

CROATIAN TRANSPORT DEVELOPMENT IN CONTEXT OF SEETO PROJECTION

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ABSTRACT

Development of transport infrastructure of South-East Europe is prominent mean in spectrum of connecting countries within the region and integration of the region itself in becoming economic centre of Europe. During the three Pan-European transport conferences, held by Ministers of Transport in Prague, Crete and Helsinki, ten Pan-European corridors were determined as the basis of South-East Europe Core Regional Transport Network. They are strategic priorities in infrastructural development planning. Memorandum of understanding, which was signed in Luxembourg on June 11th, 2004 among country representatives and entities of South-East Europe – Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro, defines the basis of development of Core Network of South-East Europe. Mutual exchange of information as well as defining and updating annual and multi-annual regional development plans and priority projects within member countries is developing through Transport Observatory for South-East Europe SEETO¹. Croatia participates as member state in SEETO. This participation for Croatia is imperatively required in context of its integration in European Union and presents backbone of transport infrastructure development.

Key words: South-East Europe transport observatory, infrastructure core network, development plan

1 INTRODUCTION

The European Union is the key factor in process of revitalization areas of South-East Europe with the objective of improving economic development and regional integrations. European commission in 2001 had defined work document Transport and Energy Infrastructure in South-East Europe², which sets the basis of development of core transport network in the same area. Recent technical studies – Transport Infrastructure Regional Study³, Regional Balkan Infrastructure Study⁴, Transport Project Preparation Facility Project⁵, focused on short-term priority projects and on program for alleviation of commerce and transport in South-East Europe. The core network includes 4.300 km of railway, and 5.980 km of roads, seaports and airports, as well as ports of inland waterways of Danube and River Sava. Signing of Memorandum of understanding noted the establishment of cooperation among member countries in conciliation of development strategies in context of Transport Observatory.

2 SOUTH-EAST EUROPE CORE TRANSPORT NETWORK

The Core Network, which was set out in TIRS study, consists of roads, railways, inland waterways with ports in Belgrad and Novi Sad, seven seaports - Rijeka, Spilt, Dubrovnik,

¹ SEETO – South-East Europe Transport Observatory

² Transport and Energy Infrastructure in South-East Europe, 2001

³ TIRS – Transport Infrastructure Regional Study, 2001

⁴ REBIS – Regional Balkan Infrastructure Study, 2003

⁵ TPPF – Transport Project Preparation Facility Project

Ploče, Bar, Durres and Vlore and 11 airports - Tirana, Sarajevo, Banja Luka, Zagreb, Split, Dubrovnik, Pristine, Skopje, Podgorica, Beograd and Niš. [1]

