RE-BALANCING SURFACE TRANSPORT IN S. E. EUROPE: OPPORTUNITIES AND PROSPECTS

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Abstract

This paper addresses the all-important issue of the re-balancing the future traffic flows in South East Europe towards more use of rail and maritime (including inland waterways) transport. First, the elements of the new EU transport policy that address this issue are mentioned. Then, the paper examines in detail the specific factors that apply in the region of the S. E. Europe and which may alter or influence the expected results of the application of these factors. The factors examined are:

- Improving the infrastructure of the railways
- Various measures of promoting transport by sea and inland waterways
- Turning "intermodality" into reality
- Building the Trans-European Transport Networks
- Adopting a common policy for charging for transport
- Utilizing research and innovation technology
- Implementing medium and long-term transport related environmental objectives
- Implementing transport related "soft" measures

The last section of the paper examines in more detail the status and prospects of improvement of two major rail axes in the area, the axes No X and No IX. This is given as an example of the kind of actions needed to improve rail infrastructure and the involved substantial efforts that are necessary.

Keywords: Transport policy; South East Europe; Modal choice; Rail infrastructure
Topic area: G05 Regional transport issues in South/East Europe

1. Introduction

In September 2001 the EU published the long awaited white paper detailing its Transport policy for the decade 2000 – 2010 (EC, 2001). In it the Commission states the prime goals of its Transport policy for the decade, its priorities in fulfilling these goals, and the policy measures to achieve them.

There are four prime goals set out in that paper, as follows:

1. *Shifting the balance between the modes of Transport*
2. *Eliminating Bottlenecks in traffic flows in congested networks (all modes)*
3. *Placing the Users at the heart of Transport Policy measures, and*
4. *Managing the Globalization of Transport.*

This paper deals with the first of these objectives as it applies specifically for the area of the South East Europe. In doing so it expresses the experience and views that the author has gathered as chairman of the South East European Transport Research Forum (SETREF) an Organization that incorporates 32 member Organizations involved in Transport research in the area of South East Europe. It is also the result of a number of

studies focused in the area in which the author is involved (IMONODE, 2003 - Giannopoulos et al, 1998 - Giannopoulos et al, 2002C – SETREF, 2001 – SETREF, 1998).

In two previous papers by this author (Giannopoulos, 2002A and B) four major interrelated and interacting factors are discussed as "drivers" for the development of an efficient transport infrastructure and services in an area

The first is the development of new infrastructure, and the improvement and better management of the existing one. This is all the more important in areas (such as the S. E. Europe) where a lot of such infrastructure is still missing, or damaged or destroyed, or simply not connected for reasons of political differences between neighbouring countries.

The second is the policy framework and its legal and administrative expressions. This, influences of course, the development and management of Transport infrastructure and services but it mainly affects elements like the functioning of the (transport) market, the preservation of competition, the minimisation of the adverse effects of transport, and a number of other similar items.

A third driver is the aspirations and needs of the "customers" or "users" of the system, and in a wider sense the travelling citizen, and the society as a whole. For the travelling citizen, a growing expectation for fast, efficient, and reliable transport services as well as accurate and timely information about them is now days a necessity.

There is a fourth driver: the advent and fast commercial proliferation of the so-called "soft" technologies, or *Information Society Technologies (IST).* The IST are very quickly becoming available in the field of transport anywhere, anytime, through user-friendly interfaces and by the turn of this decade what has been called the *Intelligent Transport System (ITS)* will be a reality in some parts of Europe. The *Mobile Information Society* is emerging in the countries of the Western and Northern Europe and will eventually be extended to the rest of Europe too (Giannopoulos, Gillespie, 1993).

The starting point of this paper is that effective policies to re-balance traffic flows in the region of S. E. Europe, must address all four of the above "drivers" while at the same time giving importance to the overwhelming need to improve national competitiveness and quality of life in the respective countries.

In the following we discuss the prospects and possibilities in terms of the policies to be followed and the priorities and possibilities for improvement in infrastructures as well as in safety and efficiency issues.

2. Towards an effective regional transport policy for S. E. Europe

2.1 The EU Transport policy provisions

There are seven major actions suggested in the EU's transport policy paper (EC, 2001) that touch upon or directly promote re-balancing of transport flows and promoting intermodality. These are listed and briefly commented upon, in Table 1 below.

