Railway Reform in the Western Balkans

Transport Unit, Infrastructure Department
Europe and Central Asia Region

December 2005

CURRENCY EQUIVALENTS

Currency Unit – EURO
Exchange Rate – US$1 = 1.21 EURO (June 30th 2005)

Currency Unit – Albanian Lek
Exchange Rate – US$1 = 102.46 ALL (June 30th 2005)

Currency Unit – Bosnia and Herzegovina Convertible Mark
Exchange Rate – US$1 = 1.615 BAM (June 30th 2005)

Currency Unit – Croatian Kuna
Exchange Rate – US$1 = 6.04 HRK (June 30th 2005)

Currency Unit – Macedonian Denars
Exchange Rate – US$1 = 47.85 MKD (June 30th 2005)

Currency Unit – Serbian Dinars
Exchange Rate – US$1 = 68.17 CSD (June 30th 2005)

WEIGHTS AND MEASURES

Metric System

FISCAL YEAR

January 1st – December 31st

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ABBREVIATIONS AND ACRONYMS

CARDS	Community Assistance for Reconstruction, Development and Stabilization
CIM	International Consignment Note for rail transport under COTIF
CIS	Community of Independent States
CMEA	Council for Mutual Economic Assistance (also known as COMECON)
COTIF	Convention Concerning the International Transport of Goods by Rail, 1980
DMU	Diesel Multiple Unit
EBRD	European Bank for Reconstruction and Development
ECA	Europe and Central Asia, an administrative region of the World Bank
ECMT	European Conference of Ministers of Transport (Part of OECD)
EIB	European Investment Bank
EMU	Electric Multiple Unit
EU	European Union
ERTMS	European Rail Traffic Management System
ETCS	European Train Control System
GETS	General Electric Transportation Systems
GDP	Gross Domestic Product
GNI	Gross National Income
GSM	Global System for Mobile communications
HSH	Hekurudhat Shqiptare, or Albanian Railways
HZ	Hrvatske Željeznice, or Croatian Railways
IBRD	International Bank for Reconstruction and Development, the World Bank Group
IDA	International Development Agency, the World Bank Group
IFI	International Financial Institutions
ISG	Infrastructure Steering Group
KFOR	NATO-led force in Kosovo
MoU	Memorandum of Understanding
MZ	Makedonski Željeznici, or Macedonian Railways
OECD	Organization of Economic Co-operation and Development
OSJD	Organization for Railways Cooperation, comprises CIS countries
PETrAs	Pan-European Transport Areas
PHARE	Programme of Community aid to central and east European countries
PSO	Public Service Obligation
PSC	Public Service Contract
REBIS	Regional Balkans Infrastructure Study
RSC	Regional Steering Committee
SaM	Serbia and Montenegro
SAP	Stabilization and Association Process
SEE	South East Europe
SECI	Southeast European Cooperation Initiative
SEETO	South East Europe Transport Observatory
SMGS	Agreement on International Railway Freight Communications, used in OSJD
SOE	State Owned Enterprise
SME	Small and Medium Enterprises
TEN	Trans European Network
TERFN	Trans-European Rail Freight Network
TEU	Twenty-foot equivalent unit (measurement for containerized cargo)
TIRS	Transport Infrastructure Regional Study

UNECE	United Nations Economic Commission for Europe
UNMIK	United Nations Interim Administration Mission in Kosovo
ZCG	Zeleznice Crne Gore, or Montenegrin Railways
ZFBiH	Zeljeznice Federacije Bosne i Hercegovine, or the railways of the Federation of Bosnia and Herzegovina,
ZRS	Zeljeznice Republike Srpske,or Republika Srpska railways
ZS	Zeleznice Srbije, or Serbian Railways
ZTP	Zheleznichko Transportno Preduzchne Beograd, Former Serbian Railways

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ACKNOWLEDGMENTS

This paper was prepared by Martin Humphreys (Senior Transport Economist) and Martha B. Lawrence (Senior Transport Specialist), Task Team Leaders, Gerald Ollivier (Transport Specialist, ECSIE), Cordula Rastogi (Extended Term Consultant), Julia Tomova (Junior Professional Associate), and Julie Morel (Short Term Consultant) from the Infrastructure Department (ECSIE) within the Europe and Central Asia Region of the World Bank.

Thanks are also given to Motoo Konishi (Sector Manager, Transport, ECSIE), together with Peer Reviewers, Paul Amos (Transport Advisor, TUDTR), and Lou S. Thompson (Consultant, former Railways Advisor) and for their helpful and substantive contributions to the draft of this paper. Useful comments were also provided by Ardo Hansson (Lead Economist, ECSPE) and Mathew Verghis (Senior Economist, ECSPE).

The team would also like to gratefully acknowledge the formal and informal contributions representatives of the respective Governments and Railways of the Western Balkans, who assisted during the course of the study.

EXECUTIVE SUMMARY

1. This study examines the challenges facing the railways of the Western Balkans region. The region's railways have many common problems including small size and fragmented railway service that are best addressed through common solutions. The similarities of the countries in terms of their shared history, geography, socio-economic characteristics and common aspiration to join the European Union also support a regional approach to addressing shared problems.

2. This study was commissioned to provide an outline for railway reform in the region. The study reviews the environment in which the railways operate, including the changing demand for rail services, the institutional and the macroeconomic context. It assesses the railways' financial and operational performance, benchmarked against some appropriately selected international railways. It reviews the current status of reform in each country, and outlines a broad reform strategy for the railway sector in the Western Balkans.

3. This study is intended for the Western Balkans governments, railways and other interested stakeholders including the European Union, other international financial and donor institutions, and the current and potential users of the railway networks of the Western Balkans.

THE CHALLENGE

4. In 2004, the Bank produced a regional framework paper for Southeast Europe[1], which synthesized the contents of sector reports in roads, railways and inland waterways together with ongoing work in trade and transport facilitation and road safety. A major issue that emerged in that paper was the poor performance of the railways of the Southeast Europe region, particularly in the Western Balkans countries.

5. The framework paper starkly illustrated the problem: How to sustain a railway network of much the same network density (track km per sq. km) as Western Europe, with less than half the traffic density, a third of the total labor productivity, and a fraction of the per capita income? Continuing the existing, often substantial, level of operating subsidy together with the provision of projected investments needs is becoming increasingly incompatible with the current fiscal and debt position of the Western Balkans countries.

6. In the Western Balkans region, transition, conflict and the closure of old, uneconomic, heavy industry has caused railway traffic to decline drastically. The railways of the Western

[1] World Bank, (2004c).

Balkans countries used to carry about four times as much passenger traffic as they do now—about 10 billion passenger-km in 1990 versus 2.5 billion passenger-km in 2004. In freight they handled almost 3 times as much as they do today—about 20 billion ton-km in 1990 versus 7 billion ton-km in 2004.[2]

7. In addition, the atomization (the 'Balkanisation') of the former Yugoslavian Railways (JZ) has fragmented rail service, leading to reduced competitiveness. The average length of haul for freight in the region is now very short, from 74 km for Albania to 290 km for Serbian Railways. Since rail is typically competitive with road for either very high volume movements or for long distance movements, the railways as stand-alone entities have limited competitive services, and must integrate their service offerings with neighboring railways to be competitive. This is a big challenge: a train movement from Ljubljana to Istanbul, for example, now involves four border crossings, and the co-ordination of five railways.

8. The level of competition is increasing. With rising incomes and significant investment in the road networks, freight and passengers are shifting to the road-based modes. In addition, the Western Balkan countries are adopting, as part of the *acquis communautaire*, open access regimes for their rail infrastructure. This will enable European rail freight operators to enter the market and "cherry pick" the most profitable rail traffic.

9. Railway assets were damaged in the conflict and little investment was made in the last 15 years. The railways survived by "eating" their assets, providing the lower volume of service demanded by using the youngest rolling stock and allowing the infrastructure to deteriorate. The youngest are no longer young, however, and deteriorated track impairs service quality and safety. The railways have a pressing need to renovate assets.

10. The Western Balkans railways also suffer from poor resource productivity. The railways were built and staffed to carry much more traffic than now, and the railways have failed to fully adjust resources to the reduced production. Infrastructure utilization is quite low, especially for the smaller railways. Rolling stock utilization and staff productivity is also low, compared to the European benchmark railways.

11. The railways, in their present form, are straining government budgets with their need for operating and capital subsidies. For example, operating subsidies alone to Serbian Railway consumed nearly one percent of GDP and two percent of government expenditure in 2003, with no funds available for capital investment. For Croatia, the comparable operating subsidy figures are 0.5 percent of GDP and 0.9% of government expenditure. In addition, the railway in Croatia received US$236 million in capital subsidy in 2003, bringing the total subsidy that year to US$378 million, or 1.3 percent of GDP.

12. Given the challenging fiscal situation, the level of public funds spent on railways is a serious concern. The level of subsidy for Western Balkans railways is comparable to benchmark European railways. Nonetheless, given that the state sector is overlarge in

[2] All tons and ton-km in this report are metric tons.

Western Balkans countries, and that governments have many other pressing priorities, a European level of subsidy for railways is not affordable.

THE REFORM PROCESS

13. Railway reform in the Western Balkans must balance several competing objectives. The reform should aim to reduce the subsidy needs, while:

- Providing for appropriate levels of safe and effective rail transportation to support economic activity in each country and the region;
- Allowing for efficient provision of necessary social services, e.g., passenger services or community access; and
- Producing an economically viable rail sector that is able to compete effectively and renew its assets.

14. The achievement of these objectives will be a tremendous challenge. It will require difficult choices to be made both at the organizational level and at the policy level. The following paragraphs outline a reform process consistent with these objectives.

15. ***Railway Infrastructure:*** The primary emphasis in the reform process for the network should be rationalization, cost reduction and a harmonized system of access prices. The size of the infrastructure should better reflect current and forecast traffic, with a commensurate reduction in recurrent expenditures. Infrastructure access prices should be harmonized across neighboring national networks to prevent the emergence of barriers to competition, and at a level to recover the difference between the total costs of network provision and the contribution from the national budget.[3]

16. ***Railway Operators.*** The primary emphasis in the reform process for the railway operators should be commercialization and/or privatization. Commercialization would include cost reduction, labor retrenchment, improved marketing, a profit center organization structure, more rigorous and objective investment planning, and divestiture of non-core activities. The government should consider privatizing the freight operators as a way to facilitate and speed these changes.

17. ***Government Support for Railways.*** The primary emphasis in reform should be improved public service tendering and contracting. To the degree affordable, government will continue to subsidize socially necessary but loss-making services. The emphasis should be on designing this process to obtain high value for public money. This is accomplished by: (a) prioritizing the social services to be provided according to economic value and only buying those with high value relative to cost; and (b) tendering the provision of those services. Before tendering provision of services, government should consider whether the service could be provided less expensively by another mode. In many low density markets, a

[3] The reasons are discussed in the earlier Framework Paper, and expanded upon subsequently, in a recent paper for the ECMT, see Nash, Mathews and Thompson (2005).

tendered bus service could provide higher frequency, higher quality services for a fraction of the cost of providing rail service.

18. ***Regional Relationships.*** An additional element in the reform process should be the development/introduction of arrangements to support regional rail services. This could include contractual arrangements for the joint marketing of services, the pooling of equipment for a particular service, through running of locomotives and drivers, and/or the establishment of joint ventures to operate international services. In operations, it may range from improved document and information exchange to assigning higher dispatch priority to international train services. None of these measures would be expected to require significant investment, and all could be introduced by the railways at an early stage.

19. ***Selective investment***. These reforms must be supported by selective capital investment that renews the "right" railway assets. The "right" assets are those that the downsized, self-sustaining railway undertakings would choose in a rigorous and objective capital planning process. Such assets will have strategic priority, and a high financial or economic return.

20. The World Bank and other International Financial Institutions (IFIs) need to ensure that their lending remains prudent and supports high yielding investments which help the railways to improve efficiency and reduce costs. For this reason, any proposed investment must be carefully scrutinized and found to satisfy quality standards within an adequate framework of sectoral reforms, regulation, and cross-country cooperation. Even after these microeconomic criteria have been met, lending decisions will also need to take into consideration the country's macro-fiscal constraints and capacity to incur additional debt. Investments which meet these criteria should help shrink railway subsidy over time, gradually reducing the governments' financial commitments for railways, while improving economic efficiency and growth prospects.

INTRODUCTION & BACKGROUND

PURPOSE OF THE STUDY

1. This study examines the challenges facing the railways of the Western Balkans region. The region is defined in this study as Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, and Serbia and Montenegro, including Kosovo (hereafter Kosovo). The region's railways have many common problems including their limited size and fragmented nature that are best addressed through common solutions. The similarities of the countries in terms of their shared history, geography, socio-economic characteristics and common aspiration to join the European Union also support a regional approach to addressing shared problems.

2. This perspective can be seen in a number of earlier World Bank initiatives contributing to the reintegration and rebuilding of the regional economy after the conflicts of the 1990s. Within infrastructure, they include the establishment of a regional market for trading in energy[4] and a regional trade and transport facilitation[5] project (TTFSE). Regional initiatives are necessary to address shared problems and reduce barriers to regional transport markets (e.g. regulations inhibiting the through running of locomotives). When they are economically viable and consistent with national priorities, regional initiatives complement, and indeed enhance, national reform initiatives.

3. In 2004, the Bank produced a regional framework paper for Southeast Europe[6], which synthesized the contents of sector reports in roads, railways and inland waterways together with ongoing work in trade and transport facilitation and road safety. The Framework Paper compared some basic indicators of railway network sustainability in the SEE region with EU averages. Railway network density (and to a lesser extent population density) in the SEE region and in the EU countries are not greatly dissimilar, although wide internal variations exist in both blocs. (See Table 1 which has been reproduced from the earlier paper.) Traffic density, productivity and per capita national income, however, are much lower in the SEE region than in the EU.

[4] World Bank, (2004d). "*Framework for the Development of Regional Energy Trade in South East Europe*", Energy and Mining Discussion Paper No.12, Washington D.C.
[5] See World Bank, (2004c). "*A Framework for the Development of the Transport Sector in SE Europe*", Europe and Central Asia Region of the World Bank, Washington D.C. for a recent summary of trade and transport facilitation activities in the region.
[6] World Bank, (2004c).

Table 1 A comparison of the context and performance of EU Railways and SEE Railways (2002)

	European Union	The Western Balkans
Population density (persons/000sq km)	106	92
Route density (rail route-km/000sq km)	44	42
Traffic density (000 traffic units/rail route-km)	3670	1640
Labor productivity (000 traffic units/rail staff)	650	223
Gross National Income ($000/capita 2003)	21.1	1.8

Source: WB Railway Database

4. The framework paper starkly illustrated the problem: How to sustain a railway network of much the same network density as Western Europe, with less than half the traffic density, a third of the total labor productivity, and a fraction of the per capita income? Continuing the existing, often substantial, level of operating subsidy and providing for projected investments needs were becoming increasingly incompatible with the fiscal and debt position of the Western Balkans countries.

5. With decision makers unable, or unwilling, to identify and focus resources on those market segments where rail might have a viable future, declining resources were spread ever more thinly on the whole of the existing rail network. The posited outcome was a 'patchwork approach', with different levels of efficiency, safety and service across the network. Such an approach was acknowledged as being unlikely to provide the level of service demanded by national and international transporters in a market economy, jeopardizing the sustainability of the whole sector.

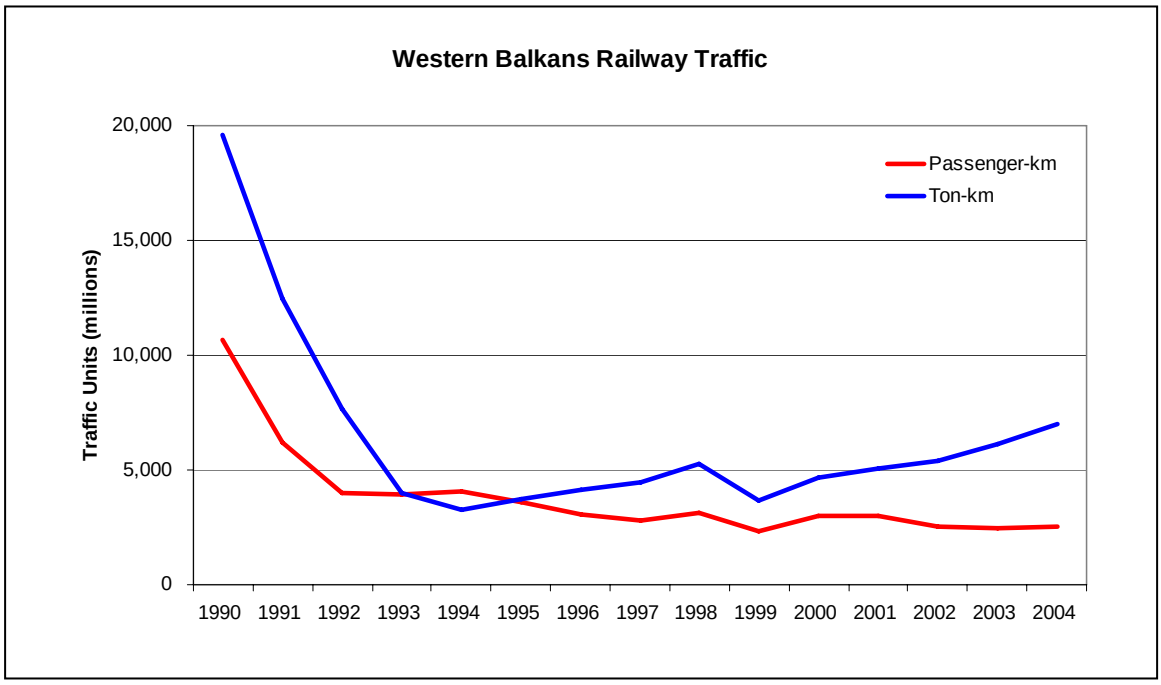
6. This study was commissioned to provide an outline for railway reform in the region. The study reviews the environment in which the railways operate, including the changing demand for rail services, the institutional context and the macroeconomic context. It analyzes the railway's financial and operational performance, using a number of pre-defined international benchmarks. It reviews the current status of reform in each country, and outlines a broad reform strategy for the railway sector in the Western Balkans.

CHANGING TRANSPORT DEMAND

7. The railways of the Western Balkans countries used to carry about four times as much passenger traffic as they do now—about 10 billion passenger-km in 1990 *vis-a-vis* 2.5 billion passenger-km in 2004. (See Figure 1) In terms of freight carried, they used to carry almost 3 times the traffic as they now do—about 20 billion ton-km in 1990 versus 7 billion ton-km in 2004. As a specific example, the railways in Bosnia and Herzegovina carried 25 million tons of freight, and 13 million passengers in 1990. By 2004 this had had fallen to just under 6 million tons and just over 1 million passengers[7].

[7] Bosnia and Herzegovina Railways Public Corporation (2005).

Figure 1 Passenger and Freight Traffic of Western Balkans Railways



Source: Study data

8. Recent studies suggest modest or little growth in rail demand in the region. The Regional Balkans Infrastructure Study (REBIS)[8] estimates that rail traffic will grow at between 60 and 140 percent between 2001 and 2025, or an annual rate of 2.5 to 5.8 percent (which is close to current growth). The earlier Transport Infrastructure Regional Study (TIRS)[9], which reported in March 2002, projected little growth in rail traffic over the same period. The TIRS projection reflected that much rail traffic volume involved the movement of primary commodities or the output of the heavy industrial sectors, which were undergoing restructuring, privatization and retrenchment.

9. The change in the structure of the market, and the nature of the goods being transported, together with considerable investment in road infrastructure and rapid motorization, means that the scale of the former market is unlikely to be recovered for some time, if ever. Increasing per capita income is also likely to contribute primarily to further increases in vehicle ownership and use, rather than increased demand for rail transport *per se*.

