

Railway reform in Croatia: History, Status and Outlook

1. Introduction

The Croatian Railways (HŽ – Hrvatske željeznice) are a state owned company (100%) operating the entire railway system which today consists of 2,710 km of standard gauge. The shape of the main line network has not significantly changed since the 1880s when all the main rail lines of the Austrian-Hungarian Monarchy passing through Croatia had been opened for traffic. These lines were financed by the state with the intention to connect the capitals of the Monarchy, Vienna and Budapest, with the Adriatic ports such as Trieste, Rijeka and Pula.

After World War I, the Kingdom of the Serbs, Croats and Slovenians was founded, which brought a unification of the railways as well. This railway organization persisted with short interruptions until 1991 when HŽ was formed out of ex JŽ (former Yugoslavian State Railway) Zagreb division (ZTP Zagreb).

2. 1991 – 1995

The development within the first 5 years of existence of HŽ was characterized by major problems and changes. After the split of JŽ the Croatian railways were confronted with a non-homogeneous and over-aged fleet of rolling stock, a high number of employees (HŽ staff productivity was 133,000 traffic units per employee in 1996, about half the level observed in Slovenia or the Czech Republic and one-quarter of the level observed in Poland and Germany at that time), low efficiency and a fragmented network. The port town of Ploče is only accessible via Bosnia-Herzegovina and the railway lines of Istria are connected via Slovenian Railways.

The biggest challenge, however, was the mindset. As in most socialistic countries, the performance of the railway was only measured in quantitative performance indicators and financial results were not a major concern. The collapsing economy in the early 1990's significantly reduced the demand for passenger and freight transport and therefore reduced revenues. In the mid 1990's, freight traffic was at about one-quarter of the pre-war levels. This meant that

the loss of HŽ was growing continuously throughout the 90s.

Finally, the war in former Yugoslavia between 1991 and 1995 caused major disruptions and problems for HŽ. The total damage to the rolling stock and infrastructures during those years amounted to nearly EUR 1 billion. This meant that for several years all available funding was used for repairing the damage caused by the war just to reach pre-wartime levels.

3. 1995-2006

The Croatian Government recognized that it could not continue to operate HŽ in this way, and initiated a restructuring program with the 1995 Railway Law which still has as its final objective the privatization of the railway. The restructuring program was supported under the World Bank financed Railway Modernization and Restructuring Project approved in January 1999, and a parallel railway project by the EBRD approved in December 1998.

The objectives of the projects were to modernize and restructure HŽ in order to diminish its financial burden on the Government, and to create a company adapted to a competitive transport market.

One of the first steps to restructure HŽ was the spin-off of all activities not directly related to the transport services. Within the last 10 years HŽ founded 17 limited liability companies and 1 public limited company. The main client for the companies' products and services is

HŽ, but they can offer their services to other companies as well. One example is "POSIT d.o.o.", founded in 2002, responsible for planned maintenance and the capital repair of safety installations. Another example is "Remonti održavanje pruga d.o.o.", which performs renewals and maintenance of tracks. The latter is the only company in Croatia capable of such kind of work and has therefore private clients like private infrastructure owners (e.g. private sidings).

The first step of restructuring was completed by the end of 2004 when all 17 companies, which were by then, all but one, in 100% ownership of HŽ, ended the financial year without any losses. From 2005 onwards the full privatization of these companies was planned, but only commenced in 2006. The reorganization efforts have already achieved some results. HŽ, for example, took over 42.000 employees in 1991 from JŽ - by 2005 the number of employees was reduced to 16.000.

Besides the organizational changes, a modernization program was initiated in 2003, both for infrastructure and rolling stock. The infrastructure program includes the pan European corridor X (Salzburg – Thessaloniki) crossing Croatia from Slovenia via Savski Marof – Zagreb – Vinkovci – Tovarnik into Serbia and the 2 branches of corridor V, from Rijeka – Zagreb – Koprivnica – Botovo into Hungary and from Ploče via Serbia back into Croatia and via Osijek into Hungary.

On a sunny day in March 2006 a tilting DMU class 7123 approaches Split main station. The future of HŽ has already begun. Photo: Wolf-Dietrich Geitz.





Suburban rail operations with EMU type 6111. Suburban rail services in Zagreb have reached a good level, similar to other European capitals. Financing and funding procedures of services, unfortunately, have not yet reached best practice. Photo: Wolf-Dietrich Geitz.

From a national point of view the refurbishment of the line between Opatarije and Split connecting Zagreb and Split was a top priority. It was started in 2003 and is still in operation. The introduction of tilting trains on this route in 2004 reduced the journey time from 8 to 5.5 hours.

4. 2006-2010

However, the changes and improvements achieved so far are not sufficient from a financial and operational point of view and do not meet the EU directives for railways. The years 2006 and 2007 will bring reforms required to complete EU negotiations, not only for the railways, but also in many other public sectors. Besides the EU the IMF is also pressing for a more rapid restructuring of two of the largest recipients of subsidies – the country's shipyards and the railway system. In 2004, HŽ required a state budget financing of about HRK 4.4 billion (more than EUR 500 million), which is more than 2% of total GDP!