Table 1: List of Actions for re-balancing transport flows in the EU's white paper

A/A	*Short title of Action*	*Short description of action*
1	Revitalizing the railways	The policy is to open up rail markets with improvements in interoperability and safety, not only in international services, but also in the national ones. It strongly emphasizes also the need for the separation between infrastructure and operation provision, and the opening up of the market of rail services to competition, including the lifting of the cabotage principle.
2	Promoting transport by sea and inland waterways	Short Sea shipping is seen as a desirable alternative to building new roads within the framework of the Trans-European Networks. For the inland waterways too, their position as "*intermodal branches*" is to be strengthened with the development of modern transshipment facilities as well as the establishment of new more efficient inland waterway vessel characteristics.
3	Turning "intermodality" into reality	This action is directly aimed at technical harmonization and interoperability between systems (particularly for containers), in order to promote intermodality. A most notable concept in this area, is the so called "*sea motorways*" i.e. road/rail – sea intermodal initiatives (currently funded through the "***Marco Polo***" programme).
4	Building the Trans-European Transport Networks	This is perhaps the most interesting of the actions foreseen in the white paper, especially as it sets out a distinct priority for the development of rail infrastructure. The revised guidelines issued in 2003, aim at removing the bottlenecks in the railway network, and completing the routes that are identified as priorities for absorbing traffic flows generated by the enlargement, particularly in frontier regions. The new revision particularly promotes the concepts of "*sea motorways*", developing airport capacity, linking the outlying regions on the European continent more effectively, and connecting the networks of the candidate countries to the networks of the EU countries.

Table 1 (continued)

A/A	*Short title of Action*	*Short description of action*
5	Adopting a common policy for charging for transport	The general principle is the equal treatment for operators and between the modes of transport as regards the price for using infrastructure. Two basic guidelines are adopted in that respect: Harmonization of fuel taxation for commercial users, particularly in road transport, and Alignment of the principles for charging for infrastructure use (integrating the external costs1).
6	Putting research and technology at the service of clean, efficient transport	Specific mention is made to the expectations from the 6th Framework Programme (6th FP) for Research and Development and its specific foci for the support of Transport policy. Among these are: intermodal transport, railways, safety standards (especially in tunnels), harmonization of the means of payment for certain infrastructure (particularly motorway tolls), etc.
7	Developing medium and long-term environmental objectives for a sustainable transport system	This action aims at creating a package of proposals for measures that if implemented by 2010 will re-direct the common transport policy towards meeting the need for *sustainable development*. The priority is set to proceed to the adoption of pro-active measures for the implementation of new forms of regulation in order to channel future travel demand for mobility.

2.2 The regional dimension of Transport Policy for S. E. Europe

Relative to the above general policy guidelines and actions list of the EU's white paper, some basic questions apply. How far and how well these principles can be implemented for S. E. Europe? What more will be necessary as an additional impetus to a policy of re-balancing? What priorities apply for the South East?
These are questions to which some credible answers are sought in the following.

Revitalizing the railways

The Eastern European societies before the change of their economic and social system in the late '80s were primarily rail oriented. In the last decade, rail transport is on a steep decline and road transport gains continuous increases. The rolling stock and the rest of their rail infrastructure is in a bad shape of repair, and a lot of new investment is necessary in order to keep things as they were say even 10 years ago. It is characteristic that the "onslaught" of road transport in the South East will continue since most of the relevant indicators are still very low compared to the western European countries. Table 2 presents this by giving data on road densities and car ownership in the countries of the area and how they lag behind western ones.

Still, rail transport is yet a relatively high percentage of total transport as compared to that of western European countries. For the railways of S. Eastern Europe to stop their

1 As described in the so-called Costa report no A5-034/2000 of the European Parliament.

decline and even more regain their share, serious attention must be paid to the following items:

- improvements in infrastructure
- waiting times at borders to be reduced and border formalities simplified,
- Travel times to be comparable to road transport (if not lower), and
- Costs lower (some cost elasticities found in recent studies suggest that they must be at least 30% lower).

Table 2. Road network density and car ownership levels in 15 countries

No	Country	Motorways		Roads		Degree of motorization
		(km/1000 km^2)	(km/10000 citizens)	(km/km^2)	(km/1000 citizens)	(personal car/ 1000 citizens)
1.	Greece	0.89	11.23	3.56	4.51	223
2.	Hungary	4.51	4.13	1.71	15.61	238
3.	Romania	0.47	0.49	0.66	6.90	106
4.	Bulgaria	2.83	3.56	0.33	4.16	204
5.	Croatia	5.62	6.69	0.48	5.74	175
6.	Yugoslavia	4.79	4.66	0.49	4.71	145
7.	FYROM	5.17	6.04	0.34	3.95	141
8.	Austria	19.16	20.29	1.54	16.30	458
9.	France	17.24	16.45	1.62	15.45	438
10.	Germany	31.67	13.90	1.77	7.79	498
11.	Italy	31.53	16.62	1.04	5.55	568
12.	Czech Republic	5.36	4.11	0.70	5.39	324
13.	Poland	0.80	0.67	1.20	9.78	208
14.	Slovakia	4.39	4.03	0.36	6.86	196
15.	Slovenia	11.41	11.85	0.73	7.65	365

The above are further detailed in a later section for the two major rail axes that transverse the area, i. e. the rail corridors no. X, and no IX.

Revitalization of the railways in the South East will also mean dramatic changes in current organization and management structures and practices. These are still (in mentality as well as in substance) as in the old state owned Organizations where the prospect of competition and private ownership were not anticipated. Re-organizing therefore the rail Organizations of the S. E. European countries, must be the primary objective and action of all governments in the area if re-vitalizing the railways is to have any meaning at all.

