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Intermodal Transport in Serbia Today

Abstract:

This paper deals with the problems of the intermodal transport, particularly with the intermodal transport in Serbia. The state of intermodal transport development in Serbia is analyzed in the light of the influence of the intermodal transport in the region as well as the modern tendencies in the Europe. Some problems, like the problems of the infrastructure, institutional problems, operational problems, legally binding and regulation problems, economy problems and cognizant and knowledge problems are listed and analyzed. Special attention is paid to the strategies of intermodal transport in Serbia development connected with the corridors K10 i K7.

Introduction: Intermodal transport in the region

In the era when the Planet Earth is considered as the "Global Village", one of the most important roles is given to the transport. The modern economy demands economical shipment of a merchandise "from door to door". Frequently it is not possible realize by only one mean of transportation. The intermodal transport appeared as the result of real needs. It is, by definition, combination of a transport-technology operation with a complex of elements under mutual relation and interaction. The technology uses at least two transport means from, at least, two types of transport, to improve the overall efficiency of the transport system. On this way it is enabled that a merchant could order a container from any one part of the world and that the container reached the desired warehouse.

Essentially intermodal transport presents combined transport of modular units, containers. In the developed countries all kinds of merchandise are transporting by containers as the most suitable means for all modes of the transport. Transshipment on route volume in harbors besides in tons, more frequently is presenting in the numbers of TEU containers of 20 foots.

Intermodal transport is in the focus and it is the subject of many projects, as well as scientific and vocation meetings.

Fig. 1 Intermodal transport review /5/

There are the projects at the global level as UN/CEFACT (United Nations Centre for Trade Facilitation and Electronic Business). It's mission is too improve the ability of business, trade and administrative organizations, from developed, developing and transitional economies, to exchange products and relevant services effectively - and so contribute to the growth of global commerce - and focus on the worldwide facilitation of international transactions, through the simplification and harmonization of procedures and information flows.

For European countries of great importance is the European Union initiative INTERREG, co-funded by the European Regional Development Funds (EFRE), promotes transnational co-operation in various fields of social, economic and territorial development. In particular, cross-border co-operation is promoted by the INTERREG III initiative to analyze common problems and to develop shared guidelines and solutions within homogeneous co-operation areas.

GILDANET is the project, approved and funded in the framework of the INTERREG III B operative program for transnational co-operation in the Central European Adriatic, Danubian and South-Eastern

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European Space (CADSES). According to priority 2 of the CADSES program, the GILDANET project supports transnational co-operation to enhance efficiency and sustainability of intermodal transport chains and systems.

International Consortium comprises partners from Austria, Greece, Italy and Slovenia - with the leadership role of the Emilia Romagna Region. Current actions could be grouped as follows:

- Spatial planning:
  - E-business standardization and open systems, interoperability and external integration
  - The problems of present infrastructure of railway, road and inland-waterways
- Social-Ecological group of actions:
  - By avoiding deadhead transport and increasing the load per drive – as it is one of GILDANET's main goals – the environmental situation will be mitigated for the benefit of humans, flora and fauna along the main transit route.
  - Intermodality, especially in the form of combined transport with attempting to reduce road transport and aiming towards a shift to more environment-friendly modes, such as sea, railways, and inland waterways.

Fig. 2 GILDANET Project /3/

While the INTERREG III C projects GILDA and TRANSLOGNET focused on the provision of generic services to the maritime transport community, GILDANET will not only increase the scope of these services but will also try to improve the support for the operation of three specific supply chains:

- The "EMPTIES" chain: To improve the utilization of containers and reduce the security risk of unattended empty containers outside transport terminals. It is GILDANET's aim to develop solutions for "Track&Trace" based on current best practices.
- The "FRESHLOG" chain: In co-operation with IMONODE (Integration of Transport Modes and Nodes in Cargo Transport in Central and South-Eastern Europe), which built the demonstrators for the intermodal transport of perishable goods, GILDANET will organize the goods and information flow to optimize the efficiency of the chain.
- The "AUTOMOTIVE" chain: The goal is to preserve and increase the competitive capacity of the suppliers to industry in the automotive sector by simplify the transport of car assemblies and finished automobiles in Europe.