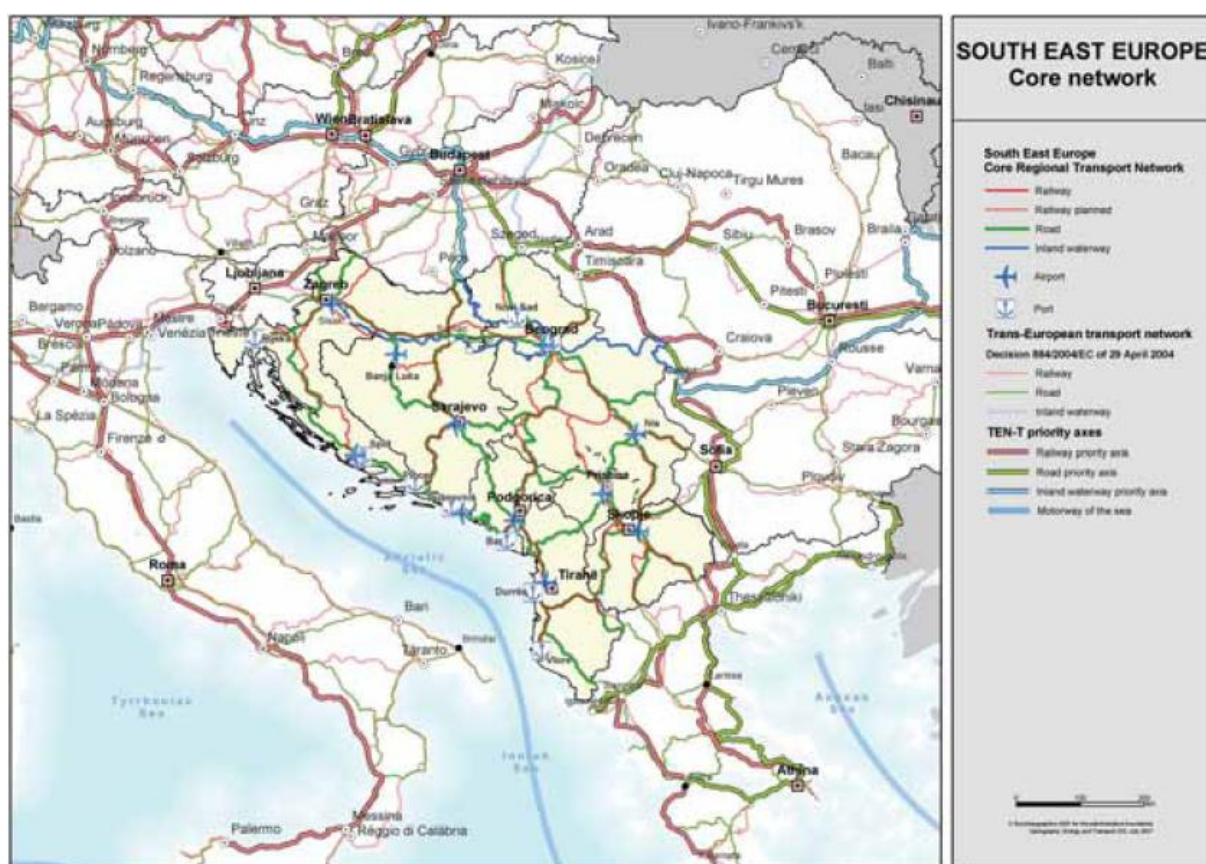


Figure 1: South East Europe Core Transport Network

In inland waterways in Croatia, it has been reported freight traffic for 2004 amounting for 1,200,000 tons. Port Rijeka has the highest container traffic in the region, which increased between 2005 and 2006 by almost 24%, and the highest annual passenger flow has Split with 3,541,000 passengers.

Average Annual Daily Traffic (AADT) on the Core Network increased from 7,759 vehicles per day in 2005 to 8,221 in 2006. The proportion of international traffic along the Core Network in 2006 is around 24% of AADT as well as the heavy goods vehicle traffic accounts around 20% of AADT, which indicates the increasing importance of the Core Network for the economy. The development of the Core Network should include maintenance, reconstruction, rehabilitation, upgrading and new construction as well as its operation emphasizing on the most efficient and environmentally friendly transport modes on a regional scale.

All eleven core network airports have one runway, which is longer than 3 000 Metres only in Belgrade, Zagreb and Dubrovnik. Most of the runways and associated air side sections of the airports are incapable of handling long-haul aircrafts, so there are needs for runway extensions.

Table 1: Infrastructure Data for Airports in 2006

Airport:	Runway Length(m)	Pass. Terminal Area [m2]	Apron Area [m2]
Banja Luka	2,400	800	21,500
Belgrade	3,400	40,000	190,000
Dubrovnik	3,300	9,000	106,000
Niš	2,500	2,500	27,500
Podgorica	2,500	5,500	41,000
Pristina	2,500	5,500	21,000
Sarajevo	2,600	8,000	46,000
Skopje	2,450	4,000	25,000
Split	2,550	12,500	34,000
Tirana	2,750	8,500	54,000
Zagreb	3,250	12,000	168,000

Although rail traffic data is not available for the entire network, on defined parts railway demand in 2006 comprised 45 million passengers and 96 million tons of freight. The average number of trains per day on the Core Network varies from less than 19 trains per day on 54% of the network to over 100 trains per day on just 1% of the network with average traffic density about 30 trains per day.

In the Core Network ports, the total volume of cargo handled is around 22 million tons but the number of passengers has risen in 2006 from 1.8 to 2.5 million. [2]

3 SOUTH-EAST EUROPE TRANSPORT OBSERVATORY – SEETO

South-East Europe transport observatory was established with a purpose of implementation of the Memorandum of Understanding for South East Europe Core Transport Network development, acceleration of economical development within the South-East European countries and promotion of economical and social integration in the region. [3] SEETO has been fully operational since 2005 and aims to establish information systems and to formulate five-year Multi-Annual Plans (MAP) and procedures for improving the Core Network. Sharing of relevant information on development as well as use and operation of the Core Network is an essential element of region cooperation. Information sharing is, therefore an objective to the process and by definition the core function of a Transport Observatory. The series of GIS maps have been developed as a result of data collection using geodetic data initially provided by Eurostat, depicting the position of the Core Network within the European transport system. By now three Multi-Annual Plans were defined with 350 projects, mostly at conceptual stage, submitted to SEETO. The MAP 2008-2012 priority list includes 25 project groups with 39 individual projects – 21 projects on Corridors, 10 on Routes and eight in terminals. Projects include 12 rehabilitations, 16 upgrades and 11 entirely new constructions and the indicative investment programme requires 2.97 billion €.