Promoting transport by sea and inland waterways

This objective, for the South East can only mean two major actions:

1. Urgently opening up the Danube ports (especially the ones in Serbia which were damaged due to the war) to intermodal transport, and
2. Doing the same for Mediterranean ports of the Adriatic and the Aegean seas.

For the first, a series of Freight Transport intermodal Terminals should be promoted on the ports of the Danube that serve the South East and be efficiently connected first and foremost with the rail network. The linking of one inland waterway port to one in the sea

by rail may create the much needed impetus for intermodality, and re-balancing. Such is the case, for example of the ports of Belgrade and Thessaloniki, or Thessaloniki and Lot which if effectively linked by rail can act as "pairs" for the combined transport for the transport of goods from the Mediterranean to central Europe avoiding all road transport. As the road traffic flows on the road network of SE European countries is already growing fast (SETREF, 2001), rail should be the primary mode to use for linking of these nodal points.

Turning "intermodality" into reality

Intermodality has been sought after for a very long time all over Europe, with no real success. Strangely enough in the South East this notion stands a better opportunity of success for two reasons:

1. The railways still own large installations and capacity, especially at Terminals, which can be utilized for intermodal rail / road transfers, at a low cost. This is for example the case of the MAKIS Terminal outside Belgrade. These Terminals (as well as the large areas of land still owned by the railways near them (or at other points along their lines) must be "exploited" by way of priority as intermodal freight terminals.
2. If the railways of the area manage to cooperate effectively, they are still capable of offering low intermodal tariffs for door-to-door transports due to the relative low wages paid to the railway (or road vehicles) personnel as compared to their western European counterparts. Offering competitive tariffs for door-to-door intermodal transports is a key element in developing intermodality in an area. The governments of the area must therefore by way of priority (and parallel to improving the rail infrastructure) act as catalysts for the railway companies (in their present status) to co-operate in offering reduced tariffs for intermodal transports.

Building the Trans-European Transport Networks

As regards the development of the Trans European Networks, an objective review of national requirements as well as of the national economic development prospects, for the economies of the non-EU member countries of the South East, shows that *these economies do not at the moment posses the necessary impetus and strength to attract private funding for their (infrastructure) development needs. At the same time they do not seem to be likely to attract any substantial funding from EU institutions either*.

The next, 4th EU CSF (Community Support Framework) funds will most likely be directed towards the 10 new member countries and even more so within them, to those that are at a stage of economic development more likely to take maximum advantage of it (e.g. Poland, Czech Republic, Hungary).

The situation in the South East calls for a careful setting of priorities as regards transport infrastructure. One of them should be to try and reach an agreement on a minimum Master Plan for realistically developing these Networks. The priorities in these Networks should be set by common agreement of all the countries involved and should maximise the benefits to the economies and create the maximum multiplier effects.

The TEN networks (EC 1997) as well as some major feeder routes to ports and railway terminals should form part of this network. The creation of consensus on such a Master Plan should be promoted by Organisations that promote cooperation in the area such as the SECI, the Black Sea Cooperation Organisation, and SETREF.

In later sections we refer more specifically to the two major rail axes in the area (parts of the TENs) i.e. axis no X and no IX.

Adopting a common policy for charging for transport

One major aspect of this action has already been stressed in relation to the intermodality issue above i.e. the need to develop and use unified door-to-door tariffs from the railway networks in the area (UIC 1994).

Another aspect concerns the proper charging of road transport for the true cost they imply as well as in applying the working conditions rules and regulations set (for road Transport) by the UN ECE as well as by the EU. Again, the countries of the South East are further away than the rest of Europe, from applying effectively these rules, and here again is an area of priority attention by the governments of the area.

Utilizing research and innovation technology

Certainly here there is a lot to be said here in favor of the role of research and innovation. A recent survey (Giannopoulos - Mikoulik, 2001) revealed that research in general (and transport research in consequence) in the countries of the South East is far below the levels of western European countries. Research spending in the South East is around 0.3 - 0.5% of the GDP as compared to approximately 1.5% on average in the EU (and this will soon double to 3% under the Lisbon Decision of the EU heads of state).

Research and innovation technologies can have a decisive impact on transport operation, safety, and efficiency. Utilizing therefore such means to improving the transport conditions, in the area of the South East will need a lot more investment in research than today but above all information and motivation to the decision makers to do so under the current deer economic conditions.

Developing medium and long-term transport related environmental objectives

The process by which transport services are likely to evolve to their future state (in terms of quality and quantity) in the area of the South East, will be characterised by the series of (short-term) cycles also found in other societies that evolved earlier i.e.:

"***Growth***", represented by increased volumes of transport, but also increased use of new infrastructure, new organisation methods, etc.

"***Equity",*** i.e. wider availability and use of these higher quality services by an ever increasing number of small and medium sized "users"; and then finally comes

"***Environmental***" awareness, with environmental restrictions, incentives for higher use of intermodal transport, and "green" types of vehicles and modes.