10. These trends mean that the railway is likely to be a modest player in the transport sector in the region, except in a few market segments, and that current market share is likely to decline further. Rail currently accounts for 32 percent of public passenger transport in Croatia,[10] 10 percent in Serbia,[11] 3 percent in Albania[12] and low proportions in the remaining

[8] Cowi (2003).
[9] Louis Berger (2002).
[10] Croatia Central Bureau of Statistics, *Statistical Information 2004*.
[11] Serbia and Montenegro Statistical Office, *Statistical Pocket Book 2004*, p. 43.

countries. These shares exclude the use of the private car—which if included would significantly reduce rail market share. The comparable market share for rail, in terms of passenger-km, is 6.6 percent for the EU15 countries, and 3.4 percent in Portugal, 5.5 percent in the United Kingdom, and 7.4 percent in Denmark.

INSTITUTIONAL CONTEXT FOR THE RAILWAY SECTOR

11. The institutional framework for the railway sector in the region is defined to a significant extent by the European Union, and the requirement and desire of the countries to take on the "obligations of membership" and harmonize with the *acquis communautaire*. Approximately 10 percent of the legislation included in the *acquis* is directly related to the transport sector. Preparation for accession not only requires the adoption of this legislation by each of the countries, but also requires that each has an 'adequate' level of administrative capacity, and the capacity to prepare for the introduction of forthcoming directives.

12. The transport *acquis communautaire* contains all the relevant Directives, Regulations and Decisions, together with all principles of law and interpretations of the European Court of Justice, all international transport agreements to which the EU is a party, including what is now termed as the ECMT *acquis*[13], and all relevant Declarations and Resolutions of the Council of Ministers. A review of the components of the *acquis communautaire* and the ECMT *acquis*, as they pertain to the railway sector is presented in Annex A. The following paragraphs summarize the key elements.

13. The *acquis* require that countries must separate railway infrastructure from railway operations. This may be done on an accounting basis—organizational and institutional separation is optional. The infrastructure is operated by an infrastructure manager that must have responsibility for its own management, administration and internal control. The infrastructure manager must have a business plan which is designed to ensure financial equilibrium and the optimum use of infrastructure. The infrastructure manager must publish a network statement, which describes the condition and limitation of the network, details of the charging scheme, rules governing the capacity allocation, and priority rules which apply in case of conflicting demand[14].

14. The infrastructure manager must charge a track access fee for the use of the railway infrastructure. This fee should be calculated in a non discriminatory manner. The calculation may also take into account the mileage, the composition of the train and any specific requirements in terms of such factors as speed, axle load and the degree or period of utilization of the infrastructure. If the infrastructure manager is independent from railway undertakings, the infrastructure manager can establish the charging framework. If the infrastructure manager is affiliated with a railway undertaking, the charging framework must

[12] Louis Berger (2005), Executive Summary Page 11.
[13] Which has recently been slimmed down to an essential 120 Resolutions, Declarations, Conclusions and Recommendations etc. See ECMT, (2003) for more information.
[14] The contents of the network statement are defined in Annex 1.

be established by an independent body. Each member state must establish an allocation body that will allocate infrastructure on a fair and non-discriminatory basis.

15. Railway undertakings (passenger and freight operators) must be administered on a commercial basis, with defined public service obligations (PSO), or public service contracts (PSC), for socially necessary services. A safety certificate must be issued for each operator. Railway undertakings meeting a series of conditions, can apply for a license that would be valid throughout the EU territory, with the intention of facilitating international access and hence competition.

16. Railway undertakings that are established in the member states must be granted access to those sections of the network defined as the Trans European Rail Freight Network (TERFN) by March 15, 2008, and to the entire rail network by 2015, for the purpose of operating freight international services.

17. A first step towards interoperability was taken for the trans-European high-speed rail system.[15] This network must meet a common set of essential requirements, so as to achieve interoperability, improved safety, and reduced environmental nuisance.

18. The cost of harmonizing with the *acquis*, both in terms of building capacity to take on the obligations of membership and meeting the standards for infrastructure enhancement, can be high for applicant and candidate countries. One recent estimate is that the fiscal cost of harmonizing with the acquis averaged 3.2 percent of GDP annually in the EU8 countries[16]. Whilst the respective national timetables for movement towards membership partially alleviate some of these concerns, an inherent conflict exists between a country wishing to progress quickly towards membership and improve their 'core' transport networks, and their capacity to implement and pay for the required reforms, given their respective fiscal space.

'CORE RAILWAY NETWORK' IN SOUTH EAST EUROPE

19. The concept of a '*core network*', or 'strategic network', for transport infrastructure in the five countries was originally proposed by the European Commission in its Strategy Paper[17], published in October 2001. This paper detailed the guiding principles for the definition of the SEE 'strategic transport network', and added that priority was to be given to the use of existing infrastructure, by repairing and rehabilitating it, and **upgrading or new infrastructure components should be kept to a minimum** (authors' emphasis)**.**

20. This paper was followed by two studies. The Transport Infrastructure Regional Study (TIRS)[18], covering Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Serbia and Montenegro, and Romania was completed in March 2002. The TIRS reviewed the SEE

[15] Defined in Annex 1 of the same directive.
[16] World Bank (2005h).
[17] European Commission, (2001), *Transport and Energy Infrastructure for South Eastern Europe*. Brussels. Available from: http://europa.eu.int/comm/ten/infrastructure/doc/tren_se_en.pdf.
[18] Louis Berger SA (2002).

governments'[19] plans for establishing the basic regional infrastructure network and offered a first technical elaboration of a long term development plan for the Core Network. It included recommendations on the nature of investments in the various sectors (e.g., rehabilitation rather than development investments, sustainable funding of maintenance, and sector reform issues). The TIRS also provided a multi-criteria assessment of proposed transport projects, a priority ranking of these projects, and a short/medium/long term investment plan for the region.

21. The second study was the Regional Balkans Infrastructure Study - Transport (REBIS)[20], funded by the EU under the CARDS Program. It encompassed Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, and Serbia and Montenegro (including Kosovo) and was completed in July 2003. The REBIS study was conceived as a "…*continuation and deepening of the TIRS*", (according to the interpretation of the ISG[21]). It aimed to assist the Balkans countries to develop coherent strategies for transport infrastructure development and identify priority investment in transport infrastructure. According to the REBIS study, an estimated US$14.5 billion (€12 billion) was required to upgrade the core railway network to a level compatible with forecast traffic by 2015.

22. A Memorandum of Understanding (MoU) on the development of the South East Europe Core Regional Transport Network, was signed on June 11, 2004 in Luxembourg. The signatories included the European Commission, the Governments of Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Serbia and Montenegro, and the United Mission in Kosovo (UNMIK) for Kosovo, which remains under international administration according to United Nations Security Council Resolution 1244.

23. The MoU defined in broad but clear terms the alignments of the network and the fields in which cooperation will be carried out. It also envisaged the establishment of a regional mechanism for coordination – a Regional Steering Committee (RSC) composed of junior Ministers or senior civil servants from the signatory countries and the European Commission. The RSC would stimulate and monitor the action needed to implement the goals of the MoU in practice, and report back to the ministers at their regular meetings. The RSC will be composed of members who are well-anchored in their national administrations and able to ensure that the Core Network is fully integrated in the national transport plan and the infrastructure budget of their countries.

24. The Core Network, as defined in the MoU, comprises 4,300 km of railway lines and 6,000 km of roads. It includes the Pan-European Corridors within the region (the "backbone" of the core network), adding to these the interconnections between the five capitals of the region and the cities of Banja Luka, Podgorica and Pristina. It also links these with the capitals of the neighboring countries and provides connections with the Adriatic ports of Rijeka, Split, Dubrovnik, Ploce, Bar, Durres, and Vlore.

[19] The TIRS encompassed seven countries – Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Yugoslavia, Macedonia, and Romania (e.g., also two EU candidate states).
[20] Cowi (2003).
[21] ISG (2003), "*Developing Regional Infrastructure Strategic Approach and Implementation of Projects*", Stability Pact Regional Table, Thessaloniki December 16, 2002.

25. The MoU also provides for the establishment of a South East Europe Transport Observatory (SEETO), headquartered in Belgrade. Important functions are expected to be collection of data, preparation of annual and multi-annual work plans for the implementation of the projects defined in the REBIS Study (Core Network), and coordination with the existing task forces on specific transport corridors.

26. The next section provides an overview of the macroeconomic context for the SEE countries. Given the limited fiscal space described, the development of the core network to a defined European standard not necessary for national needs, would be imprudent.

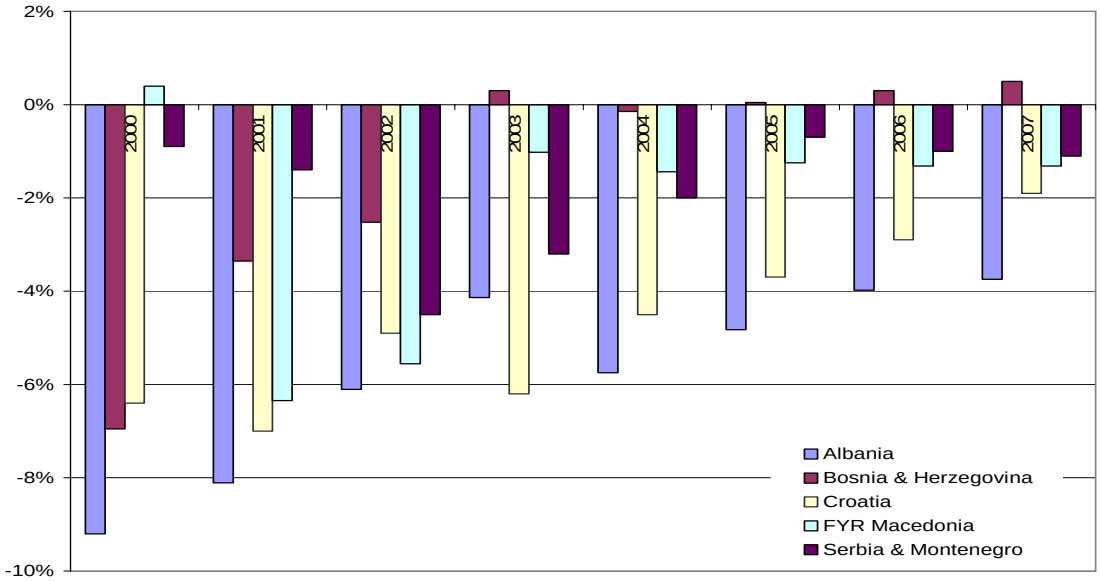
MACROECONOMIC CONTEXT

27. In the last ten years, the countries of the Western Balkans have endured political turmoil, civil unrest and military strife. These events have had a significant impact on the direction and volume of trade and passenger flows in the region, which were still recovering from the upheaval engendered by the break-up of the Former Soviet Union (FSU) and the concomitant changes in the orientation of the regional economy.

28. Since the end of the Kosovo crisis in 1999 and the emergence of political stability, good fiscal progress has been made in all the countries of the region. All are in the process of transition, undertaking significant fiscal adjustment as they seek to move to a path of sustainable growth. Previous high debt has been reduced and restructured, and the countries have committed themselves to a path of fiscal responsibility as one of the key ingredients in the recovery process. Consolidation is also necessary to prepare the ground for future entry into the European Union (EU), including the requirement to take on the 'obligations of membership', under the *acquis communataire,* as discussed earlier.

29. Fiscal consolidation in the West Balkan countries has been largely achieved through expenditure cuts, which are advancing at an uneven pace throughout the region. After impressive progress in most countries in 2004, fiscal trends display different profiles in 2005, with public deficits expected on average at 2 percent of GDP after grants (see Figure 2).

Figure 2 Fiscal deficit in the Western Balkans countries 2000-2007 (% of GDP)



Source: Study data

30. In 2004, real GDP growth resumed to 5 percent in the region and is projected to remain at a regional average of almost 5 percent in 2006 (see further Table 2). The main positive changes against the performance of 2003 come from Bosnia and Herzegovina and Serbia and Montenegro. Albania remains on a sustained growth track, with projected GDP growth of around 6 percent.

Table 2 Western Balkans Countries – Actual and Projected Real GDP Growth 2002-2006 (%)

	2002	2003	2004	2005	2006
Albania	3.4%	6.0%	5.9%	6.0%	6.0%
Bosnia & Herzegovina	5.3%	4.0%	5.7%	5.4%	5.7%
Croatia	5.2%	4.3%	3.8%	3.4%	3.9%
FYR Macedonia	0.9%	3.5%	2.4%	3.8%	3.7%
Serbia & Montenegro	3.8%	2.7%	7.2%	4.6%	4.8%
Regional average	**3.7%**	**4.1%**	**5.0%**	**4.6%**	**4.8%**

Source: IMF, World Economic Outlook

31. Despite this positive outlook, a recent study[22] noted that key vulnerabilities remain. These include high or very high debt to GDP ratios[23] (except for FYR Macedonia), current account deficits and external financing needs (all countries), government expenditures relative to GDP (except Albania), and external debt to GDP (SaM). These vulnerabilities are

[22] World Bank, (2005).
[23] Serbia 58.4% Public Debt and Interest Payments as a % of GDP, Bosnia 78.1%, Albania 55.6%, Croatia 53.7% in 2004, compared to an average amongst the EU7 countries of 31%.

expected to decline only gradually, through continued fiscal consolidation efforts and structural policy reform. External financing needs are expected to remain high, and new gross borrowing, including for servicing and refinancing current loans, will be contracted on hardening terms. Prospective pre-accession costs as well as the need to meet future EU fiscal targets will also need to be factored into fiscal sustainability calculations.

32. Given this fiscal situation, the level of public funds spent on railways is a serious concern. As discussed in paragraph 110, the level of subsidy for Western Balkans railways is comparable to benchmark European railways. Nonetheless, given that the state sector is overlarge in Western Balkans countries, and that governments have many other pressing priorities, a European level of subsidy for railways is not affordable. The World Bank and other International Financial Institutions (IFIs) need to ensure that their lending remains prudent and supports high yielding investments which help the railways to improve efficiency and reduce costs. For this reason, any proposed investment must be carefully scrutinized and found to satisfy quality standards within an adequate framework of sectoral reforms, regulation, and cross-country cooperation. Even after these microeconomic criteria have been met, lending decisions will also need to take into consideration the country's macro-fiscal constraints and capacity to incur additional debt. Investments which meet these criteria should help shrink railway subsidy over time, gradually reducing the governments' financial commitments for railways, while improving economic efficiency and growth prospects.

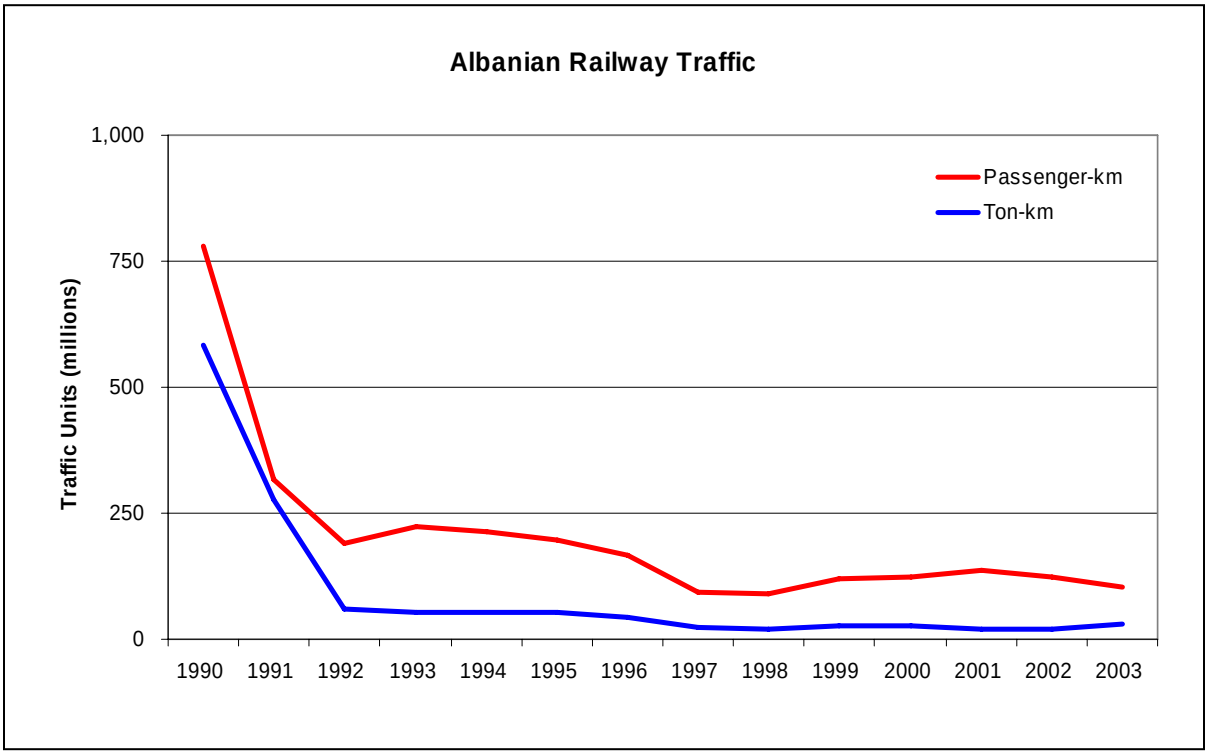
THE RAILWAYS OF THE WESTERN BALKANS REGION

33. This chapter describes the railways of the Western Balkans region. It discusses the freight and passenger traffic handled by each railways and the potential for traffic growth. The chapter describes the physical condition of each railway's infrastructure and other assets. It discusses the investment and restructuring issues that are particular to each of the railways.

ALBANIAN RAILWAYS (HSH)

34. Albanian Railways (HSH) operates 441 km of single track lines that link the capital Tirana, the port of Durres, and most of the larger towns and industrial sites in Albania. The railway was built primarily to serve heavy and extractive industries, which in the 1980s included copper, chrome, coal and oil extraction. These industries are now closed, and the impact on traffic volumes can be seen in Figure 3 below. The railway's largest current traffic flow is imported clinker from the port of Durres to Fushe Kruje, and this is expected to cease in 2006 when an upgrade to the cement factory in Fushe Kruje is completed.

Figure 3 Traffic Carried by Albanian Railways (Million Traffic Units)



Source: Study data

35. Prospects for new traffic are quite modest. Port traffic is expected to grow. But as much of this traffic is destined for Tirana, a short distance from the port, it is likely to continue moving by truck. A copper wire plant may possibly be built near Shkroder and a steel plant operates at Elbasan, but the railway has not secured any of this traffic. HSH typically operates three freight trains per day, based in Durres, Ballsh and Shkoder. (See the map on the following page.)

36. The railway also operates two passenger trains per day in each direction between Tirana and Durres, Shkoder, Vlore, Pogradec and Elbasan, with most of the passenger journeys being between Tirana and Durres. (See Figure 3 and map on the following page.) Passenger traffic is much reduced from previous years. Both passenger and freight traffic have experienced increasing competition from road, due to elimination of communist government limitations on road use and vehicle ownership and construction of good quality roads. Rail passenger service has particularly suffered from bus and minibus competition. Passengers prefer the greater comfort, reliability and frequency of bus/minibus, and the railway now carries only those citizens too poor to be able to afford the bus. Rail now has approximately 3 percent share of the market.[24]

37. Much of the rail infrastructure is in poor condition, damaged during civil unrest in the early 1990s and not well maintained since due to lack of funds. The exception is the main line between Tirana and Durres, which was modernized and relaid with concrete sleepers and welded rail in 1997.[25] Maximum speed on this line is 60 kph. The remainder of the network has speed restrictions of 40 kph, due to track condition, with some section restricted to 20 kph. The signaling system was destroyed during the civil unrest, and the railway operates with a poorly disciplined manual train control system.