Simplification and speeding-up of transport processes leads to a decrease in cost and risk and results in a competitive advantage especially for small and medium-size businesses. The traceability of goods along the whole route of transport improves the management for just-in-time production, reduces storage space requirements and cuts the dwell time in the production line.

OASIS (Organization for the Advancement of Structured Information Standards), a not-for-profit, international consortium drives the development, convergence and adoption of e-business standards and

produces itself worldwide standards for security, web services, conformance, business transactions, supply chain, public sector, and interoperability within and between marketplaces.

Open projects are followed by variety of conferences related to the problems of the intermodal transport. One of the newest, dealt with the problems of the transport in Balkan Peninsula and SE Europe, was the Conference on intermodal transport in SE Europe held on October 21st, 2005 was organized in Greece by The Hellenic Institute of Transport, part of ERTICO Partner Centre for Research and Technology Hellas (CERTH). Many interested entities from the transport and logistics field participated in the event.
The conference presented the main outcome of the IMONODE project with regards to the development of logistics and intermodal transport. The project shows the necessity to establish a network of transport and logistics terminals dispersed in South-Eastern Europe to achieve intermodality. A concrete network of terminals was presented and proposals were made for high priority projects that have to be undertaken by both - private and public entities - in order to enhance intermodal freight transport. Trends in the logistics industry in South-East Europe were recognized along with the main potential Intermodal Corridors to be set by the market according to forecasts.
The event made clear that intermodal transport couldn't be viable without the proper contribution of the state. Concrete actions are required from public authorities in order to provide incentives to attract the private operators, which are the main investors in the domain of freight transport.

State of the progress of the intermodal transport in Serbia

Intermodal transport systems are a viable instrument to address the requirements of sustainability, economic and environmental developments in an economic context. Because of its geographic position Serbia is especially interested in the development of the intermodal transport. In that area there is the real potentiality for the economic development, bat there are a several barriers to skip.
Analyzing the state of the progress of the intermodal transport in Serbia it is possible to recognize a variety of problems, which could be systematized in the following basic groups:

- Problems of the infrastructure;
- Institutional problems;
- Operational problems;
- Legally binding and regulation problems;
- Economy problems and
- Cognizant and knowledge problems.

Problems of infrastructure relate on inadequate and poorly developed objects, insufficient capacities and antiquated technology and equipment. Investment problems are referring to the lack of funds and cash to invest into the transport means, reconstruction and revitalization of infrastructure and its development. To organize supply chains across regional and national borders free communication and information flow between business partners on the basis of a powerful electronic data-exchange system is required. Nevertheless most of the used systems and services which attempt to support planning, operational and controlling activities are not able to cover the whole spectrum of demands within the intermodal transport chains and lack the necessary features for interoperability between heterogeneous IT systems. In addition players in the supply chain are often not quite ready and willing to develop their businesses closer to each other and exchange information on a mutual basis.
Institutional problems allude feckless institutions, bad organization, unskilled staff and nothingness of relevant societies and organizations.
Operational problems comprise weak coordination and cooperation between all participants in the transport chain, as well as the lack of initiative for organizing of intermodal transport.
Legally binding and regulation problems are referring to the complicated, inadequate, frequently changing of administrative and custom procedures, disrespect of law, incompatibility with European legislation and lack of tariff policy and stimulant measures.
Economy problems are referring to the small and unbalanced ware flows because of the small industrial production in Serbia.

