Aljaž PLEVNIK

High-speed railway connections – the next Slovene centenial infrastructure project?

1. Introduction

With the accelerated building of the high-speed railway network in the European Union (EU), debates about establishment of such infrastructure are becoming livelier even across Slovene territory. Unfortunately these debates are being led without a comprehensive vision or national strategic document for the issue, a condition corresponding to the management of the entire transport system. Consequentlly operation of this exceptionally important sector is continuously moving away from comprehensive, strategic and long-term deliberation and action. The ongoing trend is for fragmenting and limiting planning and management to independent transport sub-systems and the project level with a short-term perspective.

The lack of comprehensive strategic ideas about development of the transport system is therefore hindering discussion about possible development screenplays dealing with high-speed railway connections in Slovenia, just as significantly as various understandings of the term high-speed trains. There were many variations for development of such infrastructure in Slovenia; their common denominators are different definition of the term and the lack of comprehensive or strategic assessment. Furthermore the main focus of attention after independence was the quest for a route for high-speed trains within the V. pan-European transport corridor, running East to West while other corridors were disregarded.
In the article we will present the development of the idea about high-speed train connections in Slovenia after independence (1991). Our review will be used to argument the need for immediate comprehensive assessment of their various possibilities. Such assessment should provide answers to fundamental dillemmas every country should address before adopting decisions or agreements with neighbouring, as well as other countries, about projects with such magnitude and significance – is the feasability of construction of such transport infrastructure realistic, can it be argumented by transport policy and furthermore, is it economically, spatially and environmentally acceptable.

The first part of the article deals with definitions of the term high-speed railway connections, in which we rely on documents adopted by the EU and UIC. The next part deals with development of the high-speed railway connections in the EU, which is also the basis for deleiberation about the transport sub-system in Slovenia. The central part of the article presents development of the idea about establishing the network in Slovene territory and is based on analysis of relevant national and partly EU strategic documents.

The article presents the first results of the research project »Development possibilities for high-speed railways in Slovenia«, [7] whose goal is preparation of comprehensive strategic assessment of development possibilities for high-speed railways in Slovenia, while its purpose is to devise expert guidelines for decisions about legitimacy, necessity and acceptability in the national territory.

2. Defining the term

In practise use of the term high-speed railway connections (and derivatives, such as high-speed train, high-speed tracks etc.) is very varied and inconsistent since its use emerges from various aspects of dealing with the railway system (network, vehicles, offer etc.). Thus we use a sinlge term to deal with a wide range of railway travel offer, for example ICS train operated by the Slovene railways to Maglev trains operating on magnetic levitation technology. The range is vast. For example the ICS trains operate at speeds not exceeding 100 km/h, while the Maglev has on test rides already exceeded speeds of 600 km/h and 440 km/h during its first commercial utilisation in Shanghai.

In its attempty at defining high-speed train connections the UIC working group considered three types of elements of the railway system (infrastructure, vehicle park and operation) and proposed four types of connections:

- The »cleanest« or most classical type of high-speed railway connections is composed of exclusively high-speed trains (speeds around 250 km/h), which don't operate on other railway tracks (e.g. Central and Western Shinkansen in Japan);
- The second type is the high-speed railway network used exclusively by high-speed trains, but the latter also use classical railway tracks at reduced speeds (e.g. in France high-speed railway connections are defined from the aspect of transport vehicles, independent from the type of tracks the trains use);
- The third type are high-speed networks that are not used exclusively by high-speed trains, but also classical trains operating at lower speeds, whereby high-speed trains don't use classical tracks (e.g. Spanish AVE);
- The fourth type are networks whereby various types of trains use high-speed tracks, but high-speed trains also use classical tracks (e.g. The German ICE and Italian Eurostar include amongst high-speed train connections all connections done by high-speed trains, including those with tilting train technology) (UIC).

Obviously the term high-speed train connections is too complex for uniform definition, therefore it is sensible to adapt usage of the term in compliance with the starting points even in the Slovene language: when we consider infrastructure we speak about high-speed tracks or tracks for high-speeds; when we speak about transport modes (vehicles) we speak about high-speed trains and when we speak integrally, we speak about high-speed railway connections.