38. The infrastructure contains large sections of line that carry a very small share of HSH's limited overall traffic. The line from Elbasan to Pogradec is a significant loss maker, and a recent study estimated that the closure of this line would reduce HSH's operating loss by 45 million LEK (US$ 438,900) per year.[26] This is the section containing 20 kph speed restrictions due to poor track condition, so considerable savings would also be realized in future capital investment requirements by closing the line. The line from Fier to Vlore is also a candidate for closure. This would save an estimated 12 million LEK (US$ 117,000) per year, as well as reduce future capital investment needs. All sections of the railway suffer from very low traffic. Few, if any, sections would be viable without government support.

39. The railway has a severe problem with overstaffing. Labor productivity is a dismal 60,676 traffic units per employee. Labor accounts for some 36 percent of operating costs, and is one of the few areas in which the railway has potential to improve productivity. (Closing low density lines will also improve productivity.) HSH currently has 2248 staff. A recent study recommends a staffing level of 750 as appropriate, given current operations.[27]

[24] Louis Berger, (2004) p. ES-11.
[25] Passing tracks at stations on this line remain in poor condition.
[26] Scott Wilson, (2005) p. 81.
[27] Scott Wilson, (2005) p. 77-78.

Figure 4 The Railway Network of Albania

40. Another option to reduce subsidy requirements is for the government to evaluate carefully the services that it wishes to buy from the railway, and eliminate those that do not have a high economic/social value for money, such as services with very low patronage. The government should consider whether these services could be provided more cost effectively through support for tendered bus services.

41. Indeed, the key in Albania is to identify where, if anywhere, the railway can offer profitable freight services or high value-for-money passenger services, and redesign the network and the services to serve those market segments. A recent study recommends focusing HSH on improved commuter service between Durres and Tirana, together with marketing freight services to potential large industrial customers and import traffic coming from Durres and Han I Hotit. The recommendation to focus on Durres-Tirana commuter traffic was based on an evaluation of traffic potential, not a cost-benefit analysis, so a more complete analysis is needed before any significant investment is made in this line of business. Improving the service in this corridor would, at a minimum, require investment in better rolling stock, either second hand DMUs or improved locomotives to complement the refurbished InterRegio coaches already being acquired.

42. GE Transportation Systems (GETS) has made a $82 million rail investment proposal to the Government of Albania. The proposed GETS project has three main components. First, GETS would renew the line from Durres to Tirana and install new signaling. Second, GETS would construct a new six km line to the Rinas Airport and a simple canopy shelter and covered walkway at the airport. Third, GETS would supply rolling stock to operate the Durres-Tirana and airport services, consisting of four new GE diesel locomotives[28] and 12 used coaches. The cost of the proposed project is US$82 million, which is over 1 percent of Albania's estimated 2005 GDP. The World Bank has serious concerns about this project, as it proposes to spend significant funds on a service with modest likely benefits. By contrast, the Albanian National Transport Plan recommends that the government fund railway capital expenditures totaling US$6-12 million between 2004 and 2013. This amount appears to be more in line with the modest volume of traffic carried by the railway.

THE RAILWAYS OF BOSNIA & HERZEGOVINA (ZFBIH AND ZRS)

43. The railways in Bosnia and Herzegovina have a complex structure that results from the country's difficult history. Before 1991 the railways in Bosnia and Herzegovina were part of the Yugoslavian railways. When Bosnia and Herzegovina separated from Yugoslavia in 1991, an independent state railway company was formed. Following the Dayton Agreement of 1995 which concluded the subsequent conflict, the state railway company was divided into three regional state owned companies that reflected the ethnic divisions of the country. In 2001 the Federation of Bosnia and Herzegovina adopted a new railway law which merged the railways in the Croat and Bosnian parts of the country, but the railway in the Serbian part, the Republika Srpska, remains separate. A public state-level railway corporation was

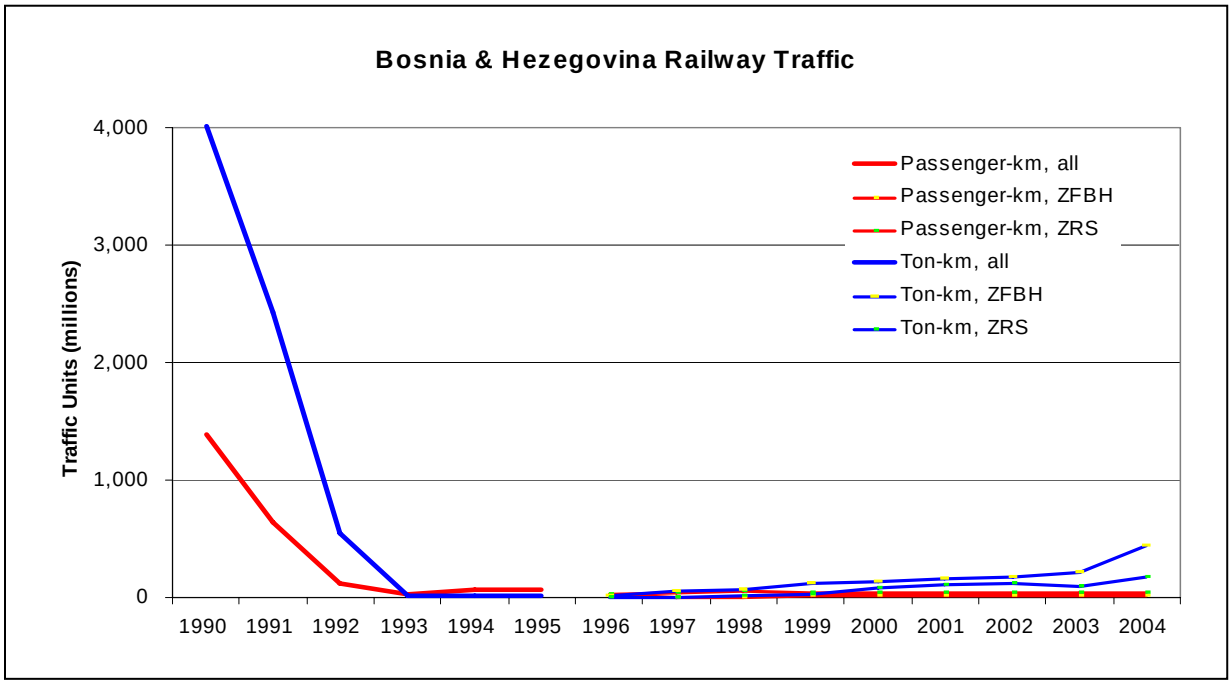
[28] Model C20-EMPi.

established in 1998[29], to act as coordinating and regulating body between the entity bodies. Thus, today the country has two railways, one within each of the entities, and a state level coordinating body:

- Zeljeznice Federacije Bosne i Hercegovine (ZFBiH), the railway in the Federation of Bosnia and Herzegovina,
- Zeljeznice Republike Srpske (ZRS), the railway in the Republika Srpska, and
- Bosne i Hercegovine i Bosanskohercegovacke Zeljeznicke Javne Korporacije (BHZJK), the state-level coordinating body.

44. Figure 5 reveals the impact of the conflict on rail traffic, from which the railways are only beginning to recover. Passenger traffic is mostly local and concentrated in a few main city pairs. For ZFBiH, the main city pairs are Sarjevo – Konika and Visoko – Zenika. For ZRS, the main city pairs are Doboj – Banja Luka and Prijcidor – Bosanska Novi. Passenger traffic remains at only 4 percent of the 1990 volume.

Figure 5 Traffic Units carried on Bosnia and Herzegovina Railways (1990-2004)



Source: Study data

[29]April 1, 1998: Agreement between the Federation of Bosnia and Herzegovina and the Republika Srpska on the establishment of a joint railway public corporation in accordance with Dayton Peace Agreement, Annex 9 signed in Dayton, Ohio on November 21, 1995.

Figure 6 The Railway Network of Bosnia and Herzegovina

45. Freight traffic has recovered to about 15 percent of its 1990 level. ZFBiH freight traffic is characterized by significant volumes of heavy industrial products (e.g., coal, metals) moving for short distances. (Average haul distance is 46 km.) Before the war the main customers of the railway[30] were the steel plant of Zeljezarera Zenica, the coal mines of the mid-Bosnian basin and the cokery at Lukavac. The future traffic trend therefore is highly dependant on the recovery of these main customers and other industrial actors. The railway is likely to see a large increase in traffic volume from the sale of a 51 percent interest in the Zenica steel works to Mittal Group. This could result in a traffic increase of 2.5 million tons, or about 50 percent for ZFBiH.[31] A map of the network is provided in Figure 6.

46. ZRS freight traffic is more internationally oriented, and average distance is somewhat longer (78 km). Before the war, main customers of the railway were coal mines and chemical industries near Tuzla. These industries have yet to significantly recover. ZRS should see a boost in traffic from the recent sale of a 51 percent interest in the RZR Ljubija iron ore mine to LNM Group, which has pledged to reopen the mine.

47. The railway infrastructure consists of 1,042 km of track, most of which is single line and electrified. Traffic density is quite low, at 861,000 traffic units per km for ZFBiH and 509,000 for ZRS. The infrastructure was badly damaged during the conflict and suffered from lack of maintenance and investment during the 1990s. However, EBRD and EIB have been financing rehabilitation of main lines.

Table 3 Network size and length of electrified line for ZFBiH and ZRS (YEAR)

	ZFBiH	ZRS	Total
Track-km	608km	424km	1042
Electrified lines	73%	80%	75%
Double track lines	11%	5.6%	9%
Traffic Units/track-km	861,111	509,470	648,996

Source: WB-IPSA 2003 and UIC

48. Together, the two railway companies employ 7,400 persons (3,900 for ZFBiH, 3,500 for ZRS).[32] This compares to approximately 14,000 before the conflict. With current traffic volumes at a fraction of pre-conflict levels, employee productivity is a poor 105,000 traffic units/employee for ZFBiH and an even lower 59,000 for ZRS.

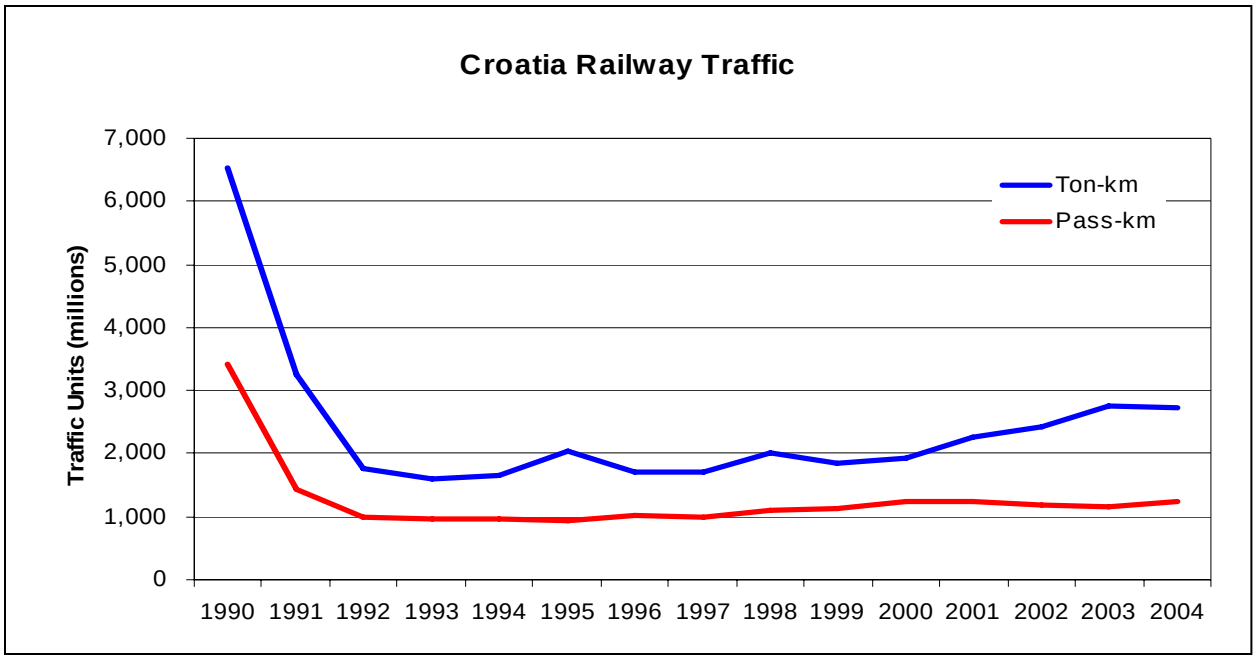
49. ZFBiH and ZRS are both significantly loss makers, with cost structures that are disproportionate to the current traffic volumes and revenues. Their operating revenues come primarily from freight traffic. ZRS is particularly dependent on subsidies—budget support representing 70 percent of revenue.[33] The working ratio without subsidies is over 300 percent for both railways.

[30] SEK, SwedeRail, IPSA (2001), *Project Scoping for Railway Rehabilitation.*
[31] Personal communication with a representative of Mittal Steel, May, 2005.
[32] According to UIC statistics for 2003.
[33] REBIS, (2003).

CROATIAN RAILWAYS (HZ)

50. Hrvatske Željeznice (HZ) is a state-owned railway company, created in 1991. HZ operates a 2,726 km rail network, of which 248 km are double tracked and 116 km electrified. The core main lines encompass about 850 km. Traffic density is low with 980,000 traffic units per track-km. The REBIS study[34] considered the railway infrastructure to be in medium to good condition on main lines. The dissolution of the former Yugoslavia and the subsequent unrest has had a negative impact on HZ traffic volumes. In 1991, freight and passenger traffic dropped 76 percent and 72 percent, respectively and remains less than half of its former level. (See Figure 7.)

Figure 7 Traffic Carried by Croatian Railways 1990 – 2004 (Million Traffic Units)



Source: Study data.

51. HZ carries about 11 percent of total freight moved in Croatia, with road and water modes providing the main competition.[35]. Freight traffic volume has been increasing from its low in the mid-1990s, but leveled off in 2004. HZ attributes its flat performance in 2003-2004 to system capacity constraints caused partly by the progression of track overhaul works. HZ has a mixed traffic base with about 30 percent domestic moves, 34 percent transit, 16 percent export and 20 percent import. The three main commodity groups transported in 2003[36] were minerals (23 percent) metallurgical product (17 percent) and petroleum products (13 percent). HZ expects its freight traffic to increase by 30 percent during the period 2005-2009.

[34] REBIS, (2003). Appendix 1.
[35] Central bureau of statistics, Statistical Information 2004.
[36] UIC data.

Figure 8 The Railway Network of Croatia

52. Passenger traffic has gradually recovered since 1997, and the number of passengers is now close to its 1990 level. However, the nature of the trips taken has changed, with a marked drop in the average trip distance from 85 km to 35 km. HZ expects a 21 percent

increase in pass-km transported during the period 2005-2009 from developing a timetable more attractive to clients. Bus services operated by publicly owned carriers are proving to be serious competitors for rail passenger services. In addition the construction of new motorways has enhanced the competitiveness of motor carriage. Passenger ticket revenues represented 33 percent of HZ's transport revenues in 2003, but including PSO contracts, passenger traffic produced 55 percent of total HZ revenues.

53. Between 1998 and 2004, HZ reduced its staff from 23,000 to 14,000 through natural attrition and voluntary and involuntary retrenchment. However 46 percent of the retrenched staff were actually transferred to subsidiaries. Productivity has increased gradually since 1997 to reach 269,000 TU/employee in 2004. HZ expects a leap in productivity to up to 405,000 TU/employee by 2009 through the unbundling of HZ and a staff rationalization program. HZ forecasts 12,311 employees by the end of 2009. Labor costs represented 44 percent of the operating costs in 2004 and increased by 6 percent compared to 2003.

UNMIK RAILWAYS, KOSOVO

54. UNMIK Railways (UR) manages the railway infrastructure in Kosovo and operates both passenger and freight services. Railway operations were under the control of military forces (KFOR) from August 1999 to March 2001, but are now under the control of the United Nations Mission in Kosovo. Rail has the status of a protected mode, due to the service it offers to ethnic minorities in the country. UR has an unusual legal situation, being a publicly owned enterprise, but not a legally constituted as a company.

55. UR operates one passenger service called the "Freedom of Movement" Train. The purpose of this train is to provide safe transport between minority Serbs and Roma enclaves in Kosovo. This train operates twice daily along UR's north-south line from Hani I Elezit on the Mecedonia border to Lashak on the Serbian border. (See map on following page.) It also has twice weekly service to Gracanica near Pristina. Drivers for the train are expatriates (Canadian and Kenyan) and paid by grants from UNMIK. The train is operated on contract with the Ministry of Finance and Economy, based on an agreed rate per km for the locomotive and passenger carriages used.[37] Passengers are charged a flat rate of US$0.60 (€0.50).

56. In the 1980's the railway lines in Kosovo carried about 3 million tons per year. Following the conflict and military intervention, traffic dropped to a very low level. UR carried 265,000 tons (18 million ton-km) in 2004. Nearly 90 percent of UR's freight traffic is imports, primarily petroleum from Macedonia. Some building materials and general cargo are also carried.

[37] Deloitte p. 18.

Figure 9 Rail Network of Kosovo (shown within Serbia)

57. The railway established a new container terminal at Fushe Kosove Miradi in September 2004, and is expecting that facility to generate additional cargo. Significant traffic volume increases, however, will depend on the reopening of mining facilities in the region. The railway's business plan notes that the privatization and reopening of Feronikl could generate as much as a million tons per year of traffic.[38]

58. UR consists of 333 km of singe track, non-electrified, standard gauge line. The terrain is mountainous, with steep slopes and sharp curves. As shown in the table below, the north-south line is open, with both passenger and freight service operating over it. Little traffic is interchanged with Serbia, at the northern border. The Western line is open to Peja, but carries only occasional freight traffic. The branch of the Western line from Kline to Prizen is not operating. The Eastern line is open to Bardosh (Pristina) and carries freight traffic. Beyond Bardosh, the Eastern line is not in operation.

Table 4 UNMIK Railway Lines in Kosovo

Line	Section		Year Built	Length (KM)	Staffed Stations	Status
South	Hani I Elezit	KF	1874	62.8	8	Open for cargo & passenger
North	FK	Lersak	1874/1931	78.5	8	Open for cargo & passenger
West	FK	Peja	1936	81.2	3	Open for cargo, one train per week
	Kline	Prizen	1963	58.3	2	No operation
East	FK	Bardosh	1934	14.2	1	Open for cargo
	Bardosh	Medare	1949	38.0	-0-	No operation
Total				333.0	22	

Source: UNMIK Railways Business Plan, p. 8.

59. Traffic density is quite low, about 154 thousand traffic units per km for the entire network, or 217 thousand traffic units per km on the operating network. Given the low traffic level, UNMIK Railways is sensible to leave the East and West lines in a closed or semi-closed condition, spending minimal funds on their maintenance and operation. Once the political status of Kosovo is resolved, UNMIK Railways will be better able to assess the traffic prospects for these lines and decide on permanent line closures.

60. The railway infrastructure was significantly damaged during the conflict. KFOR reconstructed the north-south line and the western line to Peje, repairing damaged rails and sleepers and reconstructing bombed stretches of railway bridges. Two rail-under-road bridges, bombed in March 2000, have been replaced through Swedish aid. The infrastructure

[38] UNMIK Railway, Business Plan, p. 14.

remains in poor condition with overage rail and poor ballast.[39] UR rolling stock is old and in poor condition, and much of it is parked because it is not needed. As would be expected from such a low density operation, rolling stock utilization is poor.