Cognizant and knowledge problems are referring to the ignorance of the intermodal transport, lack of consciousness of its benefits, amiss understanding of its importance, and lack of the interest for developing initiative. It is quite sure that a several years will elapse until new directives for intermodal transport in Serbia will take a place, because the government of Serbia has urgent problems connected with the problems of Kosovo, development of industrial production, lowering of current inflation, and negotiations with IMF etc. It is a big financial loss because the transport is a real flywheel for the whole economy. Overall production is based just on the interchange of material goods: raw, semi products and products. Anyway, when intermodal transport will be enriched with the transport of containers by the water transport (Constance – Belgrade line) new possibilities for transport in Serbia will be opened. Besides container, it is to expect the transport of the huge amount of steel from Ukraine to Zenica (BH), as well as the notable amounts of coal and gravel which are transported over the Sava River.

With the circulation of IMOD-X project the first Workshop is realized in Belgrade in October 2005. The project IMOD-X aims identifying technical and economical aspects of intermodal transport organization in Serbia and Montenegro. It was planed that the project should last for a year. Project would be ended with the evaluation of the possibilities of the organization of the competitive intermodal services in Serbia. Participants of the Workshop analyzed combined road-air transport on the example of Belgrade airport. It is concluded that the amounts of the goods in those combination of transport are small in weight as well as in volume. Moreover, Serbia has neither adequate transshipment on route machinery nor equipment for the transport of the intermodal units. Serbian terminals cannot accept the containers with hazardous substances, although more than 5,000 containers with a hazardous cargo are circulating in the road traffic. If the enterprises have no interest for the investing into terminals and infrastructure, it is necessary that the government invested into terminals. After their construction and activation they should get a chance to work unaided. The terminals should dispose with warehouses for hazardous substances and cooling/freezing chambers, enabling it to provide logistics services. They also need a parking lot for trucks and sidings. The terminals should provide logistics services by means of various machinery: car jacks and turning table for the transshipment of heavy cargo, forklifts of different capacities, rack forklifts, etc.

The second IMOD-X project workshop was held in Belgrade in the March 2006 under title: Intermodal Transport – Possibilities and their potentials. There were five main items from the whole area of intermodal transport:

- Transport flows important for the intermodal transport and potential nods of consolidation;
- Existing terminals and infrastructure;
- Intermodal services;
- Key carriers of development and possibilities of Private-Public-Partnerships (PPP);
- Legislation and the instruments of the transport policy.

In the first quarter of the past year, comparing to the year 2004, based on the physical volume of services a growth of 3.3% is recorded from which:

- Land transport recorded the growth of 11.5% (railway 13.2%, road 26%, urban 0.3% and pipe-line transport 1.2%);
- Water transport recorded the growth of 9%;
- Air transport recorded a descension of 14.7%.

In accordance to the type of transport, the volume of services measured in gross ton-kilometers, recorded the growth of 14.3%.

- Land transport recorded the growth of 15.5% (railway 18%, road 64.5% and pipe-line transport 1.2%);
- Water transport recorded the growth of 9%;
- Air transport recorded a descension of 22.8%.

Due to the reduction of the territory of the country, physical volume of traffic is lover than in the age of SFRJ. The comparison of the cargo traffic in the period January-March for the years 2004 and 2005 is given in the Table 1.

Table 1. The cargo traffic for the period Jan-Mar

	Ton (thousands)		TKM (millions)		Index TKM	
I-III	2004	2005	2004	2005	2004	2005
Traffic – total	5,207	5,436	1,264	1,444	104.4	114.3
1. Land traffic:	4,823	5,015	1,041	1,202	104.0	115.5
a) Railway	2,635	2,766	649	766	105.0	118.0
b) Road	335	391	62	102	116.7	164.5
v) Pipe-line	1,853	1,858	330	334	100.3	101.2
2. Water traffic	383	420	221	241	109.7	109.0
3. Air traffic	1.39	1.01	1.71	1.32	73.4	77.2

Source: Republic Institute for statistic, Republic of Serbia

Strategies of intermodal transport in Serbia development

Transport policy of Serbia leads towards intermodal transport system development. Several hundreds of heavy trucks are circulating on Serbian roads and highways. It shows that the need for intermodal transport really exists. Even small redirection of these flows could result in considerable ecological, economical, safety and other positive effects. According to the reports of the state Institute for statistics, during the year 2004, 407,659 trucks passed through the Serbia and Montenegro. Specified number consists of 122,146 Turkish, 109,788 Bulgarian and 25,000 Greek trucks that are around 700 vehicles per day. If only 10% of vehicles started to use combined transport road – railway, it would be great contribution to the safety and ecology.