The fundamental difference amongst countries in understanding the term high-speed railway connections is in speed thresholds, which distinguish high-speed railway connections (tracks, trains) from classical connections. In Slovenia the before mentioned ICS, operating between Ljubljana and

Maribor, is understood as a high-speed railway connection, which is »high-speed« only because of the modest offer and above all low speeds achieved by other passenger trains operating in the Slovene network. The latter in fact operate at speeds not significantly higher than those achieved by trains at the transport system's birth, almost two centuries before. Simultaneously speeds being achieved by the fastest train in the domestic operator's offer were already met in Europe at the time of construction of the Southern railway across our territory in the 19th century.[2] On the contrary, the speed threshold of high-speed railway connections in countries with developed high-speed networks is 250 km/h, although some Alpine countries (Switzerland, Austria) have established that the speed threshold for high-speed railways in countries with such demanding orography (i.e. The Alps) should be lower. (SBB, 2003) Surely the speed threshold is an iminent transport policy issue in every particular country and should be aligned to adopted transport policies or railway development strategies that define the competitive role of railways versus other transport modes. Thus the possible starting point for future definitions of high-speed railway connections in Slovenia is competitivness of achieved speeds compared to transit road transport on the highway system as the probable main competitor. Competing with air transport, as emphasised by the EU, in Slovene circumstances isn't a feasible option, except in links between our railway network to the high-speed railway connections in the EU. Detailed speed thresholds for such definition have to be based on detailed analysis. We can nevertheless assess that the fastest present voyage times of railway connections between regional centres in Slovenia and neighbouring countries, should be reduced at least by half in the future to achieve high-speed railway connections, which could compete with highway connections.

So far the term high-speed railway connections in general applies to transport of passengers. The exceptions are postal and classical freight trains, which can use high-speed tracks in certain places in the EU, but are strictly limited and operate only at night. In the near future we can expect development of high-speed freight transport and can thus expand the term to high-speed railway connections for transport of freight.

3. Development of the high-speed railway network in the EU [4]

The introduction of high-speed railway connections during the second half of the 20th century facilitated the improvement in offer of railway travels to a new quality level and thus their competitive return to the market of contemporary transport services. High-speed connections significantly influenced the redistribution of passenger flows, thus this transport mode is today understood as an efficient alternative or competition to road or air transport.

Blossoming of high-speed trains was first experienced in Japan, but the most intensive development during the last decades was in European countries, where today more than half of all worldwide users of high-speed railway connection travel. In the last decade the EU has been establishing high-speed railway connections by connecting and expanding the network in member states that have been investing in such national networks for a long time. In 1996, with Guidelines for the development of the trans-European high-speed railway network, the EU also established a supra-national formal framework for the network. The first high-speed railway connection in Europe was established in 1981, when the French completed the connection Pariz–Lyon for speeds upto 260 km/h. The network grew to European dimensions in 1994 when part of the future network »PBKAL« connecting Paris, Brussels, Köln, Amsterdam and London, was completed. In 2002 all European tracks built for high speeds encompassed 3.260 km, hqalf of which are in France. The contribution of the expanded network of high-speed railways is undoubtedly significant, even more so in the future: the planned completion of such tracks by 2020 is 10.000 km.

The fast expansion of the European hihgh-speed network has conditioned the increase in number of the transport mode's users. In ten years, the number of passengers on the EU high-speed railway network tripled and their market share is consistently increasing. After the introduction of high-speed railway connections the ratio between users of competitive transport modes changed completely. On voyages contested by railway and air transport operators in the EU, 75 % of voyages lasting less than 2,5 hours and 50 % of voyages lasting upto 4 hours are now covered by railways. By 2020 a 60 % increase is forecasted in use worldwide. (UIC 2002).

4. Evolution of the idea about fast railway connections in Slovenia

The idea about high-speed railway connections was present in Slovenia in the 1980s, even before independence, when the present operator, Yugoslav railways, researched possible courses and technical elements for a new high-speed track between Ljubljana and Zagreb, in the so-called Sava corridor. High-speed railways became a pending issue after independence of Slovenia (1991), but have in the entire period been identical to the expressed interest of the Republic of Italy, i.e extending the railway line Lyon–Torino via Trieste towards Slovenia and the East.