Until the adoption of the Law on the division of the HŽ company, (OJ 153/05), December 2005, HŽ was organized on a functional basis with high vertical integration. Four main business areas existed: operation, rolling stock, infrastructure and coordination with other companies. HŽ was responsible for both infrastructure construction and maintenance as well as train operations. There was no accountancy separation of the infrastructure and operations or of services provided under public sector obligations.

According to the Law on Division of the Company HŽ, which came into force in January 2006, the new structure of the state railway company will be a holding company with four subsidiaries: management, maintenance and construction of

infrastructure, passenger transport, freight transport and traction. The new structure is accompanied by a 5 year plan (2006-2010), that comprises specified objectives and an aggressive investment plan. The new structure was planned to be established by July 2006, but implementation is not yet concluded and the Managing Boards of companies are not yet nominated. Three out of the 17 daughter companies mentioned above will be sold by the end of this year, the next 7 in 2007 in which HŽ will have a 25 % ownership.

Passenger transport will be the owner of coaches; freight transport will be the owner of freight wagons and traction will be the owner of locomotives, DMUs and EMUs. Under the new structure, passenger traffic and freight traffic will be obliged to pay an infrastructure access fee.

According to the investment plan up to 2010, HŽ will invest HRK 13.2 billion (more than EUR 1.6 billion), 8.7 billion HRK (more than EUR 1 billion) on infrastructure and HRK 4.5 billion (more than 500 million Euro) on rolling stock. The money will be used as follows:

Modernizations of existing stocks:

Main line locomotives	25
Shunting locomotives	16
DMUs	6
EMUs	4
Passenger coaches	250

Purchasing of new stocks:

EMUs for commuter service in Zagreb	18
EMUs for regional service	33
DMUs for regional service	20
Passenger coaches	18
Main line electric locomotives	15
Shunting locomotives	13
Freight wagons	920

Earlier this year HŽ signed a contract for the delivery of 300 new freight wagons and for the modernization of 6 shunting locomotives and 5 passenger coaches. For other planned projects, tender documents are currently being prepared.

Besides the restructuring of HŽ, the implementation of all rail relevant EU directives is crucial, particularly those of the 2nd railway package:

- Directive 2004/49/EC of the European Parliament and of the Council of 29 April 2004 on safety on the Community's railways and amending Council Directive 95/18/EC on the licensing of railway undertakings and Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification (Railway Safety Directive);
- Directive 2004/50/EC of the European Parliament and of the Council of 29 April 2004 amending Council Directive 96/48/EC on the interoperability of the trans-European high speed rail system and Directive 2001/16/EC of the European Parliament and of the Council on the interoperability of the trans-European conventional rail system; and
- Directive 2004/51/EC of the European Parliament and of the Council of 29 April 2004 amending Council Directive 91/440/EEC on the development of the Community's railways.

Two particularly interesting infrastructure projects are planned between Rijeka and Zagreb. The first project is already included in the five-year plan and should be finished by 2010. The line is fully electrified, between Rijeka and Moravice (90 km) with 3kV DC, between Moravice and Zagreb with 25kV/50Hz AC (139 km). As the entire electrified network of HŽ is equipped with 25kV/50Hz AC, except for the section between Rijeka and Moravice, the re-electrification of the 90 km between Moravice and Rijeka is planned to be completed by 2010. From that point, the locomotive changes in Moravice will be a thing of the past. About 25 % of the work has been done so far.

Another project, which is not included in the five-year plan, but much more significant in terms of capital expenditure, is the planned realization of the new Botovo - Zagreb - Rijeka line. As far as it is defined today, the total length will be 269 km,

61 km shorter than the existing line. The whole line will be double track. With the maximum speed of 160 km/h, the trip from Zagreb to Rijeka will take around 1 hour instead of 3.5 hours today.

The main objective of the new line is to serve the port of Rijeka. The capacity of existing Rijeka – Zagreb line is approximately 5 million tons per year while the capacity of the new line will be 25 million tons per year. Currently, operating on the old Rijeka – Zagreb line, freight trains need 10 hours to arrive from Rijeka to Botovo at an average speed of 30 km/h. Using the new line, freight trains will travel at an average of 120 km/h, crossing the whole line in 5 hours. However this ambitious second plan has not yet reached a political consensus, let alone secured funding or timelines.

A major area of concern is local passenger transport, in conurbations as well as in rural areas. The most important reason for HŽ not meeting the objective of reducing the financial losses by 2005, was the failure to discontinue loss-making passenger services and branch lines.