Table 5 UNMIK Railways Rolling Stock – age, productivity and fleet size

	Total Fleet	In Use	Age (Years)	Productivity of In Use Fleet
Locomotives	35	4/1	Over 30	67,264 loco-km/loco
DMUs	3	3	Na	1,801 train-km/DMU
Wagons	538	63	Over 30	291,713 net tkm/wagon
Coaches	50	Na	Na	18,485 coach-km/coach

Source: Study Data.

61. UNMIK railways employ 391 persons.[40] Even at these modest numbers, staff costs represent about half of total operating costs.[41] In December 2004, the railway reached an agreement with the union to further reduce staff to approximately 150 by 2007.

62. In 2004, UR obtained about a third of its revenue from freight operations, a third from passenger operations (government PSC) and a third from grants, rentals, demurrage and other. Some 48 percent of expenses are labor. Fuel represents 19 percent of expenses, while materials and maintenance expenditure is only 13 percent. Depreciation is also quite low, due to accounting irregularities.[42] With the PSC for passenger and the grant operating income, UR operations have been breakeven. The negotiated reduction in staff will likely allow UR operations to remain break even if operating grant funds reduce and maintenance expenditures increase.

63. UNMIK Railways is run in a fairly commercial manner, given its difficult political situation. The main issue in the railway providing good value for money, is that it must keep its capital investment needs in proportion to its tiny traffic base.

MACEDONIAN RAILWAYS (MZ)

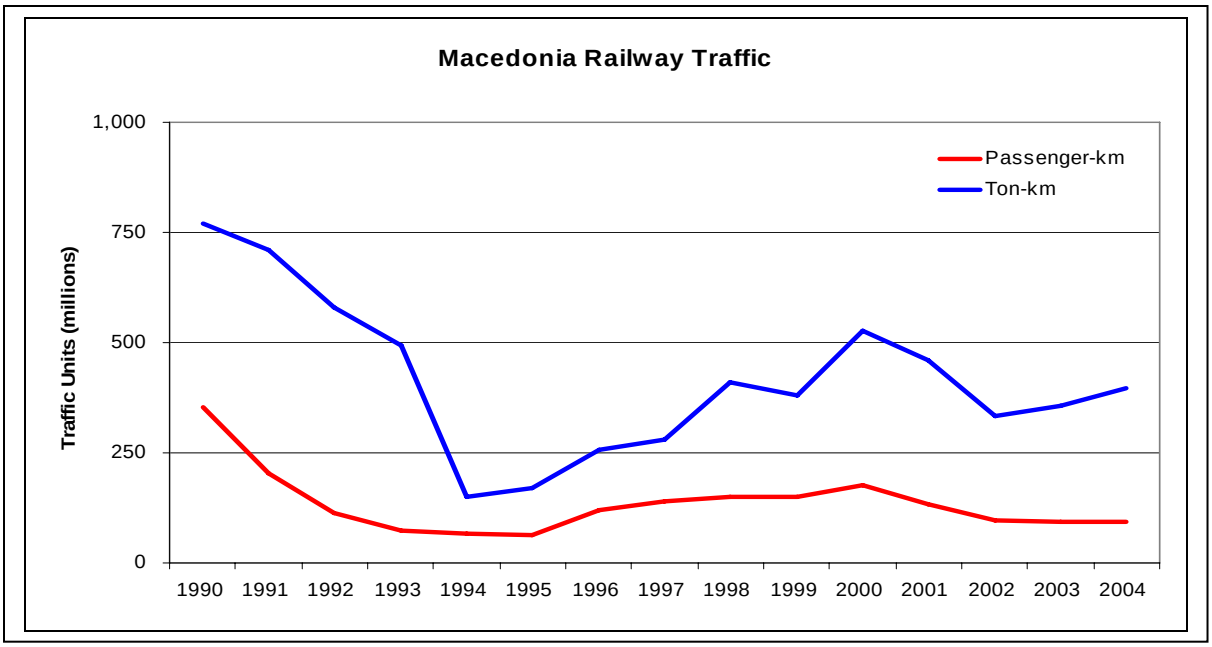
64. The Macedonian Railways Public Enterprise, Makedonski Železnici (MZ) was established after The Republic of Macedonia declared its independence in September 1991. MZ is a public state enterprise, which conducts transport operations and manages state owned rail infrastructure and rolling stock. In April 2005, the Parliament adopted a law

[39] Swederail, p. 4.
[40] UNMIK Railway, *Business Plan*, p. 22.
[41] Estimated at 150,000 traffic units per employee. This indicator is inflated by the higher rates paid to contract drivers, but overall staff productivity is nonetheless low.
[42] "UNMIK Railways has not accounted for property, plant and equipment and spare parts which were acquired prior to the 1999 conflict in Kosovo and are still presently in use. Such assets include land and buildings and the railway network infrastructure." Deloitte, Independent Auditor's Report.

establishing the separation of MZ into an infrastructure manager, Public Enterprise for Railway Infrastructure "Macedonian Railways," and a transport operation company, Joint Stock Company for Transport "Macedonian Railways Transport Joint Stock Company." A Law on Railways was adopted in July 2005 that provides for infrastructure access and compensation for loss making passenger services.

65. Passenger traffic declined significantly in the early 1990s. With less than 100 million pass-km in 2004, passenger traffic is at less than a third of the 1991 level. Freight traffic decreased by 57 percent during the 1990-2002 period, and is just beginning to recover. The unstable political and thus economic situation of Macedonia is the largest factor in this trend. In 1994-1995, when Greece imposed a trade blockade, freight traffic reached its lowest point with only 150 millions ton-km (1994). In 2002 traffic volume shrank by almost 30 percent, due mainly to the opening of an oil pipeline to Thessalonika and the consequent loss of oil traffic. In 2003 and 2004, freight traffic recovered, resulting in a 13 percent growth compared to 2002. Freight accounts for roughly 80 percent of physical traffic (in traffic units) and over 90 percent of total transport revenue. Market share is low, with rail handling only 9 percent of the freight market.

Figure 10 Macedonian Railways Traffic Carried 1990-2004 (Million Traffic Units)



Source: Study data

66. The MZ network encompasses some 699 km of track, with an additional 225 km of station and yard track. It operates over an additional 160 km of lines, which belong to industries. The network is single track, and only the line from Tabanovce and Gevgelija (233 km) is electrified. Main lines are in reasonably good condition, with operating speeds on the north-south corridor of 90-100 kph for passenger and 75-80 kph for freight. On Corridor X, design operating speed is 100 kph, but due to a backlog in maintenance, speed restrictions ranging from 55 kph to 90 kph are in place on 87 percent of the corridor.

Figure 11 The Railway Network of Macedonia

67. MZ's traffic is dominated by a handful of customers, including MITTAL and MAKSTIL iron plants located in Skopje, the iron plant SILMAK located in Jegunovce and the newly opened Smelting plant located in Skopje. These customers' traffic moves on the main north-south corridor toward Thessalonica or to Tabanovce. Nearly all MZ's traffic is international (export, import or transit), and transit represented 42 percent of the traffic (tons) in 2004. MZ forecasts transit to grow by 15 percent for the period 2004-2009. Freight volume is forecast to increase by 41 percent in the 2004-2009 period reaching 3.5 million tons in 2009, due mainly to steel traffic. The MZ Business Plan forecasts 2008 freight traffic to be dominated by metal products and container transport.

68. The level of staff has decreased significantly, from 9200 in 1990 to 3600 in 2004 as a result of natural attrition and retrenchment. At 134,380 traffic units per employee, however, labor productivity is lower than in most Central and Eastern European countries, and far below that of the EU15 railways. Thus, despite low wage levels, labor costs are nearly half of operating costs. MZ's retrenchment program schedules that by May 2005, 755 employees will leave the company. By mid-2007, technological improvements will allow another 400 staff to be retrenched. With a forecast traffic increase of 25 percent, this will bring the productivity to 240 000 TU/employee by 2009. The labor costs would then account for about 30 percent of the operating revenue.

69. MZ is one of the largest money losers among Macedonian public sector enterprises. Total debt at the end of year 2004 was US$173 million (3.3 percent of GDP). MZ's net income has been highly negative and losses have risen sharply from MKD 278 million (US$5.4 million) in 2000 to about MKD 1 billion (US$19.7 million) in 2003. With traffic and revenue growth as well as reduction in depreciation in 2004, the deficit was reduced to MKD 620 million (US$12.3 million) in 2004. It is estimated that if railway reforms are not undertaken, the cost to the government will increase by another US$120 million to cover operating losses (excluding required budget support for capital expenditures) in the next ten years.

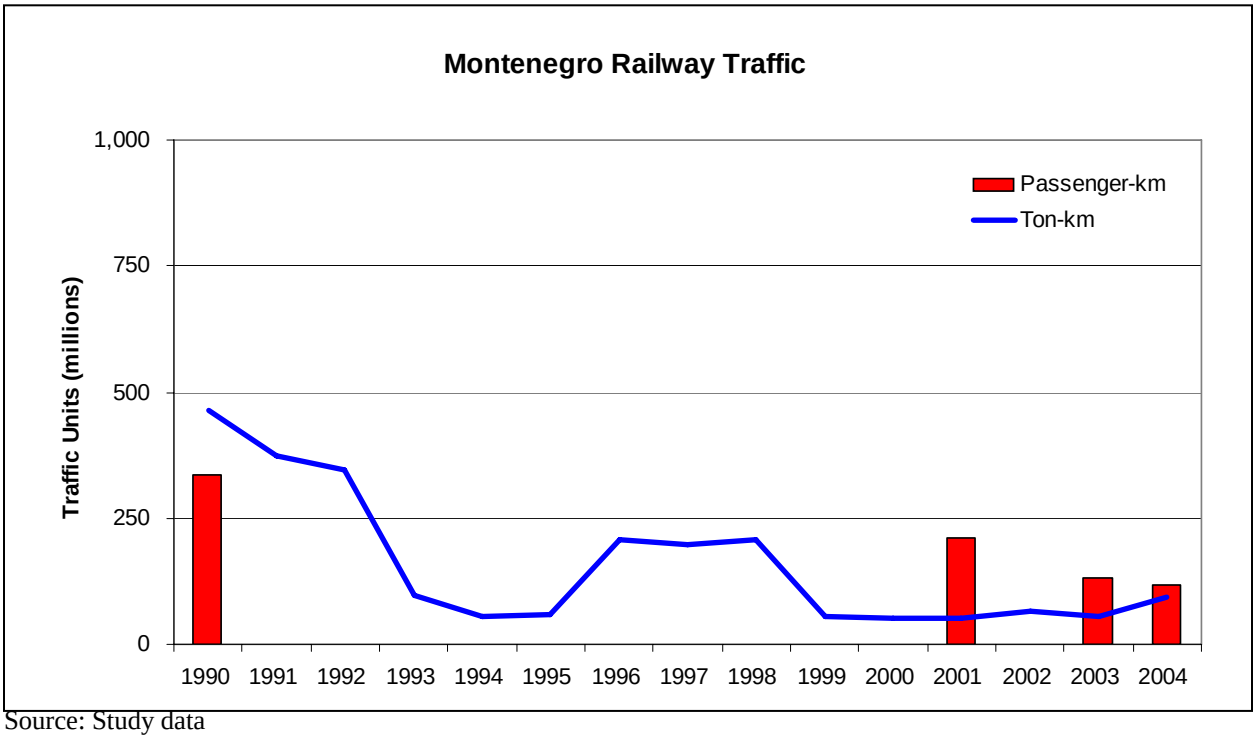
MONTENEGRIN RAILWAYS (ZCG)

70. Zeleznice Crne Gore (ZCG) operates a 330 km railway on the territory of Montenegro. ZCG operates a 167 km main line that connects the port of Bar on the Adriatic Sea to Podgorica and on to the administrative border with Serbia (the line continues on to Belgrade). This line forms an "X" with an 83 km second line that connects Niksic (site of a bauxite mine and iron foundry) to Podgorica and extends to the Albanian border. The heaviest volume of traffic is on the Niksic-Podgorica section, with the next highest volume on the Podgorica-Bar section.

71. ZCG has very low traffic volume, about evenly split between passenger and freight when measured by traffic units. (Passenger trains account for 84 percent of train-km, however.) In 2004, ZGC carried 1.2 million passengers (94 million passenger-km). This was down 10 percent from the passengers carried in 2003, 44 percent fewer than in 2001, and less than half the passengers carried in 1989. The railway forecasts that passenger totals will shrink another 10 percent in 2005 to some 1.1 million.

72. Most of the railway's passenger traffic occurs on the railway's main north-south line, with Bar, Podgorica and Bijelo Polje stations generating about 95 percent of the volume.[43] Average distance traveled is about 100 km. During the summer the Podgorica-Bar line carries tourist traffic to the coast.[44] ZCG competes with bus and private automobiles, and holds rail prices lower than bus prices.[45] Price per passenger-km has more than doubled since 2001, however. Airlines are not much of a competitive factor for the relatively short distances that rail passengers travel.

Figure 12 Montenegrin Railways Traffic Units Carried 1990-2004 (Million Traffic Units)



Source: Study data

73. ZCG carried a millions tons (94 million ton-km) of freight traffic in 2004. The largest source of freight traffic is Rudnici Boksita Niksic (RBN), a bauxite mine with capacity of 900,000 tons per year, located at Niksic. The bauxite is transported to Kombinat Aluminijuma Podgorica, an aluminum processing facility with capacity of 240,000 tons per year.[46] Ores and ferrous metals dominate domestic traffic. Petroleum products are the main import, while chemicals are the main export. Figure 12 reveals that freight traffic fell sharply in the 1990s, reflecting the regional difficulties (the RBN mine was shut down briefly in 1994). In the last year traffic grew substantially, but from a very low base. While imports remained flat, domestic traffic grew 27 percent, export more than doubled and transit grew from almost nothing to 8 percent of traffic volume.

[43] Rebis Study, p. 55.
[44] Serbian Railways reports that the line carries significant summer tourist traffic from Serbia as well.
[45] Rebis Study, p. 55.
[46] "Bauxite Mines Seek a Strategic Partner," www.pmcomm.com/montenegro/mining.htm.

Figure 13 The Railway Network of Serbia and Montenegro

74. ZCG lines are standard gauge and single track. The line to Bar is electrified. The terrain is mountainous and the line has numerous bridges and tunnels. Traffic density is very low with less than a million traffic units per track-km. The north-south line is in "barely satisfactory" condition, and needs rail and sleepers to be replaced in about 40km. The line from Podgorica to Niksic is in poor condition and needs repair "urgently."[47]

75. ZCG operates in very mountainous territory, which makes operating costs high. Its low volume means that density of traffic on the network, i.e. productivity of infrastructure, is low. The rolling stock is aging and in need of renewals, but utilization of active fleet appears reasonable.

76. ZCG employs some 1800 staff. Employee costs were over €10 million in 2004, and account for nearly half of total operating costs (including depreciation) and well over half of cash operating costs. ZCG labor productivity is very low by international standards, at an estimated 114,000 traffic units per employee. For example, ZCG employs more than 1 track maintenance staff per track-km and 5 locomotive maintenance staff per active locomotive/EMU. This is despite a 21 percent reduction in staff over the last 10 years.[48]

77. ZCG can address some of its productivity issues directly through trimming staff and unneeded secondary track. But much of its ability to be effective depends on increasing traffic. Some modest possibilities exist locally, with development of industrial traffic, trade from the port of Bar and tourist business. Substantial increases, however, depend on development of broader trade, as internal Montenegro traffic generation is small and road is very competitive for short distances.

78. ZCG is not financially sustainable without subsidy. Passenger traffic is loss making and freight traffic perhaps breaks even. The railway depends on government subsidy for half its revenue and all capital investment. To bring its costs into balance with the value of the services it provides, the railway must reduce operating costs, particularly labor, increase compensatory traffic, and carefully screen/prioritize investments.

SERBIAN RAILWAYS (ZS, FORMERLY ZTP)

79. Zeleznice Srbije, or Serbian Railways (ZS) is the state owned enterprise in Serbia. It was created on 1 March 2004, when a new railway law and decree on reorganization of the railway were enacted. The operating assets of the former railway ZTP were transferred to ZS. The decree stipulates that ZS will have four divisions (infrastructure, freight, passenger and rolling stock maintenance), and funds may not be transferred between divisions.

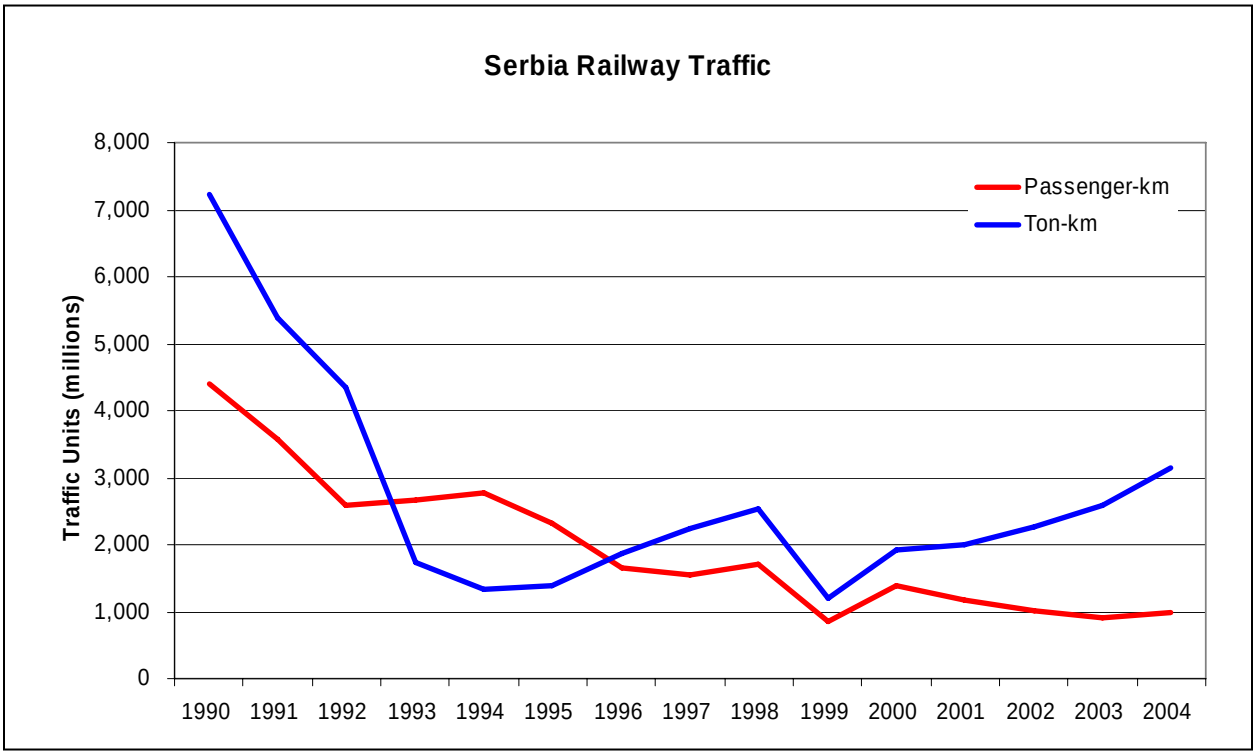
80. The new railway law indicates that public rail infrastructure is owned by the Republic and open to all licensed rail transporters. Initially, ZS will be the public rail infrastructure manager but the law allows for licensing of other infrastructure managers. Similarly, the law

[47] Republic of Montenegro, Infrastructure Development Program, www.donors.cy.yu/economic_reform/infrastructure.htm, accessed April 21,2005, p. 2..
[48] *Ibid*.

allows for multiple rail operators, of which the ZS freight and passenger units will be only two.