From the point of view of the Serbian government the main barrier in the construction of modern transport systems in the Region sits in the low level of industry development in Serbia and Montenegro and bordering countries. A chance for the development of intermodal transport could be found in private partnerships and foreign aid and investments either from the mutual funds or from the local governments.[2]

The Ministry for the capital investments of the Republic of Serbia, Department for railways and intermodal transport is organized in the year 2003. Its purpose was to work on the study and analytical affairs in the area of intermodal transport, to participate in creating traffic policy in the area of intermodal units' transportation, and to overlook and support development of intermodal technology of transportation as well as the terminals for intermodal transport. At the same time legislation is being prepared. Implementation has started from the beginning of this year through the cooperation with interested foreign investors first of all in the area of modernization of infrastructure and intermodal terminals in Serbia.

In the legislation area, Serbia has already signed and ratified European agreement of important international corridors for combined transport and concomitant plants (AGTC). This agreement enables system approach to the reconstruction, construction and assorting of the railways of the highest international importance, as well as terminals, border crossings and other infrastructure. Also, the Agreement of combined transport between Serbia and Montenegro and Bulgaria is signed.

An analogical activity Serbia and Montenegro has with Croatia and Hungary, and intention is to make such agreements with all European countries of interest.

Ministry for the capital investments of the Republic of Serbia in cooperation with the Faculty of Transport Belgrade University and Institute SITEF from Norway already started on the project: „Intermodal solutions for competitive transport in Serbia". The main objects of interest in the project are the terminals for intermodal transport and logistic services in Serbia.

Through the project two workshops were organized in Belgrade.

Strategically, Serbia is very interested in two corridors: K7 and K10.

Pan European corridor K10 is defined at Pan European conference in Helsinki in the year 1997, and presents the shortest way between the western and the southern part of Europe. It leads from Salzburg through Ljubljana, Zagreb, Beograd, Niš, Skopje, to Thessalonica. It has several legs:

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- Graz – Marburg – Zagreb;
- Budapest – Subotica – Belgrade;
- Niš – Dimitrovgrad – Sofia;
- Veles – Bitola – Florin.

Corridor K10 is 2,360km long but in Serbia and Montenegro there are 874km or 37%. The idea of EU is that railway traffic improves its availability, speed and reliability. It is to expect that maximum speed on the railways that belong to the European corridors rich 250 km/h up to the year 2020. Intentions are that the transport of goods has to use railway traffic. It is more economical way of transport for the industry. Rails are now in rather bad condition and it is estimated that for finishing the Belgrade node only it is necessary to spend additional 200 millions of EUR. 500 million EUR has already been already invested in the node. From the loan taken from European bank of 70 million EUR it had been reconstructed only 45km of critical tracks. On the other side, on the highways, there is a lot to do. In Serbia it is necessary to build a number of concomitant objects, starting with new, modern border crosses, through motels, gas stations up to the parking place and shops. Just this segment of new highway through Serbia is the most interesting for the foreign investors in Serbia's Government officials' opinion. It is anticipated that from Hungary border to Belgrade there will be 25 motels, 32 gas stations, 25 stops and loops in the near future. On the highway E75 from Belgrade to Niš will be 21 motels, 41 gas stations, 36 stops and 28 loops (6 new planned). On the most difficult part from Niš to the Macedonian border there will be 9 motels, 12 gas stations and 36 stops.