In 1992 the Slovene Railways produced Guidelines for the selection of high-speed track courses in the corridor Ljubljana–Venice. The decision about the corridor or direction of connections was adopted by the Slovene Railways as an internal document (Zarija, 1999: 16). Thus the selection of corridor or course of connection by high-speed railway wasn't adopted as a strategic national or EU document, but on material produced by the Union of railway operators (UIC) concerning planned development of the high-speed network in the EU, which at the time represented a sum of expressed interests of national operators (in the case of our railway, probably the Italian one), and not the EU's network vision. The problem is that the decision adopted by Slovene railways, which obviously wasn't adopted from expressed Slovene national interests, is the basis for all activities and ideas concerning the issue of high-speed railway connections in Slovenia after independence.

In an official national document, the high-speed railway connection across Slovenia was first mentioned and discussed in 1995, namely in the Chages and supplements to the Long-term plan of the Republic of Slovenia for the period

1986–2000, which included the »evaluation of feasability and course of a new railway track for high speeds (250 km/h) in the direction Slovene/Italian border–Ljubljana–Slovene/Croat border« (Official bulletin No. 13/96). The same solution was proposed in the simultaneously prepared National programme of development of Slovene railway infrastructure, which forecasted completion of the high-speed railway line Trieste–Ljubljana–Zagreb, with branches to Koper and Rijeka by 2015 (Official bulletin, No. 13/96). Argumentation in the latter document for the high-speed railway's course stems from the »prospective development plan of European railway infrastructure«, produced by the International railway union (UIC) and documents by the UN [5], which apparently contain the concept of European high-speed and main railway connections and where the rationale of the selected corridor in the programme.

Feasability assessment of a high-speed railway connection across Slovenia, reuired by the planning document, still hasn't been undertaken, despite a large quantity of studies concerning transport infrastructure that were done for the new Strategy of spatial development of Slovenia (Official bulletin, No. 76/2004), thus the issue of acceptability and feasability of high-speed railway connections still hasn't been resolved. The responsible government departments are still oriented towards research of the stated corridor, as can be seen from the commissioned themes, such as »Spatial evaluation of the high-speed train route Trieste – Ljubljana« (Zarija, 1999) and »Strategic assessment of spatial effects of high-speed trains and expert studies for the preparation of the Regional spatial development concept for Goriško« (IJS, 2002). Both projects mainly dealt with physical placement and assessment of most-suitable routes within a widely defined corridor for the high-speed railway. They didn't directly deal with the key issues, which are: whether high-speed railways are at all feasible, acceptable and realistic in Slovenia, and if they are, in which scope, with what elements, where and when.

In the expert studies for the national Strategy of spatial development, more precisely the study Concept of transport infrastructure in the physical plan of the Republic of Slovenia (Gulič, Plevnik, 1999), a rare, yet limited attempt at wider consideration of possible courses of the high-speed railway across Slovenia. It didn't expand only on the corridor Trieste–Ljubljana–Zagreb, but tried to research some other routes as well, mainly in the corridors of the Slovene transport cross. Strategic spatial assessment showed that from the aspect of physical connections of Slovenia with neighbouring countries and railway network in the EU, the chosen or researched corridor is less suitable and that other connecting routes are better, especially those towards the X. European transport corridor.

As we mentioned, this assessment was limited only to spatial-development indicators and didn't deal with transport-political isuues, such as feasibility or acceptability of building such a network in Slovene territory.

Although assessment of feasability and the route of new new high-speed railway wasn't done, although stipulated by the previous physical plan, the new Strategy includes such a railway, but doesn't exceed the decade-old ideas about the issues. Even because of the lack of strategic rationale for the high-speed railway, in the Strategy it appears as a foreign object without real integration in the national transport and settlement system. In the introductory chapter »2. Meaning of used terms« the »high-speed railway for speeds up to 250 km/h, planned in the V. corridor and intended for connecting centres of international importance with European space« is included amongst railwa connections of international significance. In chapters »I. Starting points and goals of spatial development of Slovenia« and »II. Concept of spatial development of Slovenia with priorities and directions for achieving goals of spatial development of Slovenia«, the high-speed railway isn't even mentioned, although this is the central part of the document, which should justify such important infrastructure and point out its role in the transport and settlement system.