81. Rail provides approximately 5 percent to 10 percent of public passenger transport in Serbia.[49] As shown in the figure below, Serbian rail traffic has declined fairly steadily since 1990 to 985 million passenger-kms in 2004. Domestic intercity movements comprise the bulk of passenger traffic (78 percent) and estimated passenger revenue (76 percent). International trains, with higher fares produce 16 percent of revenue on 7 percent of traffic. Beovoz (commuter) is the least compensatory traffic, providing 8 percent of revenue on 16 percent of traffic. Domestic rail rates are about 30 percent lower than bus fares. Nonetheless, bus is generally preferred because of its superior comfort, reliability and frequency of service.[50]

Figure 14 Serbian Railways Traffic Units Carried 1990-2004 (Million Traffic Units)



Source: study data

82. At its peak in the mid-1980's, the railway carried 90 million tons and 28.4 billion ton-km of freight, some nine times what the railway carries today. Traffic appears to be recovering somewhat from the depths of 1999 (Kosovo conflict), and the mix has been changing. Traffic with neighbors in former Yugoslavia has all but disappeared, while

[49] Serbia and Mentenegro Statistical Office, *Statistical Pocket Book 2004*, p. 43, indicates that shares based on passenger-km for 2001 are rail 10%, long distance bus 45%, and urban bus/tram 37%. These statistics appear to not include private automobile. The REBIS study estimates that shares are private automobile 71%, bus 24% and rail 5%. Regional Balkans Infrastructure Study – Transport, Appendix 13, page 44.
[50] Regional Balkans Infrastructure Study – Transport, Appendix 13, page 44.

domestic and import traffic has remained fairly flat. The railway carries a broad mix of products, with about 70 percent of the volume in bulk movements. Coal, construction materials and petroleum products are primary products for domestic movements. Other products occur in a mix of domestic and international flows. Nearly all movements are unit train.

83. The growth sectors appear to be transit and export traffic. In 2004, transit accounted for 47 percent of ton-km. Transit provided 34 percent of freight revenue, reflecting the competitive nature of the traffic, and the fact that ZSP would not provide the wagon or the origination/termination handling for such traffic. Export traffic, jumped from 10 percent to 16 percent of ton-km between 2003 and 2004, and provided 21 percent of revenue in 2004.

84. ZS operates 3809 route-km, of which 276 are double track and 1247 are electrified. Of this, just under half is main line. The main corridor (Corridor 10) runs north-south from Hungary, through Belgrade to Macedonia (to Greece) and Bulgaria (to Turkey). EIB and EBRD have been lending to rehabilitate this corridor.

85. Through its business planning process, ZS has analyzed its network. Some 70 percent of the lines have been identified as critical routes belonging to the core network. 10 percent of the lines have been identified as candidates for closure. The remaining 20 percent of lines will be closed if government financial support is not made available to keep them open. Traffic density in 2004 was just over 1 million traffic units per track-km, which is quite low. Eliminating the 30 percent of non-main lines would still leave ZS with very low density.

86. As of August 31, 2004, ZTP had 26,602 employees in the core railway and 5,300 in daughter companies. ZS plans to reduce labor by about 7000 in 2005-2006, and has achieved about 50 percent of this total by mid-2005. ZS has abysmally low labor productivity. Traffic units per employee were 121,000 in 2003, increasing to 150,000 in 2004. (This compares to over a million traffic units per employee for the Baltic railways.) EBRD loan covenants require that labor productivity reach 250,000 traffic units per employee by 2006. The planned employee cuts are not sufficient to allow ZS to reach this mark.

Figure 15 The Railway Network of Serbia

87. ZTP is a significantly loss making enterprise. Its operating ratio is well over 1.0 and less than one fourth of operating expenses are covered by revenues from customers. Government has provided enough subsidy to meet the railway's immediate cash needs.[51] The subsidy share of total revenue is declining, but remains more than two-thirds of revenues. Staff costs are over half of cash operating expenses and have grown as a share of expenses in recent years, despite staff reductions. As noted above, ZTP plans to reduce staff by 26 percent over the next two years. At current wage rates, this could save US$36 million per year, a significant amount but only about 20 percent of the subsidy. Closing the gap between the Serbian government's ability to pay and the railway's subsidy requirements will require more than just labor reduction. Reduction in the network supported and the loss making passenger services purchased by government will also be necessary.

[51] Net loss is approximately equal to depreciation, a non-cash expense.

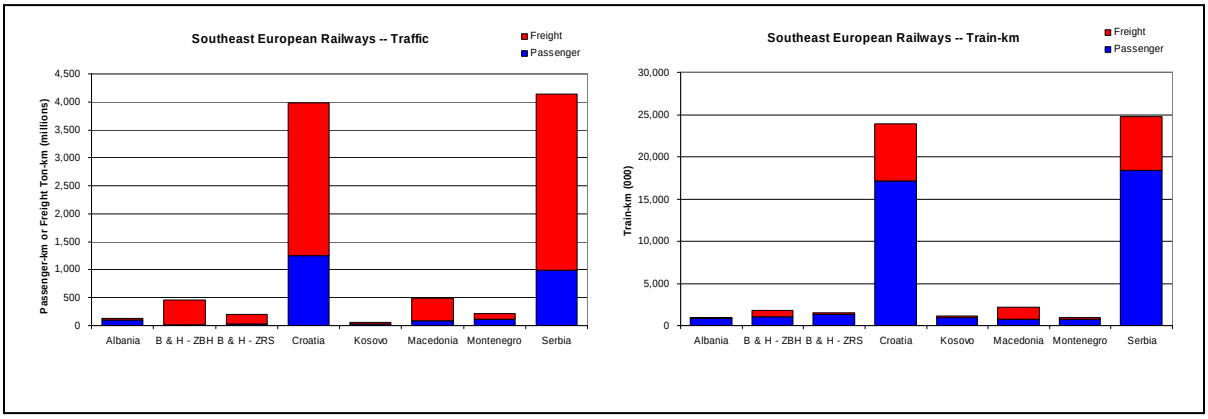
ANALYSIS OF KEY ISSUES AND PERFORMANCE OF THE WESTERN BALKANS RAILWAYS

88. This chapter analyzes key issues for the Western Balkans region and identifies the challenges that railway reform must address. It measures the railways' financial performance and operational efficiency. Efficiency is measured using a range of standard measures, and benchmarked against some appropriately selected international railways. The current organizational and institutional structure of the sector in each of the countries is also reviewed.

RAILWAY TRAFFIC

89. The Western Balkans region includes two moderately sized railways—Serbia and Croatia—and six very small railways. These railways carry a mix of passenger and freight traffic. In terms of volume (passenger-km and freight ton-km), only Albania, Kosovo and Montenegro are predominantly passenger railways. However, the figure below shows that in terms of train-km all the railways, except Macedonia, are primarily passenger railways.[52]

Figure 16 Share of passenger and freight traffic for Western Balkans Railways (Traffic Unit-km, Train-km)



Source: Study Data

Passenger Volumes and Characteristics

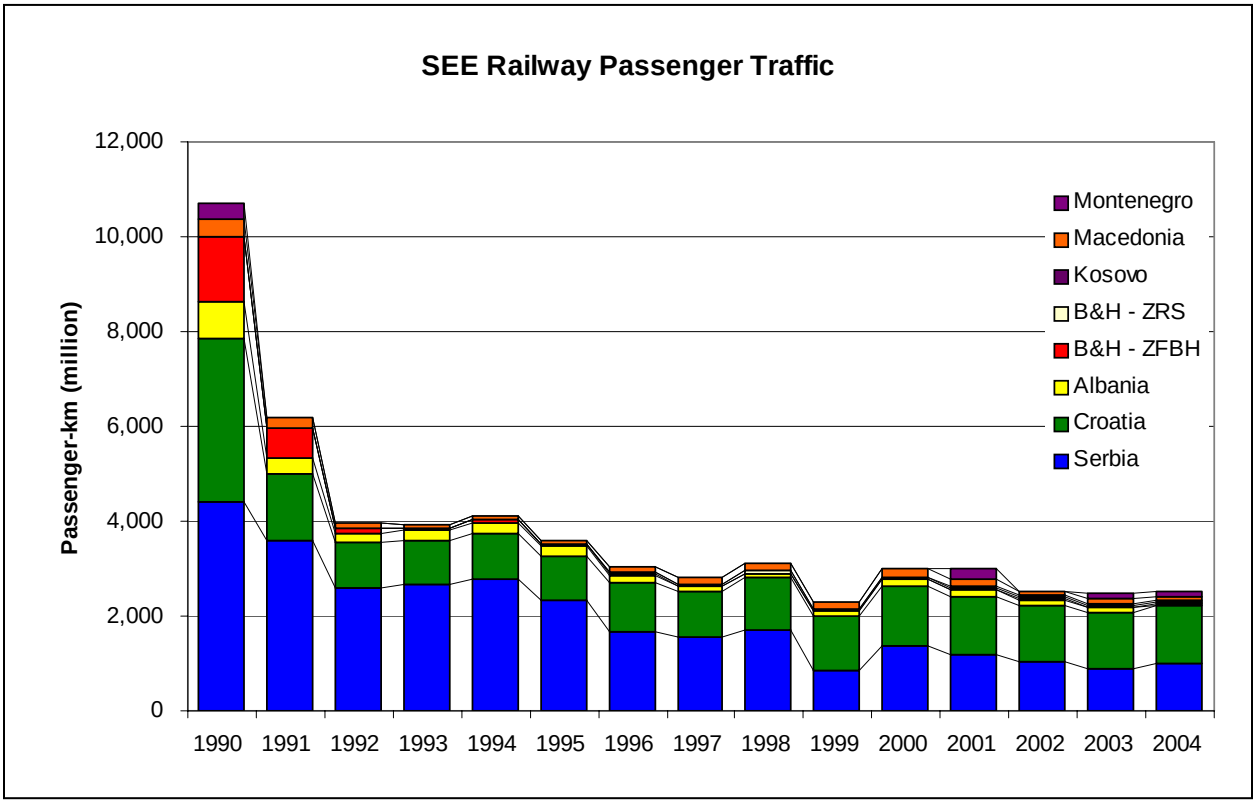
90. The railways of the Western Balkans region used to carry about four times as much passenger traffic as they do now—about 10 billion passenger-km in 1990 vs. 2.5 billion in

[52] Train-km is a better indicator than traffic units of consumption of resources such as locomotives and infrastructure capacity.

2004. (See Figure 17.) With rapid motorization, passengers have been shifting from rail to bus and private automobile, and rail traffic appears unlikely to recover to its earlier level.

91. Rail has a relatively small market share in the region: 32 percent of the public passenger transport in Croatia, 10 percent in Serbia,[53] 3 percent in Albania[54] and low figures in the remaining countries. The comparable rail market share for the EU15 countries (measured by passenger-km) is 6.6 percent. In contrast to the EU15 countries, studies in the Western Balkans region indicate that passengers prefer bus over rail, even through rail is cheaper. This reflects the lower quality of rail *vis-à-vis* bus, as frequency, reliability and comfort are greater on bus.[55]

Figure 17 Passenger traffic for Western Balkans Railways 1990-2004 (Million passenger-km)



Source: Study data

92. Traffic and profitability data by passenger market segment were not available for these railways, so only general observations can be made about which traffic segments the railways should retain, develop or exit. The larger railways provide a mix of international, regional and commuter services, while small railways like Albania and Kosovo provide only

[53]Croatia Central Bureau of Statistics, *Statistical Information 2004* and Serbia and Montenegro Statistical Office, *Statistical Pocket Book 2004*, p. 43.
[54] Louis Berger, *Albania – National Transport Plan, Draft Final Report*, September 200) p. ES-11.
[55] For example, in Albania, bus has competed away rail's market share even though bus fares are 25-100% higher. Scott Wilson Railways Ltd., *Modernization of Albanian Railways, Final Report* 6 October 2004 p. 50-51.

regional services. International services have the highest tariffs and are reported to be 'profitable'.[56] Commuter services have the lowest tariffs, where the fares are actually collected, and lose the most money. Regional services have tariffs somewhere between the other two, and are, generally, also loss-making.

93. Table 6 shows the average number of passengers per train, an indicator of the market and social value of providing the train, and the average distance a passenger travels. In Serbia and Croatia the passengers per train is 50 and 68, respectively, while in Bosnia & Herzegovina, the figures are 19 for ZFBiH and 26 for ZRS. The train occupancy figures are higher in Albania, Kosovo, Macedonia and Montenegro, and appear comparable to the selected international benchmarks for those countries. The average distance traveled is also quite short, ranging from 32 km for Croatia to 78 km for ZFBiH.

Table 6 Average loadings and average trip lengths (kms) by railway (2003 unless indicated otherwise)

Country	Passengers Per Train	Average Distance
Albania	124	51
B&H - ZFBiH	19	78
B&H – ZRS	26	38
Croatia	68	32
Kosovo	214	60
Macedonia	115	102
Montenegro (2004)	167	111
Serbia	50	63
Denmark	101	35
Finland	107	56
Sweden	84	163
Germany	96	41

Source: study data

94. Typically, the rail mode is more cost effective than bus, when large volumes of people need to move between a defined origin and destination, particularly where there is congestion on parallel roads. By contrast, bus or mini-bus is more cost effective for low volume services where road capacity is available. The low train occupancy in the Western Balkans region, especially in Serbia, Croatia and Bosnia and Herzegovina, suggests that a number of the passenger railway services could be provided both more efficiently and more effectively by bus.

Freight Volumes & Characteristics

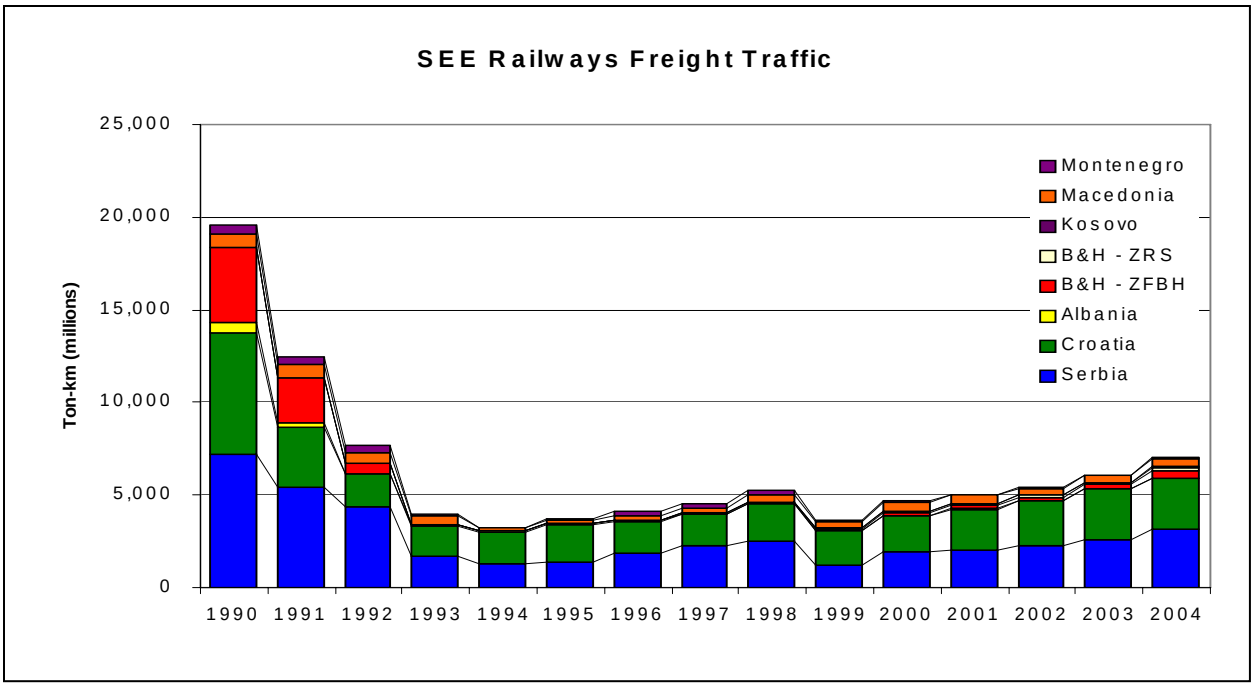
95. The railways of the Western Balkans region used to carry almost 3 times the amount of freight traffic as they do now—about 20 billion ton-km in 1990 vs. 7 billion ton-km in 2004. (See Figure 18.) Traffic volumes have recovered from the low points reached after transition and conflict, driven primarily by increases in transit traffic and reopening of some

[56] These services cover direct operating costs such as fuel and staff, but likely do not contribute to costs of infrastructure.

of the heavy industries that use rail for the movement of bulk inputs and outputs. Given the low level of traffic on these railways, the opening (or reopening) of a major industrial facility, such as a mine or steel works, can have a substantial effect on a railway's traffic.

96. For example, in September 2003, US Steel purchased the Serbian steelmaker 'Sartid'. After a rehabilitation and modernization project, scheduled for completion in mid-2005, production capacity is expected to double to 2.4 million tons.[57] This expansion could potentially bring another 2.5 million tons of inbound limestone and coke to the railway. Similarly, in August 2004, the Mittal Group acquired a majority interest in steel plant in Zenica, Bosnia and Herzegovina, together with an interest in the RZR Ljubija iron mines, which reopened in November 2004. Production increases at these facilities would boost the demand for inbound materials (both from domestic sources and through the port of Ploce) and outbound product.[58]

Figure 18 Freight traffic for Western Balkans Railways 1990-2004 (Million Ton-km)



Source: Study data

97. Despite these events, the railways are unlikely to recover the volumes that they carried in 1990. Changes in the structure of demand and the growth in competition from road haulage mean that even with improved operations, they will only be competitive for selected traffics. Table 7 provides a summary of current freight volumes, haul lengths and composition of traffic (where available) for the Western Balkans railways for 2004.

[57] www.ussteel.com/corp/facilities/international/serbia.htm, accessed 6 May 2005.
[58] "If Lakshmi Mittal, the Indian entrepreneur at the helm of Mittal Steel meets his production and export goals, 10 trains will be needed daily to haul crude steel out of the Zenica valley…" Financial Times, *Special Reports, Bosnia-Herzegovina* 23 November 2004.