The countries of the South East are still in the first of the above cycles, and thus active environmental awareness (of their societies as a whole) is yet to come. However, the governments need to take immediate measures to adopt transport related environmental objectives in both the planning and construction of their transport infrastructure and in the operation of the transport system. Respecting environmental awareness by way of priority especially in the South East, even if other more compelling problems face the every day life of its citizens is something that will also benefit very positively the effort to re-balance transport flows.

Implementing more "soft" measures

Another potentially very strong catalyst to effect re-balancing in the South East is to try and improve the so-called "soft" elements in the Transport system of the area. These are primarily the following:

- *Information flows*, i.e. improving both the "quality" and quantity of information to the user of the transport system.
- *Safety and security of operation,*
- *Management* tools and methodologies for better managing transport companies.

Most of these are attainable via the application of Information and Communication technologies (ICT) and primarily the development of fast and inexpensive ***data***

communications networks, that will support the operation of the future (as well as the existing) transport system in the area.

Finally, another type of "soft" measures and actions must be commented. These are known as *demand management* actions, i.e. measures that aim to adapt the "demand" to the available "supply" of transport infrastructure and services. They include measures such as establishing cheaper tariffs or transit fees for non-peak hours or days, effecting route choice by providing dynamic on-line information, etc. These actions are particularly important given the realisation that transport infrastructure provision will practically never catch up with "demand".

3. Development of an efficient network of rail transport infrastructure for the South East

There are two major railway axes in the area (both parts of the Trans-European Networks): rail corridors no X and no IX. These are examined in more detail in the following as two of the most characteristic examples of rail transport infrastructure in the area.

3.1. Rail corridor no X

This corridor links Thessaloniki in Greece with Munich via Skopje, Belgrade, Zagreb Ljubljana, Vilach, and Saltsburg. One link goes up until Budapest (see Figure 1).

Its basic current characteristics are shown in Table 3.

Table 3. Rail corridor X Thessaloniki – Zagreb - Munich. Length and type of track

Country	Route-length (km)	Percentage per country	Type of track	
			Single (km)	Double (km)
Greece	77	4.6	77	-
FYROM	212	12.6	212	-
Yugoslavia	525	31.1	362	163
Croatia	316	18.7	198	118
Slovenia	187	11	64	123
Austria	218	12.9	51	167
Germany	153	9.1	-	153
Total	1688	100.0	964	724

In a study of this axis performed in 1998 (AUTh, 1998) there were 3 "scenarios" which were developed for its improvement especially after the war ended. One was the basic "**do nothing**" one which assumed that only the absolutely necessary projects would be undertaken, basically in order to make this axis operational. The second scenario was the so called **realistic** one, i.e. one that provided a realistic level of investment, and the third which was the "**optimistic**" one, i.e. one that would be desirable but would require an increased level of investment which is more difficult to find.

These scenarios are shown in a summary form in Table 4 below.

Table 4. Infrastructure projects envisaged by each scenario for improvements along corridor X.

Do-nothing scenario	**Realistic scenario (Scenario "1")**	**Optimistic scenario (Scenario "2")**
• Electrification on Thessaloniki-Idomeni line • Track overhaul works between Niš-Velika Plana – Beograd. • Doubling and re-alignment between Schwarzach/St Veit and Villach. • Realization of a common program of track maintenance and inspections	• Partial realization of track overhaul works at FYROM • Only the works needed for restoration to pre-war standards are foreseen between Niš and Preševo. • Minor works between Niš and Beograd. • Completion of the high-speed line between Batajnica and Stara Pazova. • Partial completion of several improvement programs between Šid and Salzburg.	• All actions included in scenario "1" plus: • Completion of scheduled modernization works between Šid and Salzburg (In Croatian, Slovenian and Austrian territories). • Completion of track overhaul works at FYROM • Progress of high-speed line program in Yugoslavia according to schedule.

From the evaluation it became evident that only in the "optimistic" scenario can we hope to attract any significant passenger transport flows because passenger traffic can only be there if there is a drastic cut in running times and waiting times at borders and even then the bulk of the (passenger) traffic will be for short to medium distances. For the long distance e.g. Thessaloniki to Munich even a very optimistic 23-hour travel time is too much (compared to air travel) to attract considerable numbers of passengers.

Examining the feasibility of promoting corridor X within the freight transport domain, this could be viable if:

- There are improvements in freight center infrastructure with complimentary advances in use of innovative logistics
- Scheduled waiting times as well as Border formalities are reduced
- Some form of Tracking and Tracing capability for the unit loads (or wagons) is introduced.

The specific improvements for freight transport operation along the axis X are currently under study by an EU financed (Interreg IIIB) project called IMONODE (IMONODE, 2003).