Only in chapter »III. Development of spatial systems with guidelines for development on the regional and loocal level« under heading »2.1.2 Railway network« the route is mentioned again and with a rather defined corridor (Sežana–Postojna–Ljubljana–Zidani most–Zagreb), also evident in the cartographic supplement: *»...(2) Trans-European long-distance high-speed railway connection within the V. pan-European transport corridor, which connects Venice via Ljubljana and Zagreb to Budapest connects northwards with high-capacity long-distance railway connections towards Munich and from Zidani most towards Maribor and Vienna. Transport junctions enable connections to the high-speed long-distance railway connection: in Divača towards Koper and Nova Gorica, in Pivka towards Istria, in Ljubljana towards Austria, in Zidani most towards Maribor, as well as other transport subsystems with suitable modernisation of extant railway tracks in the extant railway's corridors, which are physically rational and when made possible by technical and technological solutions.« (Official bulletin, No. 76/2004).*

Again nothing new was seen in the field when the Resolution about the transport policy of Slovenia (Government, 2004) was adopted. In chapter 5.3: Strategy of development of the transport infrastructure in Slovenia, a Resolution about the national programme for development of railway infrastructure is stipulated for adoption in 2005, which should give detailed definitions about the strategy for maintanance, modernisation and development of railway structure in Slovenia until the year 2020. The stipulation for 2004 is even more important, when agreement should be reached with Italy about starting pounts for preparing studies and project documentation about the future high-speed railway; all possibilities for accessing co-finanacing from EU funds should be pursued. The cartographic representation of development of transport infrastrastructure included harmonisation with the revised Strategy of spatial development of Slovenia.

An additional argument for strategic assessment of development possibilities of high-speed railways in Slovenia is the recent emergence of political decisions the EU. The railway tracks in the V. corridor between Lyon and Budapest, which is presently incorrectly termed a high-speed railway, is an EU priority in new reports about the trans-European transport network, yet the extent and structure of investments into the railway running across Slovene territory, isn't for a new railway, which would allow speeds up to 250 km/h, but only for modernisation and completion of the extant one for speeds up to 160 km/h (EC, 2003). Amongst the construction projects for this corridor, in the technical supplement to the high representatives report, there is also a required study of feasability, economics and timeframe for a possible new high-speed railway line between Trieste and Ljubljana.

5. Conclusion

The review of strategic and programme documents dealing with transport and physical development proves that in Slovenia national interest concerning development of the high-speed train network hasn't been defined, which is causing incapability in reacting to increasingly numerous initiatives and strategies of neighbouring countries and the EU. In the period after independence, strategic documents concerning spatial development and transport in Slovenia deal with high-speed railway lines only in the V. transport corridor, which has no real bearing for national interests. It is nevertheless in complete compliance with interests of neighbouring Italy, which is also exerting pressures on Slovenia to force a quick decision concerning construction across Slovene national territory. Simultaneously it is becoming obvious that in the next two decades the EU is not planning any co-financing schemes for the construction of new high-speed railway lines, moreover, only modernisation of extant main railway lines is being considered. Thus it is of utmost interest to accelarate the definition of Slovenia's national interest concerning development of the railway system and evaluate the feasability of building high-speed railway lines on our territory.

Dr. Aljaž Plevnik, geographer and historian, Urban planning institute, Ljubljana
E-mail: aljaz.plevnik@urbinstitut.si

Notes

[1] Research project within the goal-oriented research programme »Competitiveness of Slovenia 2001–2006« to be completed between 2004–2006; commissioned by the Agency for research activities, Ministry of environment and planning and Ministry of transport; contractors: Urban planning institute of the Republic of Slovenia, Ljubljana, University of Maribor – Faculty of civil engineering, Maribor, Transport institute Ljubljana.

[2] In 1848 the locomotive Crampton achieved the speed of 126 km/h.

[3] The average speed of international trains in Slovenia, which are generally the fastest links between more important regional centres in the country and immediate hinterland, is approximately 70 km/h (Gulič, Plevnik 2000).

[4] The review of development in the EU is summarised from UIC (2002).

[5] CER (1991): European network of high-speed railways, Union of European railway companies, Brussels and UNECE (1985): European agreement on most important international railway lines – AGC, Economic Commission of the United Nations, Geneva.

Illustrations

***Figure 1**: Possible concepts of development of the high-speed railway network (Gulič, Plevnik 1999).*

***Figure 2**: Image of the high-speed railway connections corridors on the map »Guidelines for the development of the transport system in the Strategy of physical development of Slovenia« (Official bulletin, 76/2004).*

***Figure 3**: The Italian high-speed train at the Naples railway station; eventually maybe even in Ljubljana? (photo: Aljaž Plevnik)*

For sources and literature turn to page 41.