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ADVANTAGES OF RENOVATION OF RAILWAY CONNECTION TRSTENÁ - NOWY TARG

Summary. After entrance of Slovakia and Poland in to the European Union on the first of May 2004 the value of the common national border has been considerably changed. In this way the most of restrictions that subjected cancelling of existing railway connections will not be necessary anymore. One of such was railway connection Kral'ovany - Suchá Hora - Nowy Targ - Kraków. The simplest solution of this problem would be renovation, originally, cancelled track section Trstená - Suchá Hora - state border (PR) to the same technical conditions as at the track section Kral'ovany - Trstená. As a result we would obtain the capacity of the whole Slovak section Kral'ovany - Suchá Hora - state border (PR) of planned railway transit line, namely for the passenger trains and freight trains. Renovation of this railway line is in accordance with contemporary trend of development of railway traffic in the states of the European Union. This railway line would be extremely advantageous for Poland but first of all for Slovakia.

KORZYŚCI WYNIKAJĄCE Z ODNOWY POŁĄCZENIA KOLEJOWEGO TRSTENÁ - NOWY TARG

Streszczenie. Z chwilą wstąpienia Słowacji i Polski do Unii Europejskiej granica między obu państwami przestała mieć istotne znaczenie. Zniknęły ograniczenia, które w przeszłości spowodowały między innymi likwidację niektórych połączeń kolejowych. Jednym z takich połączeń była linia kolejowa Kral'ovany - Suchá Hora - Nowy Targ - Kraków. Najprostszym rozwiązaniem byłoby doprowadzenie zlikwidowanego odcinka Trstená - Suchá Hora - granica z Polską do stanu technicznego, jaki obecnie istnieje na odcinku Kral'ovany - Trstená. W ten sposób byłaby zapewniona przejezdność całego słowackiego odcinka Kral'ovany - Suchá Hora - granica państwa pociągów osobowych i towarowych. Odbudowa tej linii jest zgodna z tendencjami rozwoju transportu kolejowego w krajach EU.

1. INTRODUCTION

On May 1, 2004, Poland and Slovakia became members of the European Union. In this way tranzition of passengers and commodities between these countries was simplified, which should lead to increase of capacity of transport. In the near future we can expect bigger interest in freight traffic en route north - south across Orava and as well as by passenger traffic owing to expansion of tourism in attractive territory Nowy Targ and Zakopane

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on one side, and Západné Tatry - Roháče, Vysoké Tatry, Nízke Tatry, Malá and Veľká Fatra on the other side of frontier. Fulfilment of expected volume of transfer only by the road haulages, lorry transport, bus traffic and individual automobile transport will not be possible apparently by reason to restriction permeability efficiency of roads. There are also delimited possibilities of parking in the destinations of interesting touristic places. Increase of number of automobiles would increase also negative effect to environment. For these reasons it would be convenient to renovate the authentic railway line Trstená - Suchá Hora - Podczerwone -Nowy Targ as next traffic way. Because in former times this connection was abortedon the state border, on the Slovak side this railway track is used for only domestic traffic.

Application of railway transport for traffic connection in northem district of Vysoké Tatry (Zakopane) with its south district (Poprad, Štrba) is possible only across frontier crossing Zwardon - Skalité in the west or across frontier crossing Muszyna - Plaveč in the east. Fig.1. displays to schema of designed railway connection.



Fig. 1. The schema of designed railway connection Rys. 1. Schemat projektowanego połączenia kolejowego

The designes for junction of north and south sector of Vysoké Tatry by railway line has been elaborated many times before (for example: by lengtheining of TEŽ - Tatras electric railway). As best so far it seems to renovate the authentic railway line Trstenå - Nowy Targ, namely as in term of capital cost and operating cost. In this way there could be built up the whole international rail connection of productive railway line of Slovakia (Bratislava - Žilina - Poprad - Košice) and Poland (Kraków - Katowice - Warszawa).