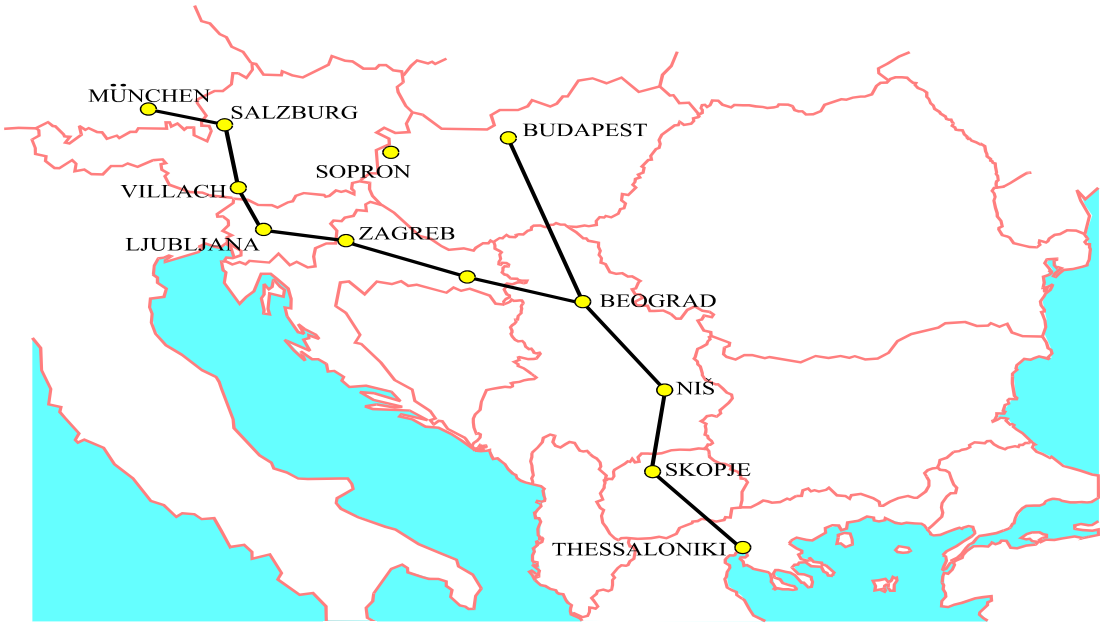

Figure 1: The rail corridor X.

3.2 Rail corridor no IX

This is also a very (potentially) important rail axis in the area. Its current main characteristics for the section in SE Europe, per country, are given in Table 5 below. An outline of this axis is given in Figure 2 (Giannopoulos, Pyrgidis, 2002C).

Table 5: Existing geometric and operational characteristics of SE section of rail axis IX.

Crossed Country	**Track length**	**Length Percentage Per Country.**	**Track gauge (mm)**	**Type of track**		**Load Per Axis (t)**	**V max**	**Traction system**	**Signalling system**
				Single	**Double**				
Greece	179	6,2%	1435	179	-	20,0	100	Diesel	Mechanical
Bulgaria	380	13%	1435	347	33	20-22,5	105	Electrical 25KV-50Hz (81,5%)	Mechanical
Romania	595	20,4%	1435	77	518	20,0	160	Electrical (77%) 25V-50Hz	Electrical
Moldavia	209	7,2%	1520	103	106	22,5	100	Diesel	Mechanical
Ukraine	1038	35,5%	1520	-	1038	22,5	120	Electrical 25KV-50Hz	Electrical
Russia	519	17,7%	1520	-	519	22,5	120	Electrical 25KV-50Hz	Electrical
Total	**2920**	**100%**	**1435 39,5% 1520 60,5%**	**706 (24,2%)**	**2214 (75,8%)**	**22,5 (67%) 20 (33%)**		**Electrical (79,6%) Diesel (20,4%)**	**Electrical (73,7%) Mechanical (26,3%)**

Its current operational characteristics are typical of rail infrastructure in the area:

- *Commercial speeds* are low. For example the following figures from sections indicate current data from existing time tables, and can be considered as representative of the whole axis:

Bucharest- Chisinaou	:48,7km/h, 12h32'
Moscow-Kiev	:67,8km/h, 12h50'
Odyssos –Stara Zagora	:33,0km/h, 35h
Svilengrad-Russe	:51,7km/h, 7h15'

  The small commercial speeds are mainly due to:
  - ◊ Small speeds, which are imposed due to poor rail quality, "narrow" alignment characteristics and delays applied. The average speed in the total axis length (Alexandroupoli-Moscow) is estimated at below 60 km/h.
  - ◊ Delays in 9 border stations (on average 45 min to 1 hour per station) and especially in Moldavia-Romania borders (2h due to truck changing).
  - ◊ Delays due to traction unit change. For the total axis length there are 7 points of traction change (Mihaylovo, Tulovo, Dabovo, Russe, Iasio, Ungeny, Suhinici).
- International *Train schedules are not coordinated optimally*. It is characteristic that according to current schedules for a passenger train that goes from Alexandroupoli to Bucharest 1,5 day is required for the 667km distance. This total travel time includes a 22h delay (!) for a train change in Svilengrad. This fact alone practically excludes any passengers from using this service.

However, the prospects for this corridor can be good as it is shown in the SWOT analysis that is presented in Table 6.