Table 7 Freight volume (Ton-km), Average Haul (km) and Traffic Type for Western Balkans Railways (2004 unless otherwise indicated)

Railway	Ton-km (millions)	Average Haul (km)	Domestic	Export	Import	Transit
Albania (2003)	31	74	~95%	~0%	~5%	0%
B&H - ZBH	446	96				
B&H - ZRS	170	129				
Croatia	2,734	206	30%	16%	20%	34%
Kosovo	18	68	4%	8%	88%	0%
Macedonia	396	166				
Montenegro	94	92	58%	15%	19%	8%
Serbia	3,160	290	27%	10%	14%	49%

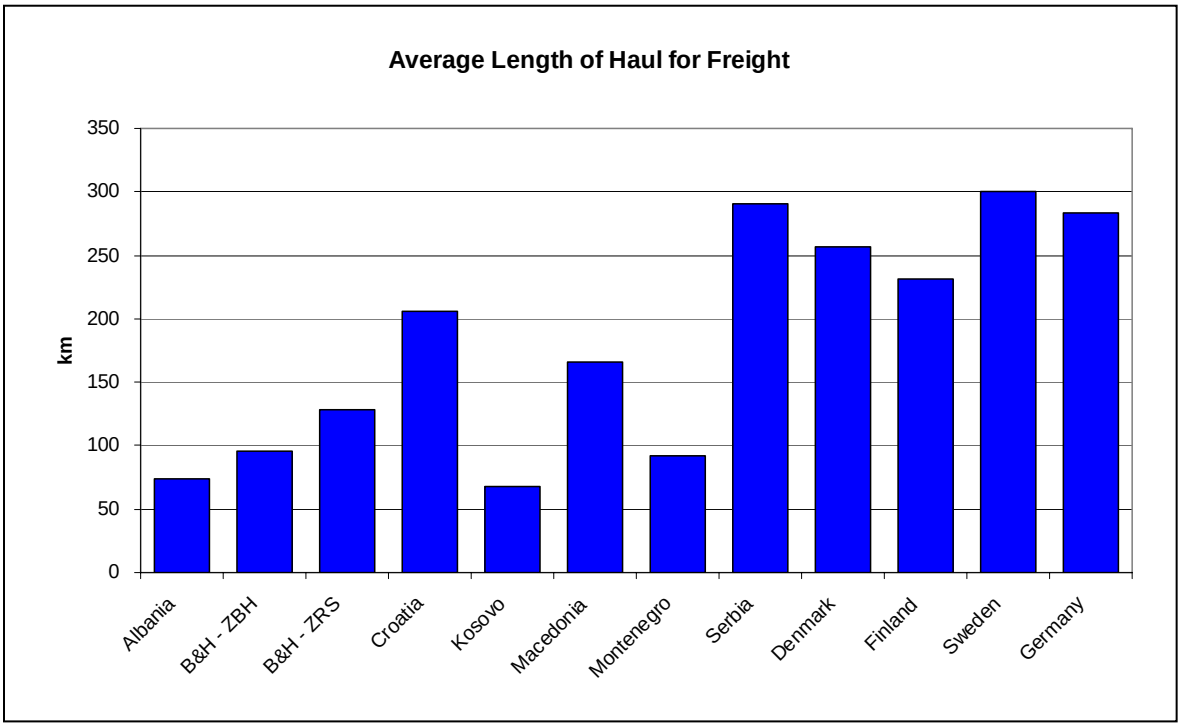
Source: Study Data

98. Because of its price and service characteristics, rail freight service is typically competitive with truck for: (a) large volume, point to point movements and (b) heavy, low value freight that moves long distances. Rail is more efficient, and often typically priced lower than truck, after an initial threshold of about 400 kilometers. The price differential increases with distance, making rail's price advantage more compelling for long distance movements.[59] Rail may be competitive for shorter movements if the volumes are large enough. Rail service is also typically slower and less reliable than truck. Consequently, high value freight for which inventory holding costs are high and where transport is a relatively low share of total costs will tend to move by truck, while lower value product will be more suited for transport by rail.

99. As in all of Europe, the Western Balkans railways suffer from fragmentation and very short haul length. The problem is particularly severe in Albania, Bosnia-ZFBiH, Kosovo and Montenegro, where average haul is less than 100 km. Because of the scale of the individual countries, distances for domestic movements are short, so most domestic traffic is likely to move by truck. The exceptions are high volume bulk shipment. For example, in Montenegro, the largest source of freight traffic is Rudnici Boksita Niksic (RBN), a bauxite mine, which ships to Kombinat Aluminijuma Podgorica, an aluminum processing facility, a haul of about 50km.

[59] If the customer facility is not served by rail, however, rail imposes additional handling costs. Where a truck can be loaded at origin and unloaded at destination, goods for rail must be loaded into a truck or container, trucked to the rail facility and tran-shipped onto rail. For short distances, the lower line haul price of rail will not offset the cost of the additional handling.

Figure 19 Average Length of Haul for Freight for Western Balkans Railways and Comparators in 2004 (Km)



Source: Study data

100. Other than a few specific market segments—primarily the movements of inputs and outputs associated with heavy or extractive industry—the railways of the Western Balkans region must seek traffic growth in international markets. (Indeed much of their existing traffic is international.) Some of this traffic is likely to be exports or imports from/to national markets, where the national carrier may have a monopoly (until open access is established) or competitive advantage.

101. But the modest scale of the domestic markets suggests that transit traffic will represent a significant share of traffic on the rail networks of the Western Bakans countries in future. Already, 2/3 of all Serbian Railway's freight traffic is international, with over 25 percent being transit traffic, nearly all of which is carried on Corridor X[60]. Serbian Railways already operate whole trains north-south on Corridor X across Serbia on behalf of European freight forwarders. International markets, however, will be more competitive than domestic ones.

102. Transit service is particularly competitive, as shippers have both other rail alternatives as well as truck alternatives. To compete effectively for transit and other longer distance traffic, the railways will need to (a) lower their cost structures, and (b) overcome their fragmentation. As noted by Railion[61], *"…today, more than 100 goods trains cross borders in Europe without stopping to change engine nor drivers or to settle paper work."*[62] The

[60] ZS (2005).
[61] Railion is one of the new international rail freight operators.
[62] www.railion.dk/underside.asp?id=184, accessed 6 May 2005.

railway operators in the Western Balkans region need to mimic this service level, if they are to be competitive and have a viable future.

103. The railways have made some progress in this area. The railways of Slovenia, Croatia, Serbia, Bulgaria, and Turkey have recently created a joint service "East Express" scheduled to operate between Ljubljana and Istanbul, with a journey time of under 60 hours. A similar service, the Sava Express, operates once weekly between Ljubljana and Belgrade. The problem with these services, however, is that they require special agreements to be negotiated between the railways to implement them, raising the transaction costs significantly. The smooth transfer between railways, and low transaction costs to obtain such a service, needs to be the norm, not the exception, if small national railway operators are going to be competitive in an 'open access' market.

The Threat of Future Competition

104. Infrastructure operators in EU countries are required to open the parts of their networks included in the Trans-European Rail Freight Network (TERFN) to international freight operators established in member states, from 2008[63] and to open their entire railway network by 2015. The further expectation is that national networks will be required to allow 'open access' competition in the passenger market by 2010 [see COM (2004) 139, discussed in Annex A]. The Western Balkans countries are mirroring this open access regime in their railways, with some countries (e.g., Serbia) allowing access ahead of the EU schedule.

105. As the open access system is introduced, the national freight and passenger operators will face severe competition for the most profitable shipments from larger, better financed new entrants. Small railway operators in an enlarged 'open access' market are unlikely to be able to survive, purely because of their limited scale and the 'cherry-picking' of profitable flows and routes by larger competitors. The experience with the introduction of competition in Romania, as discussed in the following text box, provides an indication of what is likely to happen in the Western Balkans countries.

Railway Reform in Romania

In 1996, the Romanian Government launched a railway reform program to reduce the fiscal burden and to meet EU accession standards. The national railway company was ultimately separated into three companies: infrastructure (CFR), freight (Marfa) and passenger (Calatori), with the state as sole shareholder in all three. A new Railway Law created an environment that permitted private participation in the railway industry in Romania. In the new environment, some 24 private freight operators have been licensed as carriers. These carriers are aggressively competing, especially for unit train freight traffic. Private operators are now producing 16% of the freight train-km and 0.03% of the passenger train-km, and the market for transport has become much more a "commodity" market rather than a network service market.

[63] Member states established railway undertakings **must** be granted access to the Trans European Rail Freight Network (TERFN) by March 15 2008, and to the entire rail network by 2015, for the purpose of operating freight international services. EC. Directive 2001/12.

106. The experience of the railway supply industry in Europe, as national barriers were removed, is also instructive. In the rail supply market, competition forced the industry to consolidate across national boundaries to achieve the right scale for the overall market, with system integrators such as Adtranz, Alstom, Bombardier, and Siemens growing through rapid acquisition.[64] The railway industry in Western Balkans is likely to see both effects.

FINANCIAL PERFORMANCE

107. The railways of the Western Balkans region are all loss making enterprises and heavily dependent on government subsidy. As shown in Table 8[65] in all cases, operating expenses exceed revenue, even when revenue includes a government operating subsidy.[66] Labor is a substantial share of the cost structure for each of the railways, accounting for more than a third of operating costs for Albania (36%), Croatia (47%), Kosovo (55%), Macedonia

Table 8 Annual Income Statement for the Railways of the Western Balkans Region

Income Statement (US$ millions)

Country Year	Albania 2003	B&H - ZBH 2002	B&H ZRS 2002	Croatia 2003	Kosovo 2003	Macedonia 2003	Montenegro 2004	Serbia 2003
Revenue								
Passenger	0.9	na	na	42.5	-	1.6	na	26.1
Freight	2.2	na	na	84.5	1.6	17.3	na	70.1
Operating Subsidy	3.7	5.6	14.2	141.5	1.5	4.3	na	177.5
Other	0.2	na	na	51.0	0.6	2.8	na	8.0
Total	6.9	27.2	20.3	319.5	3.7	26.0	na	281.7
Operating Expenses								
Labor	3.3	10.1	na	223.5	2.2	18.4	12.8	139.2
Energy	1.1	na	na	35.7	0.9	3.1	2.3	96.5
Materials	1.4	na	na	43.4	0.4	2.3	3.1	in energy
Depreciation	0.8	na	na	47.6	0.5	8.7	in other	219.5
Other	2.3	na	na	121.3	0.0	7.5	9.0	15.7
Total	9.0	43.5	20.5	471.5	4.0	40.0	27.2	471.0
Operating Income	(2.1)	(16.3)	(0.2)	(151.9)	(0.2)	(14.0)	(27.2)	(189.3)
Interest expense (net)	0.0	-	-	17.0	0.0	3.9	-	6.8
Other non-operating expense (net)	2.7	4.3	0.6	(20.6)	(0.4)	(5.0)	-	26.8
Net Income (US$, millions)	(4.8)	(20.6)	(0.8)	(148.3)	0.2	(13.0)	(27.2)	(222.8)
Operating ratio								
Including government subsidy	1.30	1.60	1.01	1.48	1.06	1.54	na	1.67
Excluding government subsidy	2.78	2.02	3.34	2.65	1.76	1.84	na	4.52
Working ratio								
Including government subsidy	1.18	na	na	1.33	0.94	1.20	na	0.89
Excluding government subsidy	2.52	na	na	2.38	1.56	1.44	na	2.41

Source: Data from Individual Railways

[64] Jeremy Drew, The Railways Supply Industry (2000), p. 87-101.

[65] The financial and operating data in this study were compiled from numerous primary and secondary sources. Rather than list multiple data sources for each graph and table, the source are contained in the Reference. Data used are for the most recent year for which a relatively complete data set is available.

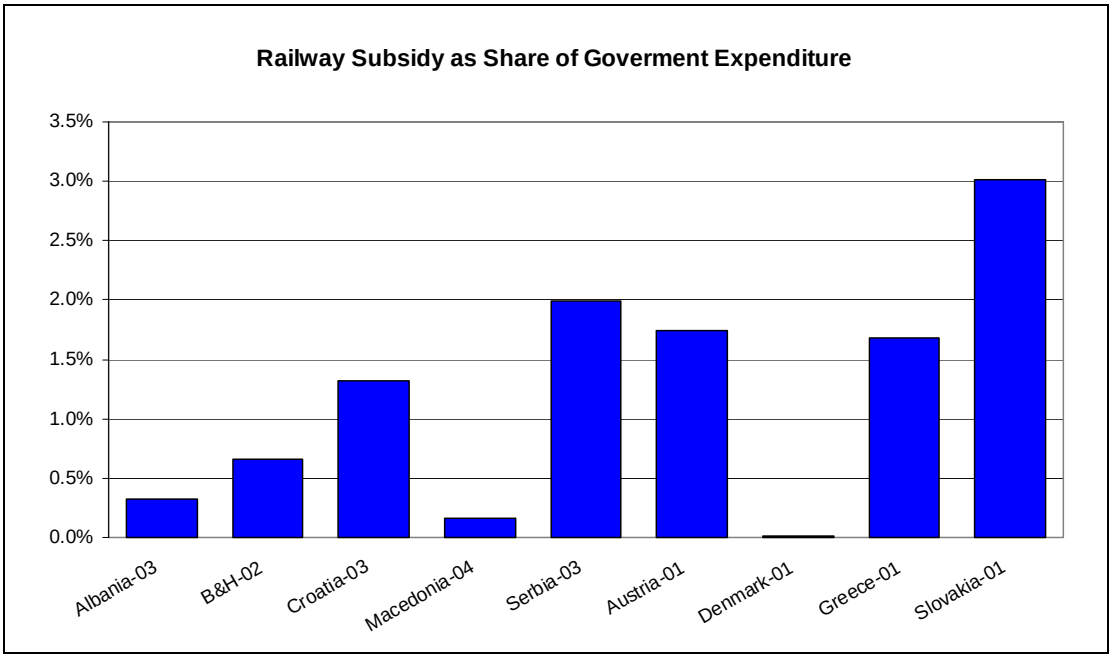
[66] The operating ratio includes depreciation. If depreciation were excluded, Serbia, for example, would have an operating ratio less than one. That is, the Serbian government is providing an operating subsidy large enough to cover its cash operating deficit, but not depreciation.

(46%) and Montenegro (47%). Coupled with the low labor productivity found on all of the railways, shrinking labor force is obviously needed. Energy expenditure is relatively low for the Western Balkans railways, probably a function of their light density of operation. Materials expenditure is likewise low, indicating likely under spending on maintenance. For all but Serbian railway, depreciation is very low and not a good indicator of the railway's ongoing capital needs.

108. The Western Balkans railways carry significant loss-making passenger services, so the need for operating subsidies is not surprising. The level of subsidies, however, is quite significant. In Serbia for example, operating subsidy in 2003 amounted to US$178 million. This operating subsidy is quite substantial, representing nearly one percent of GDP and two percent of government expenditure in 2003. For Croatia, the operating subsidy was US$142 million and amounted to 0.5 percent of GDP and 0.9 percent of government expenditure.

109. In addition, the Western Balkans railways are unable to self-generate funds for capital investment, and look to government to fulfill their needs. For example, in Albania, the railway is seeking government support for a US$82 million capital project—a substantial increment beyond the US$3.7 million operating subsidy received in 2003. The railway in Croatia received a US$236 million capital subsidy in 2003, bringing the total subsidy that year to US$378 million, or 1.3 percent of GDP (just over 2 percent of government expenditure

Figure 20 Railway Subsidy as a Share of Government Expenditure



Source: Study data.

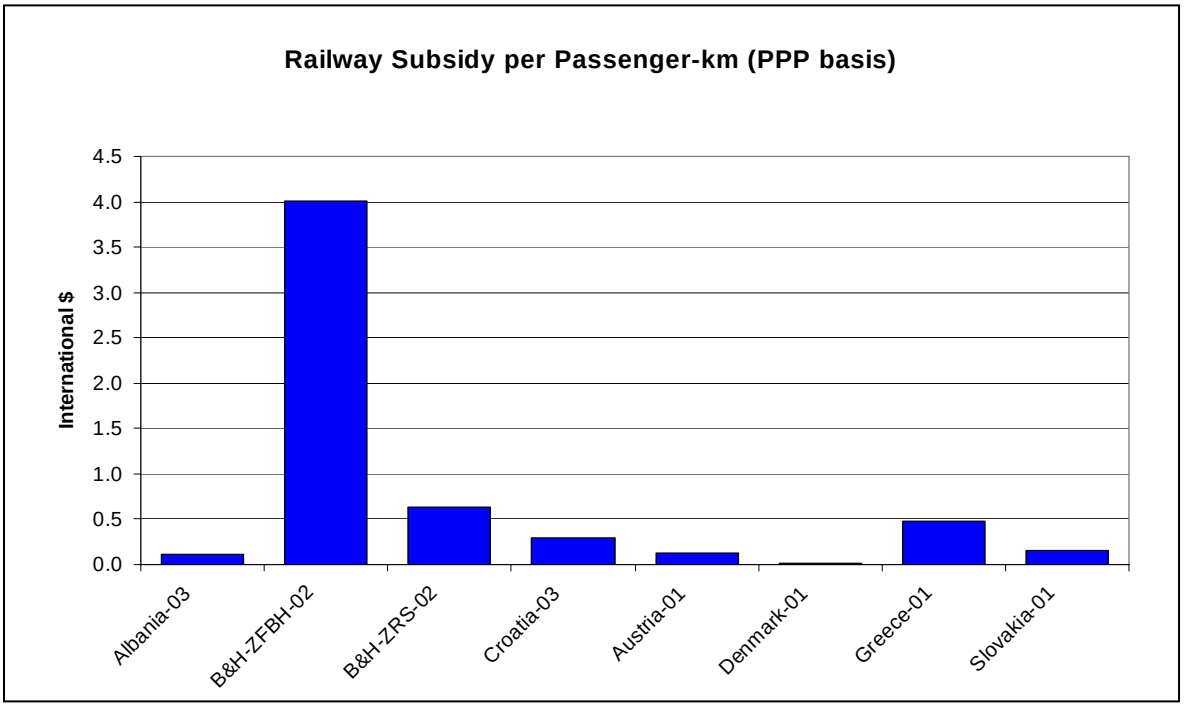
110. Figure 20 illustrates the subsidy levels of the SEE railways benchmarked against four other European railways. The figure reveals that he level of subsidy for Western Balkans railways is comparable to benchmark European railways. Nonetheless, given that the state

sector is overlarge in Western Balkans countries, and that governments have many other pressing priorities, a European level of subsidy for railways is not affordable.

111. Although data are incomplete for some railways, the available information indicates that subsidy is quite high relative to the service provided. For example, the operating subsidy was over US$12 per passenger trip in Serbia in 2003, and near US$80 per passenger trip for ZBH in Bosnia and Herzegovina in 2002.

112. Figure 21 shows total subsidy per passenger-km, measured on a purchasing power parity basis[67]. By this measure, the Croatia subsidy is twice that of Austria and Slovakia and 32 times the subsidy in Denmark (which is so low it is not visible on the graph). Serbian subsidy is not shown on a PPP basis because the PPP conversion rate was unavailable. On a US$ basis, the Serbian subsidy per passenger-km is 15% greater than the Croatian subsidy. The subsidy in Bosnia and Hertzegovina is greater yet, with ZRS subsidy twice the level of Croatia and ZBH 14 times higher.

Figure 21 Railway Subsidy per Passenger-km in Purchasing Power Parity Terms (2003 unless indicated)



Source: Study data

113. In addition, many of the railways are carrying significant amount of debt, which they lack the financial resources to repay. For example, Croatian Railways has US$580 million and the former ZTP in Serbia has US$440 million of long term debt. In Macedonia, the total debt of the railway at the end of 2004 amounted to US$143 million, or 3.3 percent of GDP. The introduction of institutional reform, consistent with EC. Directive 1991/440, as discussed elsewhere in this paper, requires the Western Balkans countries to establish appropriate

[67] The PPP measure employed is series code is PA.NUS.PPP, from SIMA, Economic Indicators.

mechanisms to reduce the indebtedness of railway undertakings to permit them to reach financial viability. This government acceptance of accumulated national railway debt at reorganization is a consistent practice in the EU15 countries.

114. The debt and fiscal position of the Western Balkans countries makes the provision of operating subsidy, capital subsidy and the clearing of accumulated debt very difficult. Limited latitude in the fiscal space of some of those countries means that such a practice is likely to reduce the opportunities for public investment on other modes, or in other sectors that may generate higher returns. World Bank and other International Financial Institutions (IFI) need to take care that their lending does not encourage Western Balkans governments to expand greatly their financial commitments for railways. Rather, IFI lending should support high return investments that help the railways to improve efficiency and reduce costs. Such investment should help shrink railway subsidy over time, not expand it.

OPERATIONAL PERFORMANCE

115. Railways are a capital intensive mode of transport, characterized by high fixed cost and relatively low variable costs. They are cost efficient when the high fixed costs can be shared by a large volume of traffic and when good utilization is made of expensive assets. The railways in the Western Balkans region suffer from poor resource utilization. This stems in part from historical reasons, as the railways were built to handle many times the level of traffic they carry currently. They inherited many more locomotives, wagons and coaches than they need. They also inherited many more staff. A major challenge for these railways is to "right size" the resources they use to better reflect the actual and potential demand.

Infrastructure

116. The Western Balkans railways make up a standard gauge network that links to railways in Western Europe. The table below contains a description of the infrastructure. The infrastructure has suffered from deferred maintenance, but main lines carrying significant traffic are being rehabilitated.