This railway connection would be for freight transport and also for passenger traffic and would unload inconvenient road network this time, in Slovakia part of region Orava and also in contiguous parts of Poland.

2. BASIC DATA ABOUT RAILWAY LINE KRAĽOVANY - TRSTENÁ

The single railway track Kralovany - Trstená - Suchá hora was built as a railway line which was connecting the railway station Kralovany, situated on the railway line Košicko -Bohumínska, with Nowy Targ and next with Kraków or Zakopane. After the second world war there was preserved the traffic at Slovak territory to the state border, i.e., to the railway station Suchá Hora. Behind the state border the railway track was aborted between station Suchá hora and the first station Podczerwone at the Polish territory. As a result this railway line was allocationed into two regional railway tracks and lost its international transit importance. On our side there was cancelled traffic on the railway line at the section Trstená -Suchá Hora (cca 15km). On the Polish side there was cancelled traffic to Nowy Targ (cca 25km).

At the present time in the scope of region Orava the initiative started up to renew connection of this railway track. The initiative arose from the cooperation and requirements of boundaries districts Nowy Targ, Trstenå and Tvrdošín. The aim of this initiative should be the renovation of the railway connection Nowy Targ - Suchå Hora - Trstenå as a transit railway line component Kraków - Nowy Targ - Kraľovany - Žilina.

The expected results of this renovation should be:

1. In the sphere of passenger traffic

Exploitation of this railway line for international tourist traffic in the Polish - Slovak border area, cutting down road traffic, especially individual road traffic, i.e. Ecological connection of the northern district of the Vysoké Tatry with the district Roháče, Malá Fatra and the shortest railway connection between north and south territory of the Vysoké Tatry or the Nízke Tatry.

2. In the sphere of freight traffic

A possibility to reduce number of trucks and lorries in the region Orava (per day cca 500 trucks) and reduce carrying-capacity of road border crossings Chyžné - Trstená.

Main technical parameters

Actual layout of the railway track Kral'ovany - Trstena - Sucha Hora - state border (PR)
Length of the railway track
Designed speed $V_{max} = 50 \text{ km/h}$
Minimum curve radius $r_{min} = 170m$
Maximum railway gradient s _{max} = 21,803‰

For information we present that technical conditions of the railway track Kral'ovany - Trstenå at the present time enables transport to trains at length:

- at the track section Parnica Medzibrodie nad Oravou ... 540m

At the present time (train traffic diagram 2003/2004) there are established 13 pairs of diesel persons trains on this railway line (of these every day in week 9 pair). Freight transport is guarded mostly by the way trains, and that is:

- at the section Trstena - Kral'ovany 3 pairs/day

- at the section Medzibrodie nad Oravou - Kral'ovany 2 pairs/day

1 freight train according to needs from Medzibrodie nad Oravou to Žilina marshalling yard and 2 freight trains at the section Kral'ovany - Medzibrodie nad Oravou (with shove till 2,000t, normative length 500m).

3. DESIGN STATE OF THE RAILWAY TRACK KRAĽOVANY - TRSTENÁ - SUCHÁ HORA - STATE BORDER

The simplest solution of this problem would be renovation, originally, cancelled track section Trstenå - Suchå Hora - State Border (PR) to the same technical conditions as at the track section Kralovany - Trstenå. As a result it would be capacity of the whole Slovak section Kralovany - Suchå Hora - State Border (PR) of planned railway transit line for the speed 50km/h, namely for the passenger trains and the freight trains.

For the renovation of the track section Trstenå - Suchå Hora - State Border (PR) it will be necessary to:

- construct 13,314km of the single-track line
- construct 2 stopping-places, namely trainstop with shunt Liesok (2 tracks) and railway station Suchå Hora (4 tracks)
- track superstructure is designed in the form S49
- track substructure is designed in the correspondence with established norms and the statute of ŽSR. Its components are also of the track substructure, namely 4 railway bridges and 22 culverts most of which have well-preserved technical condition. On this whole railway track there are very many level crossings. Their number will have to be reduced.