Railway reform and interoperability, road safety, networks management and border crossing facilitation are identified specific areas of urgent needs for soft measures.

Table 2: Priority Projects Investment Costs by Country and Mode

Investment (million €)	Region (million €)	Albania (M €)	Bosnia and Herzegovina (M €)	Croatia (M €)	The former Yugoslav Republic of Macedonia (M €)	Montenegro (M €)	Serbia (M €)	UNMIK/Kosovo (M €)
Roads	1249.3	256.4	348.1	0	262	104	167.5	111.3
Railways	1289.5	62.5	0	841.7	56	35	227.3	67
Inland WW	51.6	0	0	40.2	0	0	11.4	0
Airports	244.8	0	0	226	0	0	10	8.8
Seaports	141.5	131	0	0	0	10.5	0	0
Total	2976.7	449.9	348.1	1107.9	318	149.5	416.2	187.1

4 ASSESSMENT OF TRANSPORT INFRASTRUCTURE IN CROATIA

Transport division in Croatia plays an important role in economic development with stake of almost 8% of GDP, and in accordance of employing the same percentage of working population - around 80.000 employed people. Transport connection is prerequisite of regional and tourism development of the country, as well as the better geo-strategic positioning in European integration processes. Backbones of transport network in Croatia are sections of multimodal Pan-European corridors, which are already included in Trans-European Transport Network (TEN-T) – section V corridor, X corridor with extension Xa, Danube VII corridor, and Adriatic-Ionian area. [4] In context of necessary resources needed for investment in revitalization of transport network, Croatia has most requests (37% of all resources) as well as the largest GDP when considering all member countries.

Investments from the side of private sector were noted in context of reconstruction and development of road transport infrastructure in Croatia. A road and motorway infrastructure account for 29.016 km in length and by density (18.8 km/1.000km²) has overreached European Union standards. Qualitative aspects of road infrastructure are not satisfying due to improper regimes of maintenance and insufficient usage of ITS application in transport management.

Railway transport infrastructure accounts for 2.720 km in length and has technical code of backwardness and extremely bad security and exploitation characteristic. The reason for it can be found in not investing in modernization, as well as in current maintenance. Only 36% of network is electrified, whereas 16% of network allows speed of 160km/h.

Air-traffic system in Croatia operates within seven international airports – in Zagreb, Split, Dubrovnik, Zadar, Pula, Rijeka and Osijek and two smaller airports in Brac and in Losinj. International air-traffic network through Croatia in context of Pannonian (North) and Adriatic corridor endorse the significance of Geo-Traffic positioning of Croatia in attracting transit transport with stake larger than 18%.

Inland waterway network accounts for 804 km in length, with four main River ports – in Sisak, Slavonski Brod, Vukovar and in Osijek. Sea transport consists of six main seaports – in Rijeka, Zadar, Sibenik, Split, Ploce and in Dubrovnik. Ports can be divided according to specialization of port activities and according to it, ports of Rijeka and Ploce and specialized for cargo transport, and other ports for passenger transport. [5]

5 SEETO MAP (2008-2012) SURVEY OF CROATIAN PRIORITY PROJECTS

The SEETO selection process relates to the general strategy of the Core Network development. Main project assumptions in the process of prioritisation are high regional interest, good economic performance whilst stimulating wider development, financial sustainability and possibility of attracting private investments, contribution to the environment, social cohesion promotion and appropriate technical solutions with adoption of

international standards where feasible. Of the 39 projects, only 10 of them have an Economic Internal Rate of Return (EIRR) available, which ranges from 8.5% to 26% indicating the feasibility of those projects.