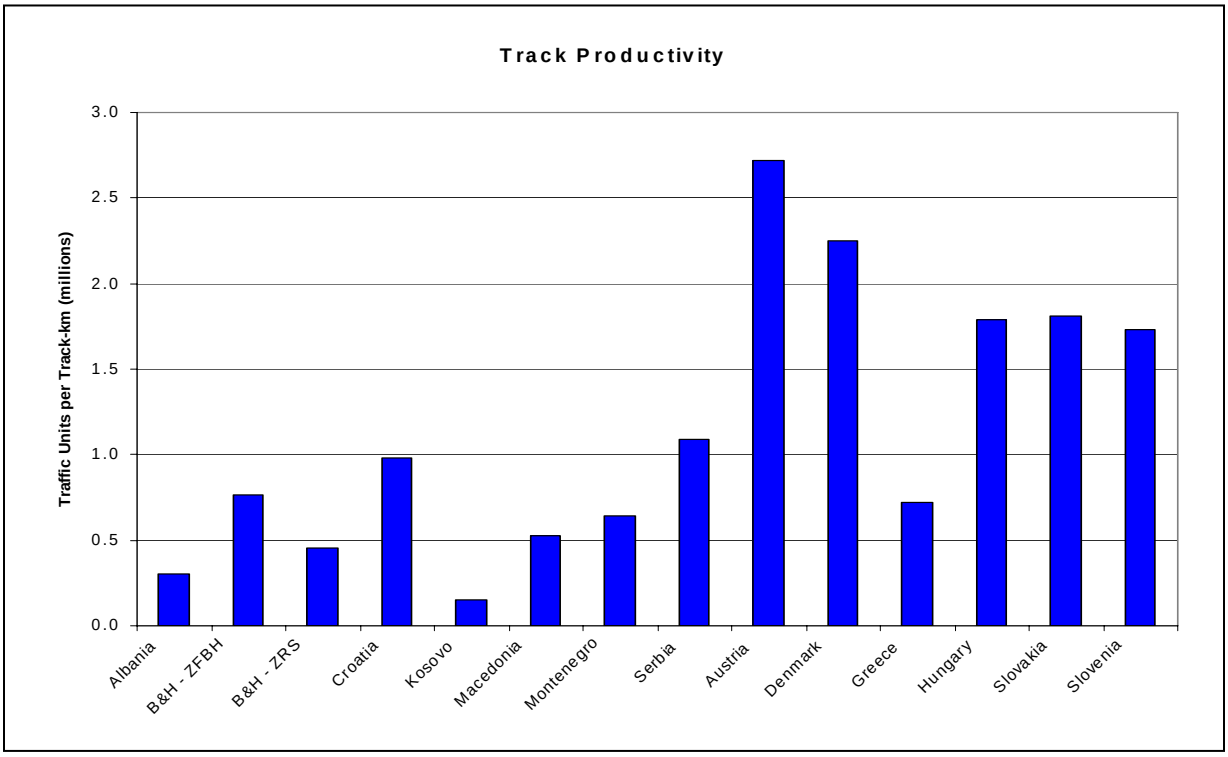
Table 9 Western Balkans Composition and Condition of Railway Infrastructure (2004)

Railway	Route-km	Double Track (km)	Electrified (km)	Comments
Albania (HSH)	447	0	0	Tirana-Durres line in serviceable condition. All other lines in poor condition.
B&H - -ZBH	608	0	441	Heavily damaged during conflict, some lines being rehabilitated with EBRD loan
B&H – ZRS	425	23	362	Heavily damaged during conflict, some lines being rehabilitated with EBRD loan
Croatia	2726	1,334	622	Medium to good condition
Kosovo	333	0	0	Mountainous with 115 bridges, main line in poor condition, some lines closed.
Macedonia	699	226	318	Na
Montenegro	250	80	167	Mountainous with many bridges tunnels, in poor condition

Railway	Route-km	Double Track (km)	Electrified (km)	Comments
Serbia (ZS)	3533	276	1247	Main line being rehabilitated with EIB & EBRD loans

117. The Western Balkans railways have low utilization of their infrastructure, especially the smaller railways. Albania, for example, produces only 300,000 traffic units per track-km. The most productive of the Western Balkans railways—Serbia—gets 1.1 million traffic units per track-km, while the benchmark European railways except Greece achieve 1.7 – 2.7 million traffic units per track-km—some 70 percent to 150 percent better. The Western European railways are themselves lagging when compared to the leading railways in terms of track productivity: Railways in US, Russia and Estonia, for example, produce 8 - 12 million traffic units per track-km.

Figure 22 Traffic Units Per Track-km for Western Balkans railways and Benchmark railways (2003/4)



Source: Study Data

118. The Western Balkans railways were built to handle much higher traffic volumes than current or forecast levels. Consequently, the infrastructure needs to be pruned back to the lines justified by current and forecast traffics. The Serbian Railways, for example, has started this process by identifying 7.5 percent of the lines that could be closed immediately and a minimum of 6.3 percent that should be closed unless service specific subsidy is received to keep them open. Each railway needs to undertake such an analysis—these railways can only afford to maintain and renew lines with strong traffic demand.

119. This network pruning can be of two types. In some cases, a whole line may be taken out of service. Equally important is eliminating surplus assets on lines in service. This could include removal of a second track, where traffic volume only justifies one line, closure of stations, elimination of unneeded yard track, and elimination of electrification. Serbian Railways provides an example of this type of pruning in its plan to reduce its stations from 320 to 160 during 2005.

Rolling Stock

120. The Western Balkans railways inherited large locomotive, coach and wagon fleets from predecessor railways. Much of this rolling stock is little used and should be scrapped. This is illustrated in the case of locomotives in Table 10, with active fleets being substantially smaller than total fleets. The impact of the hiatus in investment over the last 15 years can be clearly seen, with all the fleets having a high average age and a limited proportion of the total fleet currently active.

Table 10 Locomotive fleet description for Western Balkans railways (2004)

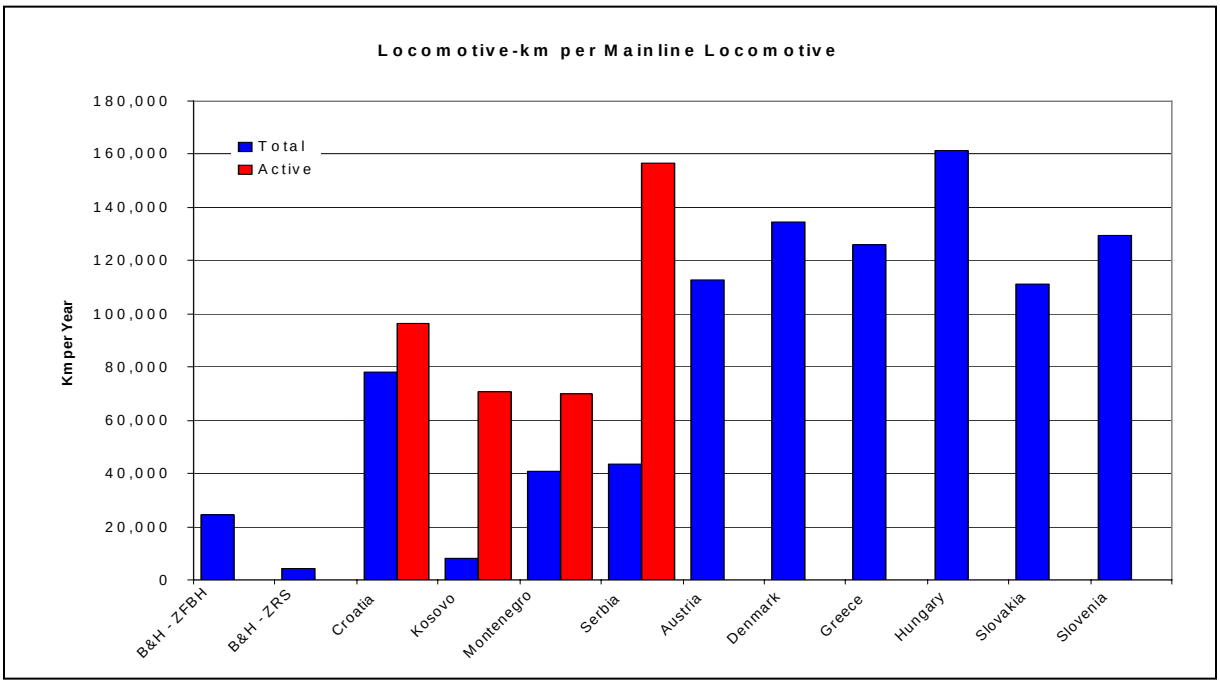
Railway	Total Fleet	Active Fleet	Percent Active	Estimated Average Age
Albania	57	25	44%	~27
B&H – ZBH	100	Na	Na	Na
B&H – ZRS	76	Na	Na	Na
Croatia	297	245	82%	Na
Kosovo	35	5	14%	>30
Macedonia	56	Na	Na	Na
Montenegro	35	18	51%	>30
Serbia	381	131	34%	>30

Source: Study Data

121. The Western Balkans railways also use their locomotive fleet less than the average. (See Figure 23, which shows locomotive-km worked per locomotive.) The blue bars show this measure considering all the mainline locomotives in the fleet. By this measure, all the Western Balkans railways have quite low utilization, ranging from under 10,000 km per year per locomotive for Kosovo and Bosnia & Herzegovina-ZRS, to 25,000 for Bosnia & Herzegovina-ZFBiH, to about 40,000 for Montenegro and Serbia, and 78,000 for Croatia. This compares to more than 110,000 km per locomotive per year for the benchmark railways.

122. If only the active fleet is considered, the Western Balkans railways look considerably better. Serbia reaches almost 160,000 km per locomotive per year, which is comparable to the benchmark railways. The other railways are still well below the benchmark railways. (Comparable active fleet figures for the benchmark railways are not available.) To some degree the low productivity is a function of having more rolling stock than necessary, so the railways have little incentive to use it efficiently. It is also a function both of the low density nature of the services provided and the fact that old equipment needs more frequent maintenance.

Figure 23 Locomotive-km per Mainline Locomotive for Western Balkans Railways and Benchmarks (2004)



Source: Study data

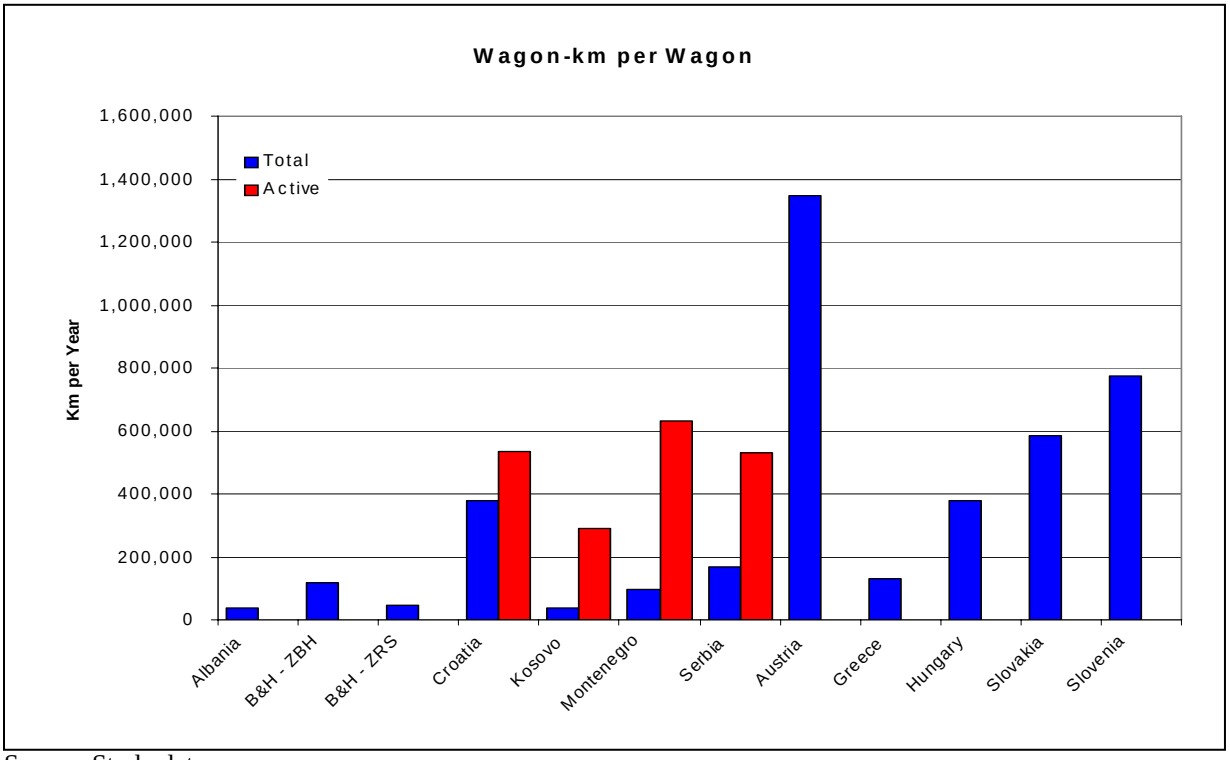
123. However, the realization of low levels of equipment productivity has two implications. First, the railways of the Western Balkans region maintain in an operational condition more rolling stock than needed, if the fleet were to be used efficiently. Second, it means that as existing rolling stock becomes life expired and is replaced, replacement capital expenditure will be higher, predicating constant fleet size. The financial position of these railways, and the corresponding requirement to minimize both recurrent and capital expenditures, means that utilization is important, even if rolling stock is in current surplus.

124. Another measure of the productivity of the tractive fleet, is the amount of traffic each unit produces. Since some of the railways carry much of their passenger traffic in trainsets comprising multiple units, this measure was calculated on the basis of traffic unit (passenger-km + ton-km) per tractive unit (mainline locomotives + EMU trainsets + DMU trainsets). This measure produces similar results to the previous one: Serbia at 23 million traffic-units has comparable utilization of its active fleet (but not its total fleet) as the better of the benchmark railways.[68] Croatia, with 14 million traffic units has about 15 percent lower utilization than the lower of the benchmark railways. The smaller of the Western Balkans railways have very low utilization, ranging from 3 million traffic units per tractive unit to 12 million traffic units per tractive unit.

[68] As measure of what is physically possible, Russian Railways achieve about 84 million ton-km per locomotive and US railways achieve 111 million ton-km per locomotive. Traffic density and long length of haul contribute to the US/Russian high efficiency—characteristics the Western Balkan railways are unlikely to have as long as they operate as small national railways rather than as part of a larger network.

125. Figure 24 presents wagon-km per wagon for both Western Balkans and benchmark railways. Where available, this measure is shown for both total and active fleet. The sharp contrast between total and active fleet productivity is an indicator of the sharp drop in traffic experienced and the extent of surplus rolling stock in the fleets. However, these figures should be interpreted with a degree of caution. Railways such as Albania, Bosnia & Herzegovina-ZFBiH and Montenegro interchange relatively few wagons with other railways, so the wagon-km operated on the railway are mostly produced by the wagons in their fleets. But for railways such as Serbia, which carry a substantial volume of transit traffic, not all the wagon-km are produced by Serbian railway wagons. The graph does indicate generally that as the Western Balkan railways reinvest in their wagon fleets, they will need far fewer wagons than currently owned,[69] and that getting high utilization will be a challenge for the smaller railways that do not have high volume domestic hauls.

Figure 24 Wagon-km per Wagon for Western Balkan and Benchmark Railways (2004)



Source: Study data

Employment

126. The railways in the Western Balkans currently employ approximately 58,000 staff. The productivity of these staff is very low compared to international benchmarks. As discussed earlier, the Western Balkans railways are all loss-making, despite substantial operating subsidies. Staff costs make up a substantial portion of operating cost, and therefore

[69] They may, however, need more wagons of a certain type. For example, tank wagons and semi-wagons are in short supply on some of the Western Balkan railways.

are a key element in any assessment to improve the railways' financial viability and value for subsidy paid.

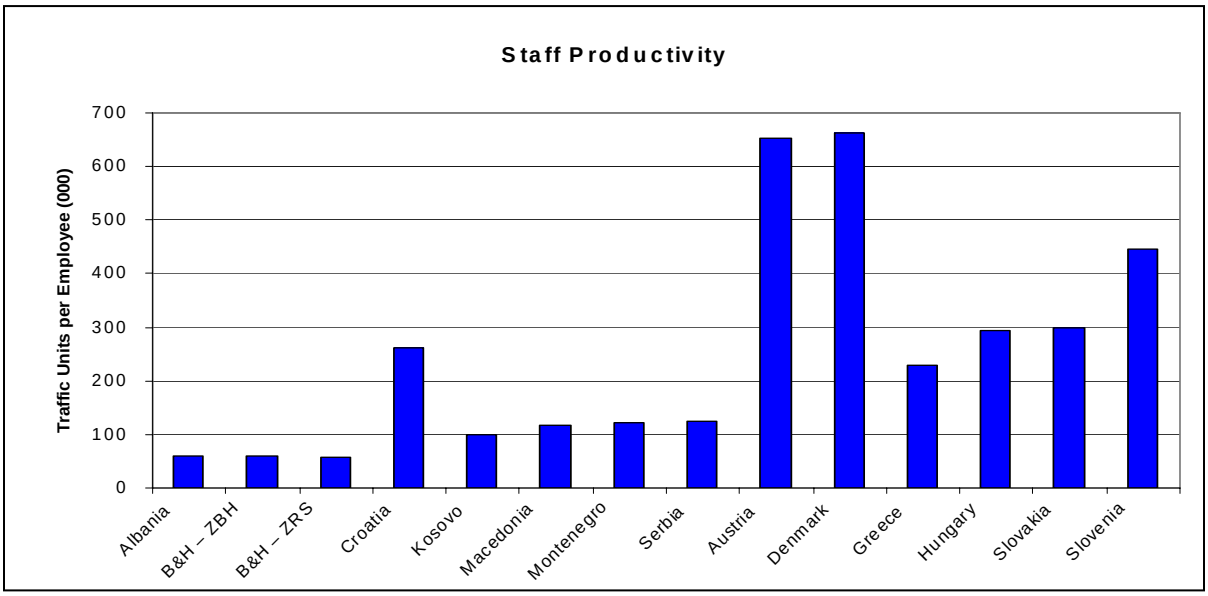
Table 11 Labor size and productivity indices for Western Balkans railways (2003 unless indicated)

Railway	Year	Staff	Wage Bill (US$ million)	Wages as Share of Total Operating Expenses	Traffic Units (millions)	Traffic Units per Employee	Traffic Units per $ of Wages
Albania	2003	2,248	3	36%	136	60,676	42
B&H – ZBH	2002/2003	3,889	10	23%	231	59,398	23
B&H – ZRS	2002/2003	2,452	Na	na	140	57,096	na
Croatia	2003	14,905	223	47%	3,911	262,395	18
Kosovo	2003	607	2	55%	60	98,609	28
Macedonia	2003	3,855	18	46%	447	116,052	24
Montenegro	2004	1,862	13	47%	226	121,404	18
Serbia	2003	28,222	139	30%	3,494	123,804	25

Source: Study data

127. Table 11 presents information about staffing and staff productivity in the Western Balkans railways. The Western Balkans railways have productivity between 60,000 and 260,000 traffic units per employee. Croatia, whose staff productivity is more than twice any of the other Western Balkans railways, is comparable to the less productive of the benchmark railways. (See Figure 25.) Note that Croatia, because of high relative wages, has the lowest productivity per $ of wages of the Western Balkan railways.

Figure 25 Labor productivity indices for Western Balkans and benchmark railways (2003 unless indicated)



Source: Study data

128. Several factors contribute to this low staff productivity. Historically, rail traffic declined faster than staff, leaving more staff working at the railway than needed to do the work. The Albanian railway had staff productivity of 170,000 traffic units per person in 1989, compared to 60,000 today. The Yugoslav Railways (JZ) from which the other railways of the region were formed, had staff productivity of 240,000 traffic units per person. Today only Croatia achieves that level. Serbian Railway, by contrast, employs nearly twice as many staff as Croatia, despite having fairly similar traffic volume, traffic mix and technology.