Table 2. Average daily traffic on the corridor K10

Track	On the base of counting			Estimation
	1990	2001	2005	2010
Croatian Border - Belgrade (Surčin)	13,973 to 16,225	1,224 to 10,498	3,100 to 15,400	3,800 to 19,000
Belgrade (Bubanj Potok) - Niš	22,140 to 11,586	21,430 to 8,239	30,200 to 13,900	37,200 to 17,000
Niš - Leskovac	6,464 to 9,566	4,568 to 5,239	7,500 to 8,700	9,200 to 10,700
Leskovac – Macedonian border	8,672 to 8,328	5,054 to 3,660	8,300 to 6,800	10,100 to 8,300
Hungary border - Novi Sad	12,343 to 4,890	4,420 to 5,864	7,900 to 9,700	9,700 to 11,900
Novi Sad - Beograd (Batajnica)	7,506 to 12,562	5,270 to 13,040	9,000 to 18,700	11,000 to 23,000
Niš – Bulgarian border	6,350 to 8,098	5,590 to 2,264	8,700 to 4,300	10,700 to 5,300

Source: Ministry for transport and telecommunications of the Republic of Serbia

Corridor K7, the Danubian corridor, covers the Danube River and its confluents Sava and Tisa rivers, as well as the Danube – Tisa – Danube Canal System, with 1,300 to 1,561km of the navigable flow, depending from the ship tonnage. There are in average 302 navigable days per year. The nova days the new intermodal line is established from Belgrade to Constanta (Bulgaria)

Fig. 3 Corridor K7

The analyses of the regional traffic show that the brunt of traffic scene moves toward Black See and the Constanta harbor. Intermodal container "from door to door" shipment could be fully applied. Water transport is the most economical way of transport of goods, especially in the case of containers. Corridor K7 gives opportunities in the way of shortening transport distance, safety of goods as well as the environment, and the containers give a fast and easy manipulation, possibility of using the same equipment in different forms of the transport and transport means.

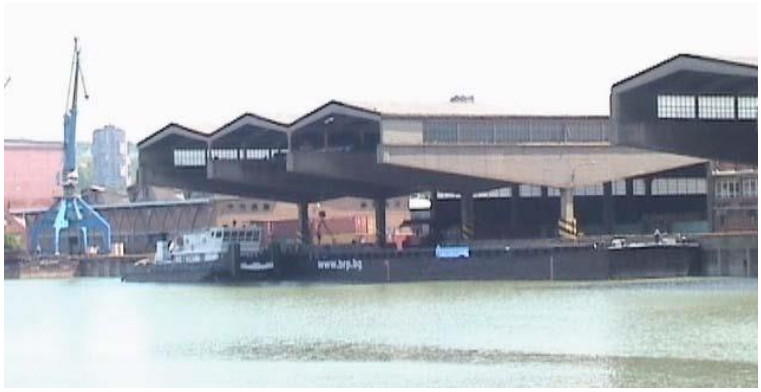

Fig. 4 The Belgrade Harbor

Such organized service manages the full control of the motion and tracking containers. Critical points of transport are reduced to the minimum. Corridor K7 gives chance to the Belgrade harbor to become a regional centre for the container transport and the very important actor in the intermodal transport of the region. Of the importance of the corridor K7 tells that this is one and only water flow that took this status.

Serbia suffered from the telecommunication connections. It was planned and partly realized that more than thousand kilometers of optical cable with 96 filaments would be along the corridor K10. Corridor K7 is rare populated with small towns and it is better to use wireless connections.

Conclusion

Intermodal transport in Serbia is practically in the first phase of its development. A lot of difficulties of the political and the economical nature influence to it, mainly, in negative connotation. Geographically, potentials are big, and that is sure that with a reasonable policy, government's helped and with the foreign investments things could be changed relatively fast. Territory is small, partly mountainous, with tunnels and it is sure that the scene from the figure 5 newer would be seen in Serbia, but there is a real chance to see containers on the train more frequently than now.

Fig. 5 Intermodal transport in Australia

It could be done through the agreements bilateral or multilateral with the bordering and other countries, through the commandments, e.g. solving the ecology problems, but first of all it is necessary to provide conditions for quality, secure and fast transport and services. The most stimulation factor could be the cognizance that intermodal transport is the best for the seller and for the customer.

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