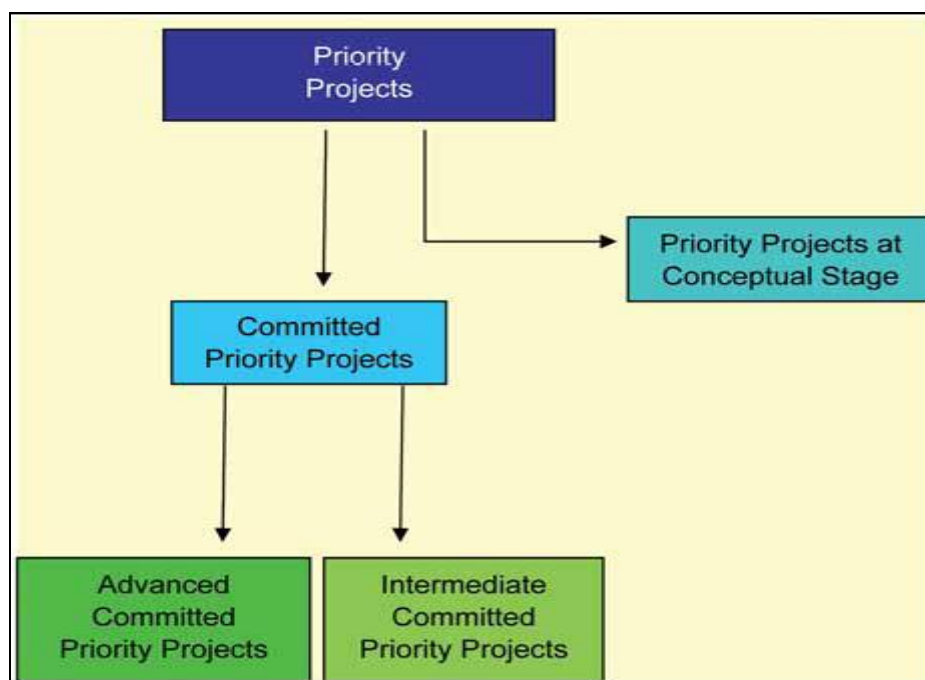


Figure 2: Priority projects classified according to maturity

Advanced projects are those where feasibility and design studies are completed, in intermediate projects pre-feasibility study is completed and those projects are well defined as a difference from conceptual stage projects that do not have a pre-feasibility study. In conceptual stage projects should accordingly firstly secure funds for studies such as pre-feasibility or preliminary design while the funds required for advanced projects are intended for the implementation phase of the project.

5.1 Priority projects on developing Croatian transport network with approved Financing

Projects `Port of Ploce, Transport and Trade Integration` and `Port of Dubrovnik - construction of international passenger terminal` were defined in MAP 2006-2010. Although these projects are matured and on certain sections almost completed, they are still in the priority list because additional financing is required.

5.1.1 Port of Ploce, Transport and Trade Integration

The project aims on increasing capacity from the current 2.8 million tons to almost 10 million tons. A port master plan has been prepared and investment in landlord infrastructure and other facilities has been funded. This project is carried out in parallel with upgrading of adjacent parts of Corridor Vc, connecting railway and motorway to Ploce. The project requires total investment of 91 M€ and the project duration is four years.

5.1.2 Port of Dubrovnik - construction of international passenger terminal

The project purpose is dock extension in the Dubrovnik port, construction of a new passenger terminal and enabling docking for up to three large cruise vessels. First phase refers on putting together several short berths into one long quay wall of more than 800 meters in length. The additional land area is a pre-requirement for a new passenger terminal that is planned as a concession development in the harbour. The project requires total investment of 91 M€ and the project duration is four years.

5.2 Croatian transport network priority projects at advanced stage of maturity

In accordance with impossibility of handling predicted traffic growth, whereas existing terminal building on Zagreb airport has outdated technology and is over 40 years old, it is required to build a new passenger terminal. Foreseen location of a new terminal building is 2.5 kilometres northeast of the current terminal. There is also need for a new runway which would enable, with a terminal larger than 65,000 m² with 11 air bridges, handling of annual capacity of five million passengers. Towards long term development committed infrastructure investment for a new passenger terminal is 158 million €, for aircraft apron and taxiways is 21 million €, and roads, car parking, utilities and civil works is 32 million €. The largest co-owners of the Zagreb airport, the Croatian Government and the city of Zagreb, in 2007 agreed on a financing model - 60% from the national budget and 40% city of Zagreb. Estimated schedule of a project is five years.

5.3 Croatian transport network priority projects at intermediate stage of maturity

Further development and financing of a project `Rehabilitation and improvement of the Sava river waterway` will be based on cooperation between Croatia and Bosnia and Herzegovina. According to a mutual agreement Croatia has to cover approximately 80% of total budgetary resources with one third from the national budget and rest possibly from IPA⁶. Aim of a project is a construction of groynes that will concentrate river flow as well as the rehabilitation of existing groynes and dredging to increase the water depth. Estimated budgetary resources for the project are 40.2 million € and the estimated schedule is two years.