On today's territory of Croatia there have already been several attempts to introduce suburban rail services. In 1980, suburban rail services were introduced in Osijek but had to be abandoned in 1985 due to the unsolved funding issues. For the same reason suburban rail services in Split, which were introduced in 1993, were only in operation for one year. Only the suburban rail services in Zagreb, implemented in 1992, still exist. Today approx. 23% of all commuters into Zagreb use these services. The reasons for the relatively high patronage of these services are low ticket prices and an integrated fare system, that allows changing from tram to train and vice versa with one single ticket. Although successful from the transport point of view, the split of fare box revenues between the tram and the rail causes big problems for HŽ because these fare revenues are not sufficient to cover the costs. A solution for a new financing and funding structure for these services between HŽ, the city of Zagreb and the state could ease the problem for HŽ. The effects of the successful suburban services can also be seen in the operative statistics. Passenger traffic in terms of number of passengers increased during 2000-2004 by 20% (the number of passengers is now close to the volume of 1990), but



Croatian Railways 7122 class DMU in Varaždin. 7122 were acquired from Swedish railways (SJ) for local lines. They are mostly used on lines in Zagorje, Međimurje, Podravina, Dalmatia and Istria (photo: Ante Klečina)

only by 7% measured in passenger km. The reason is that almost all of the increase is due to a growing number of local and suburban passengers for short distance.

Similar problems can be observed on the branch lines. Parliament has not yet approved any closure of unprofitable branch lines. Instead, Parlia-

- the Central Government wants the local authorities to take responsibility for supporting regional passenger services.

A satisfying solution for urban, suburban and rural services should be found within the next few years.

Although HŽ has made progress since 1995, there are still a lot of challenges be-

	2005	2010
Number of passengers (millions)	38,4	43,8
Realised freight (million tons)	15,75	19,8

ment eventually approved a five-year process, by which the responsibilities for the regional passenger services are transferred to the local authorities. The local authorities are expected to gradually take over financing and funding of the services, Central Government will remain responsible for the redevelopment of the infrastructure.

HŽ tried to commence a dialogue with a number of local authorities, but with limited success so far. There has been very little progress in reaching transparent public service obligation agreements between HŽ and the Government. Even though the Government is providing substantial financial support to HŽ for operating the passenger services, the financial support is not based on any specific formula or contract. The Government, however, has been reluctant to sign PSO contracts due to the following reasons:

- The Ministry of Finance considers the current financial support requirements too high and would like to see improved operating efficiency before committing to a contract; and

fore reaching the final targets. The main objective is to reduce subsidy requirements and increase the market share of the railway sector.

It is too early to say whether these quantitative targets will be met. However, a long term sustainable railway strategy has to take into account the very specific characteristics of the Croatian railway system. The railway system comprises a relatively small network, which nevertheless has very distinctive features:

International freight corridors, where HŽ has to reposition itself in order to participate in and benefit from this growing market. HŽ has to find a new position in this business, especially as pure traction services will not be on offer after the market is fully liberalized. In Corridor X where stable and long-term growth rates are forecasted, HŽ has to secure interoperability and international co-operation. In Corridor Vb Rijeka to Hungary where significant and sustainable volumes are transported, the challenge is to expand capacity above 5 million tones per year. From the port of Split to the North, growth rates of 10 %

per year are realistic. In order to sustain this growth the capacity has to be extended and difficult operation patterns should be eased. In Corridor Vc Ploče to Bosnia there are growing transport volumes as well, but to sustain this growth increased operational efficiency and secured international co-operation are essential prerequisites.

As already discussed above, the rural passenger transport services are a major issue for HŽ. East Slavonia (Eastern part of Croatia) has an extensive network, which is a valuable source for freight and rural mobility. The challenge is to find the low cost operational concepts. On the line Ogulin/Karlovac to Split, it would be possible to realize corridor synergy effects. The challenge is to coordinate regional services with IC-trains and freight.

In contrast to the rural lines, where often overcapacity can be observed, the urban routes around Zagreb face the opposite problem. Zagreb suburban services have an excess demand during peak hours, the objective therefore is to overcome capacity shortages and find a fair financial agreement with ZET. The

urban network North of Zagreb and Međimurje has the potential to provide feeder services into the ZET network, if investment needs can be met and a network operations concept can be found.

There is also a potential for the long distance passenger services. The attractiveness of international passenger service is the relatively high yield per passenger km. However, the prerequisites are secured interoperability and a reasonable operational cost level. On the line from Zagreb to Rijeka a high demand for passenger transport on a rail friendly distance can be observed. However, the modal split of the rail services can only grow if journey times are cut. One possibility to achieve this would be by building the new railway line. Other important long distance passenger routes are those from Zagreb to East Slavonia and Split, which both have a latent demand on a rail friendly distance. The challenge for the former is to find a viable operations concept for parallel lines, for the latter, to ease difficult operations and compete with the highway.

In conclusion, it can be said that a lot has already been changed and achieved

in the Croatian railway sector. However, the challenges ahead are not less important. On a macro level the objective is to fully comply with all EU directives and international standards. On a micro level the challenge is not to pursue a "one fits all" strategy, but to formulate for each rail sector (infrastructure, passenger, freight, traction) and for each sub-sector (e.g. specific lines or services) an individual approach combining operational and administrative issues within the broader context of the national and international legislative framework.

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