Considering the desing speed 50km/h (this design speed is on the existing railway track Kral'ovany - Trstená) there could be used the original condition railway body, as well as, objects of track substructure. This design would need minimal capital cost in our territory and this design would be time-quickest.

In the case that there would be necessary to reconstruct this railway track on our territory for the higher speed (supposed 80-100 m/h) to the existing railway body would have to be left at most parts. As a result there would occur a necessity to buy up the new locations, build up more new objects of railway substructure and other bridges (e.g. across the river Orava), which would result in substantially higher capital cost. Such an exacting reconstruction would need much longer time for its realization.

According to the references from specialists from Politechnika Krakowska, as well as, from direct observation at the Polish track section State Border (SR) - Podczerwone - Nowy Targ it was found out that configuration of terrene at the Polish track section was simpler and less broken than in our country. This railway body on the Polish side at the track section State Border (SR) - Podczerwone, however, does not exist any more and at the next track section Podczerwone - Nowy Targ it is only partially preserved, but at several places aborted with other build-up area (such as petrol station, market and so on). The Polish side would like to rebuild this railway connection for the designed speed 80 km/h. Because on their territory it wouldn't be reconstruction but mostly completely new construction.

4. EXPECTED ADVANTAGES OF RENOVATION OF RAILWAY CONNECTION TRSTENÁ - NOWY TARG

Expected advantages and preferences of renovation of railway connection Trstená Nowy Targ would be:

- 1. Renovation of international railway connection between Slovakia and Poland in the extremely attractive region Orava - Tatry and in this way creation of new connection of two productive railways networks ŽSR and PKP, which will be convenient for passenger transport and freight transport.
- 2. After renovation this railway line will acquire posibility to decrease carrying capacity of road network in crowded conditions of Orava.
- 3. Decrease of carrying capacity of road network will be fundamentally improved traffic situation in seated agglomeration and in this way will decrease negatives impacts from road traffics practically in full region of Orava and in vicinities of Poland.
- 4. After the introduction of special passenger-trains, which would stop mainly at interesting touristic places, Trstená, Tvrdošín (Oravice, Orava Dam), Podbiel' (Western Tatras Roháče), Oravský Podzámok (Orava Castle), Dolný Kubín (business and economic centre of Orava), Párnica (Malá Fatra, Vrátna Valley), tourism would be increased and there would be decreased necessity of the individual automobile transport with its all disadvantages (harmful emissions, security of operations, noise, parking places and etc.)
- 5. Exploitation of this renewed railway line for transport, mainly for transport of lorrytraillers in combined traffic road-railway across our territory would be lighten a high carrying-capacity on the road frontier crossings Chyžné and Trstená.
- 6. Other advantages, as for example, reduction of dangers of road traffics in winter months. In these bad winter conditions especially international truck transport in front - facing north - south is cause for lot of troubles at the ghates in Slovakia.

5. CONCLUSION

Renovation of the authentic railway line Kral'ovany - Trstená - Suchá Hora - Nowy Targ is in accordance with contemporary trend of development of railway traffic in the states of the EU. This railway line would be extremely advantageous for Polish, but first of all for Slovak.

Expected increase of volume of transfer in freight and passenger traffic between Slovakia and Poland, exactly between north and south of Europe wont'be possible to reach without repair of railway connections. Designed renovation of railway connection across Orava should help that in near future. Authors recommend to monitor this problem and to continue in initiative for renovation this international railway line.

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Abstract

The goal of this paper is to signalize to technical public with advantages of renovation of railway connection Trstená - Suchá Hora - Podczerwone - Nowy Targ. In this way there could be reached efficient international railway connection between Slovakia and Poland. This railway connection would be convenient for the freight transport and as well as for passenger transport between north and south district of Vysoké Tatry and contiguous reservations. The high convenience would be transfer of loading from present road transport to more ecological railway transport. The choice of useful materials and mechanisms and succession of working operation ensures quality result of modernisation works – it means high technical parameters of rail way and low costs on next maintenance activity.