5.4 Croatian transport network priority projects at conceptual stage

A MAP 2008-2012 contains 18 priority projects which are at conceptual stage without pre-feasibility study, hence not matured for financing and consequently implementation at this stage. Of these projects, six are located in Croatia from which five are concerning railways and one airport.

5.4.1 Zaprešić to Savski Marof railway rehabilitation

It is perceived need for a separation of passenger and freight traffic in the area of Zagreb junction through the future by-pass on the western entrance to Zagreb. Referred to above mentioned separation the aim of a project is the reconstruction of the railway station Zaprešić. Some of the project concerns are replacement of the permanent way material, reconstruction of station tracks in Zaprešić and Savski Marof and rehabilitation of level crossings. Estimated

⁶ IPA - Instrument for Pre-accession Assistance

budgetary resources for the project are 23.3 million € and the estimated schedule is two years.

5.4.2. Zagreb Main station signalling and interlocking system

Zagreb main station has old and unsafe signalling equipment that reduces speed to 30 km/h. Considering Zagreb as main station is the main junction for inter-city and long distance passenger and freight traffic on the X and Vb corridors project concerns the installation of the new electronic signalling equipment. Some of other interventions that are going to be made at main station are installation of the new equipment for control of the inter-station distance between Zagreb Main and West Stations, replacement of the old outdoor safety elements and cables and adaptation of the existing equipment building. Required investment funds are 17.9 million € and the estimated duration of a project is two years.

5.4.3. Okučani to Novska railway rehabilitation

On a double track line from Okučani to Novska speed limit is 160 km/h, with the exceptions of a curve on the exit of the railway station Okučani where the maximum speed is 100 km/h. The aim of the project is to achieve speeds of 160 km/h on the whole length and to increase line capacity as well as decrease maintenance costs. Required investment funds are 38.5 million € and the estimated duration of a project is two years.

5.4.4. Novska to Dugo Selo railway rehabilitation

This project is performed in three phases: Novoselec – Dugo Selo, Kutina – Novoselec and Novska – Kutina. Track overhaul of the single track line includes reconstruction of station tracks, reconstruction of curves to increase speeds to 160 km/h, replacement of certain level crossings with bridges, rehabilitation of other level crossings, upgrade of telecommunication system. Estimated budgetary resources for the project are 135 million € and the estimated time of completion is in three years.

5.4.5. Railway line Botovo-Zagreb-Rijeka - first phase

As the current railway line Botovo – Rijeka reached its capacity limit the necessity for a completely new railway line has shown. The new line will be constructed from Karlovac to Rijeka and will enable speeds of up to 200 km/h for passenger and 120 km/h for cargo trains. The new railway route will bypass Gorski Kotar mountain range reducing time travel between Zagreb and Rijeka. The requested investment funding for the project development are 627 million € and duration of project is four years.

5.4.6. Split airport new apron

During summer season, at peak hours, apron capacity at Split airport has reached its limit and the expansion is required towards providing sufficient aircraft parking stand. The expansion is planned in the south west area of the terminal. The project duration is one year and requires 15 million € available means.

6 CONCLUSION

The fundament of South-East Europe regional development is integration of member countries and their transport and economic affiliation with other European Union country

members. Since 2004 more than 400 million Euros were invested in the realization of SEETO priority projects and positive shifts in development of road, railway and air-traffic infrastructure as well as in sea transport and inland waterway transport were noted. Focused development of all transport modules within South-East Europe Core Network is shown in total traffic increase and in economic revitalization of the region. Core objectives of the development plan 2008 – 2012 is increase of standards of road and railway infrastructure according to standard TENT network, and setting up the harmonized politics of toll collection as well as defining sustainable and profitable projects appropriate for foreign direct investment. Backbone of upcoming development plan 2009-2013, which production is in full responsibility of Transport Observatory, introduces the development of central digital database about situation of network and its dissemination among member countries. Croatia, as soon to become European Union country member, has an obligation of involvement in projects of development of European transport network. As it was not involved in project of development of Trans-European network introduced by document of TINA⁷, due to recent war, Croatia its further transport development bases on development projects of South-East Europe Transport Observatory.

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⁷ TINA – Transport Infrastructure Needs Assessment