The recommendations for the S. Eastern sections ("normal gauge") of rail axis no IX, from a study performed for the Greek railways[2] by the author (Giannopoulos, Pyrgidis 2002C) are characteristic of the type of actions needed for the improvement of most rail infrastructure and operation in the SE Europe:

All countries of the southern part of the axis have put in place or are starting to execute plans and programs for the improvement and modernization of their respective sections. However, these are almost exclusively focused on their **National** priorities and programs and there is little evidence that the international characteristics of the axis are taken into account. In other words one misses the sort of interventions that are necessary in order that the axis operates efficiently as an axis and not with a minimum level of service common among all implicated networks.

So the **first** and probably most important recommendation, which could be taken up immediately by the current working group of the rail networks of axis IX, is *to proceed to a systematic listing of priorities and interventions that are currently planned in each network, and to discuss coordination of actions and investments. This coordination could be the **first priority** subjects in the Agenda of this group or other higher-level committees of axis no IX.*

[2] By the Laboratory of Transport Engineering, Aristotle University of Thessaloniki.

Table 6: SWOT analysis for freight and passenger transports via the rail axis no IX.

Strengths	**Weaknesses**
• Rail as means of transport has been in the past and continues to occupy at present an important position in the economies of S.E. European countries. • The geographical position of axis no IX gives the possibility, under certain cost conditions, for credible alternative land transportation links instead of the sea transportation via the congested Dardanelle passage. • The rail IX axis has several ports "connected" to it via short rail links or directly. • All countries that are now "promoting" the rail axis no IX have good relations and cooperate in many fields.	• Operational problems (different track gauges, many border points, different connection and braking systems, etc). • Low operation speeds. • Low levels of investments on this axis • Bad quality of rail superstructure. • At present the port of Alexandroupoli is not connected to the axis. • Some of the sections of the IX axis are not primary links in the rail networks of their respective countries and have a low importance and priority in the respective funding.
Opportunities	**Threats**
• Infrastructure and development works are taken place in the port of Alexandroupoli, which is the end of the axis, That will allow it to play a proper transfer points for loads via this rail axis and its associated rail network. • OSJD has achieved very good cooperation levels among its members (SMGS agreement). • The expected rail reformation in Europe gives new opportunities for change from road to rail transportation. • Predicted economy development of S.E Europe countries will allow increase of transportation work. • Congested sea transportation via the Bosporus and the Dardanelle today.	• Road means of transport continue to gain an ever-increasing share in freight and passenger transport. • There are other competitive rail axes that are been given higher priority at national programmes. • Construction of the road axes East/West gets higher priority in relation to rail (e.g. the construction of the Egnatia road axis, or axis no 8). • Proposed oil pipeline connecting Varna to Alexandroupolis may diminish any potential for oil transports via this axis, while at the same time it will make the sea transport via Bosporus less congested and thus more attractive.

