) have been constructed in Croatia and are being in exploitation.
4. In the new political situation in Europe a process of integration is present with the aim of creating a United Europe (European Union), and a large European consumer market. Co-operation in the field of traffic greatly depends on adopting the network (road and railway) of the Pan-European traffic corridors marked on the territory of Central Europe, connecting it on the shortest route with the Near, Middle and Far East. Therefore, the European countries defined in 1994 on Crete new European traffic policy, EU priorities in the field of infrastructure and traffic corridors treated as a means that will provide the necessary mobility of people, promote simplicity of exchanging goods through trade. Thus nine traffic corridors were planned, and none of them, due to the war in the regions of former Yugoslavia, passed through Croatia. However, at the Pan-European conference on transport held in 1997 in Helsinki, the first step was made towards forming a coherent European traffic system by adopting a wider network of corridors, out of which three pass through the Croatian territory. The Pan-European traffic corridors network, supplemented by the branches of the existing corridors and the new tenth corridor, make it possible to realise two key Trans-European traffic routes through Croatia: the longitudinal which connects west and central Europe with the Near East, and the transversal route connecting the Baltic Sea with the Adriatic.
5. One of four main starting points in the Strategy of road network development in Croatia (recently accepted by the Croatian government) is also the treatment of Bosnia and Herzegovina as a part of an integral traffic system together with Croatia, and the construction of roads so that they connect and not divide these two countries, thus showing certain openness towards the neighbouring nation. The Members of Parliament should offer their opinions on the proposal for the strategy of traffic development at the beginning of 1999.
6. According to the analysis of the practice of public roads network development in Croatia until now, marked by practical preferring of the choice of certain roads over the inferior efforts of defining an integral optimal road network, the process of decision implementation regarding the choice of public roads network can be analysed regarding three comparable phases i.e. time intervals: (1) post-war period up to 1960, (2) from 1960 until Croatia gained independence in 1990, and (3) from 1991 up to the present days.
7. Other basic development objectives refer to gradual increase of investing the means into road maintenance (by 2005 to reach the level of 80% of full standard, and 2013 to reach the level of 100% of the set standard) and upgrading of the overall road network (D, Ž, L) to a higher level of serviceability, which will be appropriate to the level of the overall economic, cultural and social development of Croatia.
8. It is a disastrous fact that over the period of five years of war, the traffic flows went around the territories of Croatia and Bosnia and Herzegovina, thus eliminating Croatia from many a market. Therefore, during that period, the traffic corridor Vienna - Budapest - Belgrade - Sophia (Skopje) and the traffic corridor Ukraine - Budapest - Ljubljana - Koper (Trieste) gained special significance.
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