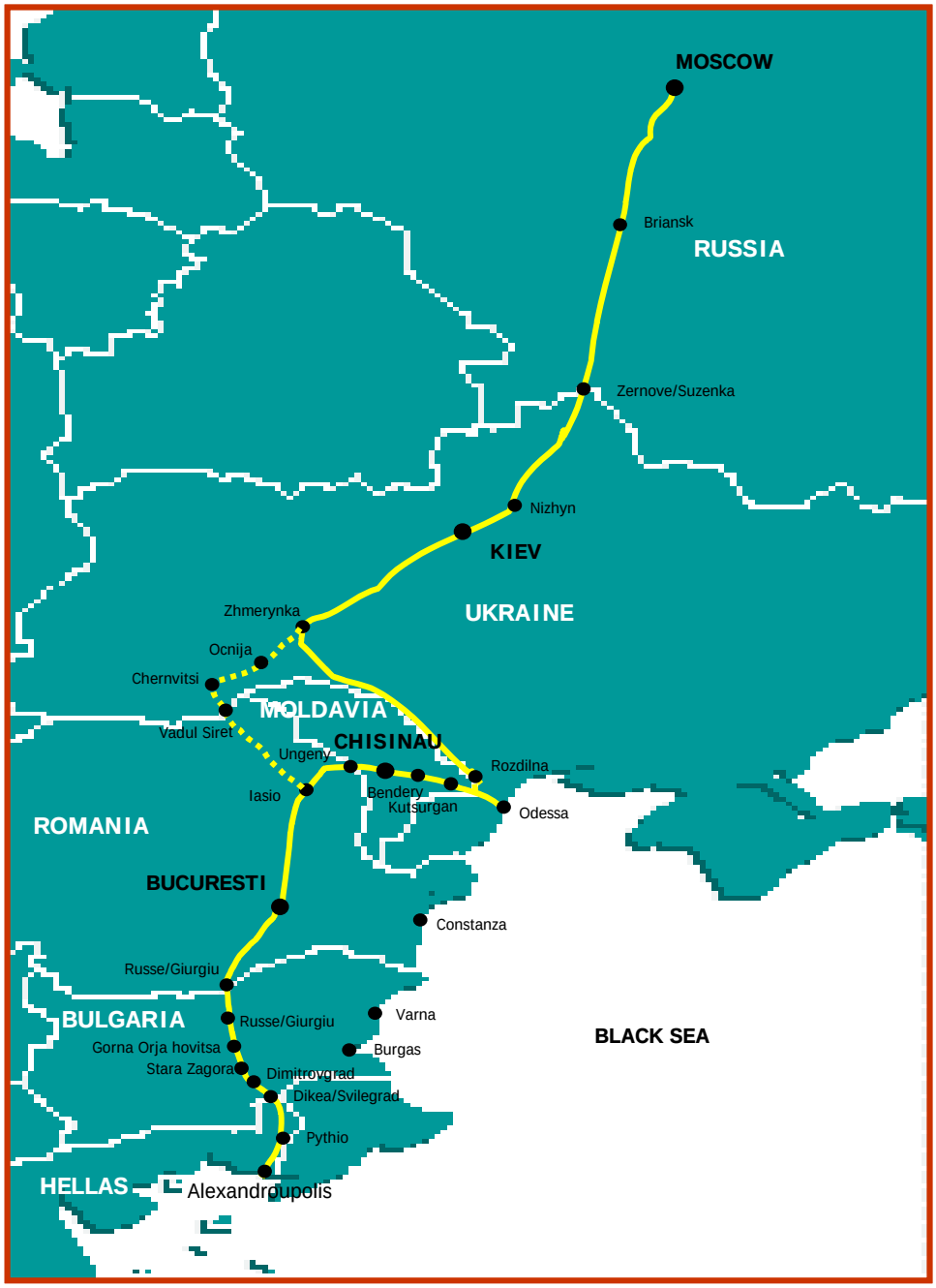

Figure 2: Rail axis no IX

As regards the ***improvement of the "infrastructure"*** of the axis, in its general sense, the following points were recommended. These points have both long term and short term perspective, those for the longer term must be taken as "common objectives" to be agreed by all rail networks concerned and applied in their national planning and work execution:

1. All rail infrastructures along the axis should be upgraded to have as a minimum weight the 20t axis load and minimum commercial speeds of 120km/h. This configuration would speed up freight trains and ensure a satisfactory level of service for freight transports along the axis.
2. For satisfactory passenger transport services (both domestic or between neighbouring countries) higher commercial speeds of the order of 140-160km/h

should be aimed for. This aim is likely to require high levels of investment for all countries except Rumania where the required changes to reach this objective are not so substantial.

3. Besides the necessary upgrading to reach the above objectives a strict maintenance program, common to all networks, must be devised and agreed upon so as to maintain the above speeds.
4. Installation of electrification along the total route length of the axis in the considered section (of normal gauge). This electrification programme must again be coordinated so as to achieve maximum compatibility between the countries involved. Its realization would ensure operational ability, synthesis of longer trains and an increase of commercial speeds.
5. Installation of Electrical signalling along the total route length. This intervention regards basically Bulgaria where most of the needs are at the moment. It will contribute to make the route more secure, increase track capacity, and commercial speeds.
6. Increase track capacity in certain "centrally" located parts of the axis, which by their limited capacity today "affect" far larger sections. These are the sections: *Stara Zagora-Mihaylovo, and Dabovo-Tulovo* in Bulgaria although others may also need similar improvement.
7. Promotion of combined transport by routing combined transport trains between major rail stations and nodes and the ports "served" by the axis. This development should be seen as a long-term objective aimed to "secure" the *position of the axis vis a vis road transport and as an alternative to the all sea transport via the Dardanelle and Bosporus along total axis length.*
8. Irrespective of the above (longer term) point, there is need to improve by way of priority the rail access to the sea and river ports served by the axis and the modernization of their equipment (concerns mainly the ports of Varna, Burgas, Kostantza, and Alexandroupolis).
9. The section Svilengrad - Dimitrovgrad in Bulgaria, must be given particular importance because it belongs to both axes no IX, and no IV, which connects Turkey (Istanbul) with Western Europe (via Sofia). In this respect the station in Dimitrovgrad should proceed with its plans for reconstruction and upgrading with provision also for combined transport installations.
10. Modernization of border station installations. Irrespective of the simplification and speeding up of the procedures at borders (as mentioned below), certain infrastructural improvements must be completed at all border crossings. The content of these improvements should be to provide at a minimum a modern building for passenger checking services (to be used only as offices for the customs, police and other services when there will be no need for stopping trains to check passports, etc). In the "extreme" cooperation scenario case, *common building facilities* at border crossings could be planned.

As regards the improvement of the ***exploitation of the axis***, the recommendations regard all implicated networks and they concern**:**

11. Installation of common electronic system for exchange of information and data between the rail networks of the axis. Such exchange information systems between rail networks, based on EDI messages (or via Web technology) are becoming widely used in western European railways today.
12. Forming of a common tariffs policy and common fares for international transports via axis no IX. These "common" fares will have the meaning of competitive fares

against road transports, which will not be the sum of the corresponding national sections, but they will be defined on a door-to-door basis and competitive with the corresponding tariffs to be found by the customers on the similar route by other modes or services.

13. A common and concerted attempt must be made for the drastic decrease of border delay times and simplification of procedures. A first reduction of wait times at borders of below 50% of the present wait times at border crossings should be effected within a time frame of the next 2 to 3 years. This can be done primarily by bilateral agreements between each network (or between interested countries) and could effect:

    a. *Passenger transports*, by eliminating or drastically reducing passport, police, and customs controls at borders by performing them at motion and in the train at the preceding section, by use of modern PCs and telecommunications technologies.
    b. *Freight transports*, by checking only the documents for each wagon which could be sent to the border station in advance via EDI, and performing all the necessary wagons controls and inspections at the starting and terminal points of the trip. Again bilateral or multilateral agreements will be necessary.
    c. For *all types of transports*, on time disposal of traction engines or use of the same traction engines should be provided to minimize delays.
    d. Application of predicted from routes bulletin parking times.

4. Conclusions

The application of the policy for re-balancing of surface transport flows in the area of South East Europe requires a rigorous and concerted application of measures that will improve both the infrastructure and the operational conditions primarily for railway and combined transport. The governments of the area must by way of priority cooperate in order to *proceed to a systematic listing of priorities and interventions along the lines suggested in this paper. Projects that are currently planned at National level must be coordinated at the international level together with the specific actions and investments that will materialise them in a feasible time schedule. This coordination could take place through higher-level committees and working groups, working on specific axes or corridors.*

Intermodality must also be promoted by all means and more specifically, through:

1. Creating modern intermodal Freight centers and terminals along major rail or inland waterway / sea nodes of the network.
2. Utilizing more and in certain cases opening up the Danube ports (especially the ones in Serbia which were damaged due to the war) in order to service intermodal transport (most of these ports operate at less than 30% of their capacities).
3. Doing the same for Mediterranean ports of the Adriatic and the Aegean seas

Besides the “hard” i.e. infrastructure related measures and actions, a number of “soft” i.e. technology related actions must also be promoted. Most of these “soft” actions are attainable via the application of Information and Communication technologies (ICT) and primarily the development of fast and inexpensive *data communications* networks that will support the operation of the transport system in the area. Related to these are also the so-called *demand management* actions, i.e. measures that aim to influence and adapt the “demand” to the available “supply” of transport infrastructure and services. They include

a number of incentives that can be established (tariff or administration related) in order to influence the "demand" for transport services to choose modes, time periods, and ways of taking place that are compatible with the wider re-balancing policies outlined in this paper.

The successful application of the policies of re-balancing in the South East is the only way to develop a coherent and balanced transport system for the future that is viable in both environmental and economic terms. This task is a major challenge for the governments of the area but also for the EU whose expansion to the East is already a fact and is likely to continue in the near future.

References

AUTh, 1998. Operational Characteristics and Appraisal of Railway Corridor X: Athens – Thessaloniki – Skopje – Beograd –Ljubljana – Central Europe, study assigned by the Greek Railways to the Faculty of Technology, Laboratory of Transport, Aristotle University of Thessaloniki, January 1998.

EC, 1997. The development of the TransEuropean Transport networks TEN-Ts, informational booklet, Commission of the European Communities, Brussels.

EC, 2001. European Transport policy for 2010: time to decide, Report no. COM (2001) 370, DG TREN, 12th September 2001.

Giannopoulos, G.A., Pyrgidis, Ch., and Lambropoulos, A., 1998. Railway Corridor X: Perspectives for passenger and freight transport, Rail Engineering International, No.4, 11-16.

Giannopoulos G.A. and Gillespie A., 1993. Transport and Communications Innovation in Europe, Belhaven Press, London.

Giannopoulos, G.A., 2002A. Opportunities and Prospects for Transport in S.E.Europe, Keynote Speech, Proceedings 2nd TES Conference, Sombor, Yugoslavia.

Giannopoulos, G.A., 2002B. Issues of the European Transport Policy and current state of the EU Funded Transport Research, Yugoslav Journal of Operations Research, 12 (1) 109-120.

Giannopoulos, G.A., and Pyrgidis, Ch., 2002 C. The South-East section of Rail Corridor IX: current status and prospects for development, Rail Engineering International, 2, 12-16.

Giannopoulos, G.A., and Mikoulik J., 2002. Integrating Research from Accession Countries: The case of Transport Research, Proceedings, Session F3 of the EU's Conference on "Surface Transport Technologies for Sustainable Development" Valencia, Spain 4-6 June.

IMONODE, 2003. Efficient Integration of Cargo Transport Modes & Nodes in CADSES area, EU INTERREG / CADSES programme, 2002 – 2005.

SETREF, 1998. Practical Problems and difficulties in crossing borders in South East Europe, SETREF Technical Report 02/98, November.

SETREF, 2001. Traffic flows report on the main road axes in countries of South Eastern Europe, SETREF Technical Report No. 3-2001, June.

UIC, 1994. Infrastructure projects in Central and South-Eastern Europe, International Union of Railways (UIC), report December.