129. Traffic mix and density are also factors. A passenger railway will employ more staff than a freight railway, and a railway with high traffic density will use staff more efficiently. The effect of density is seen with the Ukraine Railway, for example, which achieves 1.6 million traffic units per employee, more than 10 times greater productivity than the Western Balkans railways. This density issue will be a particular challenge for the railways of Albania, Bosnia and Herzegovina, Kosovo, Macedonia and Montenegro, the modest scale of which underlines the need for regional co-operation to increase traffic density.

130. Technology is also a factor. Modern signaling can eliminate the need to staff small stations. Information technology can reduce the need for clerical workers. Modern track maintenance machinery can reduce the need for track maintenance workers. Reliable motive power reduces the need for locomotive maintenance workers. The right mix of technology and labor will differ by railway. Average railway wages in Croatia, for example, are 10 times the wages in Albania, so the value of investment in labor saving technologies will be similarly greater in Croatia.

INSTITUTIONAL AND ORGANIZATION STRUCTURE

131. The Western Balkans railways are all in the process of adapting their railway legislation to harmonize with the requirements of the *acquis communautaire*. Croatia, the only EU candidate country, passed a new railway law in 2003, with an effectiveness date of 2006. Serbia, a potential applicant, passed a revised railway law in March 2005, which became effective immediately. A number of the smaller railways' countries have also passed, or are in the process of drafting and/or reviewing, new laws. The new laws provide for third party access to railway infrastructure and regulation of infrastructure access and prices. The laws eliminate the legal basis for regulation of freight tariffs, properly leaving this to the "regulation" of the marketplace.

132. Serbia is now in the process of establishing what it calls the Railway Directorate (effectively a rail regulator), together with the rules and framework for infrastructure pricing and access. The other countries are similarly situated. The lack of implementing institutions and clarity/reliability on pricing and access rules will discourage operators, in the short term, from entering rail markets in these countries. In the longer term, as institutions become established, strong competition can be expected.

Table 12 Institutional Status of the Western Balkans Railways (2004)

Railway	Railway Law Compliant with EU Railway Directives	Implementation of New Railway Law	Railway Structure Compliant with EU Railway Directives	Development of Competition
Albania	New railway law adopted November 2004	Implementing governmental institutions not established	No, although law requires accounting separation of infrastructure	No operators other than HSH although legally possible
B&H – ZBH	New law approved by Council of Ministers in Feb 2005	Implementing governmental institutions not established	No	No operators other than ZBH although legally possible
B&H – ZRS	New law approved by Council of Ministers in Feb 2005	Implementing governmental institutions not established	No	No operators other than ZRS although legally possible
Croatia	Passed July 2003, effective January 2006	Implementing governmental institutions not established	Accounting separation of infrastructure, effective January 2006	Only HZ until EU accession
Kosovo	Railway law being drafted	Na	No	No
Macedonia	A restructuring Law for MZ was adopted in April 2005,a law governing the rail sector was adopted in July 2005	Na	Reorganization underway	No operators other than MZ, although legally possible
Montenegro	Law adopted March 2004, effective January 2005	Implementing governmental institutions not established	No	None
Serbia	Passed & effective March 2005	Railway Directorate established in May 2005	Reorganization underway	No operators other than ZTP, although legally possible

Source: Study data

133. The Western Balkans railways are also at a fairly early stage of organizational restructuring. Most of the railways legal entities separate from the Ministry of Transport, and governed by a Board of Directors, so they have some management independence. But the Boards are largely appointed by government and the railways are financially dependent on government, so independence is limited.

134. The railway in Serbia is in the process of divesting non-railway activities, with the first two entities scheduled for privatization in 2005. Divestiture of the railway supply businesses, however, is not planned. In Croatia, the railway has moved non-railway activities into subsidiaries, and plans to divest them in future years. None of the railways is yet organized around lines of business, although this is planned in Serbia.

Table 13 Organizational Status of Western Balkans railways 2004

Railway	Divestiture of Non-railway Entities	Divestiture of Railway Supply Entities	Organized into Profit Centers (Passenger & Freight)	Management Independence
Albania	Na	No	No	Government owns railway stock.
B&H – ZBH	Na	Na	Na	Na
B&H – ZRS	Na	Na	Na	Na
Croatia	Entities have been put into subsidiaries, but not divested	No	Planned, but not implemented	Government owns railway stock.
Kosovo	Na	Na	No	Not legal entity. 2/3 of Board of Directors appointed by Kosovo trust Agency.
Macedonia	Na	No	Planned, but not implemented	Government owns railway stock.
Montenegro	Na	Na	No	Na
Serbia	Commencing.	Not planned.	Planned, but not implemented	Govt. owns ZTP stock. Govt. & trade unions appoint Board of Directors.

Source: study data

135. The proposed legislation, driven by the relevant EU directives, will create a new structure for supporting passenger services. For the first time, the responsibility for choosing the level of rail service to be provided and the obligation to pay for them will be placed together in a single government body. This represents an important opportunity to reduce railway subsidies by eliminating low value-for-money services. Also the creation of separate passenger and freight operators will bring greater transparency to the costs and revenues of the individual services. This should allow decisions about whether or not to continue a service to be based on solid analysis of costs and benefits.

136. This proposed structure will provide the governments in the Western Balkans countries with the opportunity to both become informed purchasers of rail services, and to provide a financial incentive for them to "buy smart." The government will be able to make a transparent assessment of whether a required public service, such as access to a particular community or region, is best made by subsidizing a public, or private, railway operator, or tendering the service to a lower density option such as bus, minibus or taxi.

137. The analysis of the Western Balkans railways' finances, markets, operations and structure indicates that these railways are placing an unsustainable strain on their government's budgets and they are likely to face strong competitive challenges in the short to medium term. The next section discusses reforms needed to address these problems.

REFORM OPTIONS

138. The analysis of the Western Balkans railways' finances, markets, operations and structure in the previous section indicates that the railways are placing an unsustainable strain on the budgets of their respective governments. The railways are plagued by low traffic, fragmentation of service and aging assets. In addition, they are likely to face strong competitive challenges in their commercially viable freight markets in the short to medium term. This section presents the reform steps the countries can take to: (i) provide safe and effective rail transportation; (ii) support high value social services; (iii) produce a financially viable rail sector; (iv) renew rail assets; and (v) reduce the level of subsidy required by the railways.

Railway Reform Process in Romania

Railway reform in Romania began in 1991, when Romanian Railways (SNCFR) was corporatized and non-core activities were outsourced. In 1995, infrastructure management was separated from operations within the railway's financial accounts and staff reductions were initiated. In 1998, five companies were created from SNCFR with balance sheets cleared of historical debt:

- CFR – infrastructure manager
- CFR Marfa –freight operator
- CFR Calatori –passenger operator
- SMF –accounting and financial services for the railway companies
- SAAF –administration of the surplus assets of the railways companies

At the same time open access to the infrastructure was allowed and freight tariffs were deregulated. Thirty new private freight operators have been licensed and now handle about 15% of the traffic volume.

A drastic program for aligning the railway system with the transport market needs has been undertaken. Staff has been reduced by more than 130,000. Stations and rolling stock have been drastically reduced. Some 3000 km (out of a total network of 11,300 km) have been identified as non- interoperable railway lines. These lines are being offered to the private sector, and 846 km had been awarded by bid. Lines which do not attract bids will be shut down.

Description	1991	2004	Change
Staff	197,764	65,568	-67%
Stations	1,415	1,016	-28%
Network length	11,365	10,844	-5%
Freight wagons	142,232	59,376	-58%
Passenger coaches	6,490	3,407	-48%
Locomotives	4,353	1,314	-70%

The government of Romanian continues to confronting a major problem with the state subsidy for passenger transport and for infrastructure. Railway provides nearly half of public passenger transport in Romania and the population finds higher tariffs for these services hard to bear. Railway infrastructure needs additional funding for ensuring safety transport conditions and an increase of services quality. Romania cannot afford to subsidise the railway system at the same level as older EU member states. During 2004, the subsidy approved for railways was US$246 million, some US$221 for passenger transport and only US$25 million for railway infrastructure overhaul.

139. The first part of the chapter discusses the broad outlines of reform. Each country has somewhat different circumstances and is in a different stage in the reform process. The latter part of the chapter indicates the steps that should be emphasized for each railway. The reform process is difficult and requires sustained effort over many years. As illustrated by the reform process in Romania, a leader in railway reform in Europe, the railway continues to wrestle to balance the financial needs of the railway sector and the population's desire for low priced passenger service with the financial means of the Romanian government.

REFORM OF RAILWAY INFRASTRUCTURE

140. The Western Balkans countries are restructuring their railways to comply with the EU *acquis,* separating rail infrastructure from operations, with a view to eventually allowing open access on the infrastructure. For this approach to meet the reform objects, particularly the object of reducing subsidy payments for railways, three other steps must be taken. The infrastructure entities must improve infrastructure productivity, price infrastructure for full cost recovery, and invest selectively.

141. ***Productivity***. Each railway needs to bring its resources, including assets and staff, into line with its traffic demand. Each railway should review its network and identify the lines where revenue from traffic does not cover the costs of maintaining and operating the line. These lines should be closed, unless government, for social access reasons can afford and chooses to pay the deficit generated by the line. The railways should similarly review the station operations and eliminate stations with little activity.

142. ***Pricing.*** An important element of reducing subsidy payments to the railways is to obtain more revenue from railway users. In theory, the users of railway infrastructure should be faced with a charge that is equal to at least the marginal social cost that their trip imposes on society. If applied consistently across all modes, it would ensure a socially optimal distribution of traffic on all modes, as it would fully reflect the externalities, the social and environmental costs that are currently not considered in the decisions of users in their choice of mode. Although, in practice, the introduction of such a charging system may be an objective for the medium to long term, given the difficulties of identifying and quantifying the extent of the social and environmental costs.

143. In the short to medium term, a pricing system for infrastructure charges that reflects at least the marginal cost of each trip on the rail infrastructure would result in the most efficient use of the infrastructure network. Evidence suggests that this is likely to cover, at most, between 20%-30% of the total costs of infrastructure provision on light density railways such as these. This ensures that any traffic that can cover its own direct costs is not precluded from using the infrastructure, as specified in EC.Dir 2001/14.

144. However, the level of the access charge in each country is a political decision, reflecting the difference between the financial contribution from government in the form of subsidy and the total cost of infrastructure provision. At a minimum, Government should bear the fixed costs of any rail lines that it requires to be kept open for social or strategic reasons, even though they do not have enough traffic to be financially viable. Government

should also pay for any inefficiency imposed on the railway (such as excess labor) for social reasons.

145. Where budgets are constrained, governments may choose to recover a greater proportion of the fixed costs from users. The level of cost recovery in neighboring countries runs at an average of 60 percent of total costs[70]. But the policy choice is also constrained by markets: If the access charge exceeds marginal costs by more than the market will bear, it may drive users—and any contribution they make to fixed costs—off the network.

146. A further important consideration from a regional perspective is that the structure of access charges for the use of the railway network should be harmonized across neighboring national networks to prevent the emergence of barriers to competition.[71] (See Annex C for additional information on infrastructure access pricing).

147. In the EU15, the approach taken varies between the countries, with some countries following a marginal cost pricing system (Sweden and Finland, where cost recovery rates are around the 10-15 percent level), and some following a full cost system, but with public subsidy to reduce the actual level of the access charges (Germany, which covers only 60 percent of full costs, and Italy, which covers only 40 percent of full costs). The Baltic countries recover full cost[72], but are special cases reflecting the extent and profitability of transit traffic on the network. Railtrack, now Network Rail in the United Kingdom, initially tried to undertake such an approach, but cost recovery rates soon declined (currently running at around 80 percent).

148. ***Selective Investment***. The railway infrastructure in the Western Balkans needs investment, reflecting the lack of maintenance and renewal during the last 15 years. However, it is important that this investment be targeted to the lines with highest demand. The discussion on capital planning process for railway operators applies equally to the infrastructure operators. The process for selecting investment projects should insure that the investment fits within the infrastructure operator's strategy and core operations, has a high financial return, and is the most cost effective way to meet the investment need.

REFORM OF RAILWAY OPERATORS

149. The Western Balkans countries have been revising their railway laws to establish infrastructure separation and open access. This will occur on a varied time scale, but soon. In some countries (e.g., Albania, Bosnia and Herzegovina, Serbia, Macedonia) the legal right to access already exists, although the implementing agencies are not yet functioning. In Croatia, access will occur upon entry to the EU. When open access is implemented, the national carriers will find that new operators will bid for the profitable, high density traffic such as unit train movements to/from steel plants. They will leave the national carriers with the lower

[70] As some examples, Bulgaria 60%, Romania 50%+, Hungary 80% etc (see Workshop on Track Access Charges, 2005).
[71] The reasons are discussed in the earlier Framework Paper, and expanded upon subsequently, in a recent paper for the ECMT Nash, Mathews and Thompson (2005).
[72] Some freight railway operations in North and South America do cover 100% of the infrastructure costs.

density and mixed goods freight trains and the loss making passenger services, but little high profit traffic with which to support those services.

150. Unlike the national carriers, the new operators will not have any obligation to provide freight service throughout the network. Their cost structures will not be burdened with excess staff, too many maintenance workshops or inefficient locomotive management practices. They will have access to capital and be able to buy/lease appropriate rolling stock. They will have customer-oriented marketing, and organizational freedom to create joint ventures or other vehicles for transnational business. These new operators will represent a significant benefit for Western Balkans businesses that ship high volume, unit train freight, and this is likely to be beneficial for the economy of the region. They will, however, put pressure on the already financially-vulnerable national carriers, driving them to need ever increasing subsidy or driving them out of business. This decline of the national carriers is likely to be both expensive and socially disruptive.

151. The reform challenge is to transform the national carriers into strong competitors in the short time available before open access is a reality in the region. A first step is to separate passenger operations from freight operations at each railway and establish *fully compensatory* PSO contracts for all the loss making passenger services the government wishes (and can afford) to buy. This frees the freight carrier from the cost of cross subsidizing passenger services, either financially or through provision of locomotives and other "free" services.

152. Then, both passenger and freight carriers must be rapidly commercialized so that they look as much as possible like the new operators, before the new operators get established in the region. This commercialization process is very difficult, involving painful downsizing and a complete change of culture and mind set. Given the difficulty of establishing commercial practice in state-owned institutions and the short time available before open access, the necessary commercialization is most likely to be achieved through privatization of the national carriers. Privatization would also give the carriers organization flexibility to create joint ventures for new services or become part of larger European railway organizations.

153. Another alternative for expanding the existing reach of the national freight carriers would be jointly to create an international freight operator that could operate freely across the infrastructure of its owner railways. This would help overcome the fragmentation suffered by the Western Balkans railways and allow them to offer coordinated long haul service. Such an operator might be structured in a fashion similar to National Rail Corporation in Australia.

Success of National Rail Corporation

Until 1901, the states in Australia were separate colonies with separate governments. The Australian rail system therefore developed as six separate railways, one in each state. (Later, a seventh railway was built by the central government to link West Australia with the eastern states.)

Traffic between the railways was treated as of secondary importance relative to each state's own local freight, and its financial performance was poor. Marketing was fragmented. Operations were disjointed, with each railway applying individual operating standards and procedures. Locomotives and crews were changed at every state boundary.

In 1991, the interstate freight operations of each railway were merged into one jointly-owned freight operating company, which could offer seamless service across Australia. National Rail Corporation (NRC), commenced operations in 1993. NRC was jointly owned by the Commonwealth Government and certain States, who transferred rollingstock to it from their own railways. Track infrastructure remained the property of the various government authorities and NRC paid access charges for its use.

During an initial period, a number of services (e.g. wagon maintenance) were supplied by the State railways on a fee-for-service basis. NRC, however, rapidly recruited new staff and introduced much more efficient operating and maintenance practices. Financial results showed significant improvement. Interstate freight had an estimated loss of US$236 million on revenue of US$344 million in 1992. By 2001 interstate freight earned a before tax profit of US$10 million and carried over 17 billion ton-km.

This improvement in profitability occurred during a time when open access was introduced, and fierce competition forced significant rate reductions. Together with the private operators, NRC has significantly improved rail's market share in its key corridors. In 2002 NRC was sold to a private transport consortium with the NRC component estimated at about US$163 million.

154. The commercialization steps discussed below will strengthen the carriers and improve their financial situation. These steps, while having an immediate impact on the management of the railways, would also strengthen the respective railways for a future privatization.

155. ***Line of Business Organization.*** Commercial railways organize themselves in lines of business or profit centers, which focus on groups of customers external to the railway[73] whose traffic has shared characteristics which cause it to benefit from being managed together. The traffic may share similar operating characteristics, similar marketing characteristics, a shared fleet of rolling stock, or a shared network of facilities. Examples in freight include:

- Norfolk Southern's automobile business unit (shared handling characteristics, rolling stock, high service requirements and market situation);
- Burlington Northern Santa Fe's grain business unit (shared market situations with seasonal demand fluctuations and sophisticated futures transactions, shared fleet);
- CSX's Phosphate Unit (shared infrastructure in South Florida, handling characteristics and rolling stock);

[73] The profit center must have external customers. If the customers are all internal to the railways (e.g., the locomotive department), it is a cost center, not a profit center.

- Union Pacific Santa Fe's Intermodal Group (shared network of intermodal handling facilities, rolling stock, handling characteristics and high service requirements).

In passenger service, typical profit centers might be commuter services, regional trains and long distance intercity trains. These profit centers would have shared market characteristics around which the pricing strategy would be developed, shared service requirements and shared rolling stock. At a minimum, the Western Balkans railways should separate the freight and passenger lines of business. In many cases, separation of commuter services from other passenger services is also needed.

156. ***Establish accounting to support profit centers***. A critical step to implementing profit centers is to develop accounting information and analytical tools that provide information on a profit center basis. In particular, the accounting system must provide reliable revenue and cost information to profit centers. The cost information will be a combination of direct cost attribution, and charging from cost centers on a sensible basis where direct cost attribution is not possible.

157. ***Measure performance and provide incentives to staff***. The railway's Board of Directors should set goals for railway management, which in turn should set corresponding goals for staff that reflect the policy goals for the railway. For most railways these goals should include a combination of financial, safety, environmental and service quality/quantity measures. In the Western Balkans railways, the financial measure would include reduction in subsidy, while maintaining or improving the condition of required assets. The broad goals are translated throughout the organization such that each individual's goals are consistent with the resources they control in the organization (e.g., a wagon mechanic would be measured on asset condition but not on reduction in subsidy). As with establishing profit centers, establishing measures requires information support. Once measures are established and reliable data are provided for measurement, staff should receive financial and other incentives to meet their goals. In practical terms, top managers performance can be measured and incentives provided, since the broad measures of financial and other success exist.

158. ***Institute marketing and service design***. The railways of Western Balkans suffer from low traffic levels relative to assets and staff, so they will benefit significantly from efforts to increase traffic. With marketing and service design, the railway seeks information about its customers to provide services that better meet the customers' needs. This starts with learning the markets. Who are the customers and potential customers? What is the customer's market/travel situation and how does transport affect the freight customer's ability to sell its goods or the passenger to get to work, visit family etc? What are the customer's transport options? How does rail service compare to lorry/bus and other services? What is the price and service package that will attract the customer at a profit to the railway? Once this knowledge base is acquired, service design involves making the changes in the railway's process to implement the service the customer wants. Often this means changing railway systems such as wagon ordering, waybilling and billing to be customer friendly, as well as revising train schedules and equipment cycles to accommodate the customer.

159. The Western Balkans railways have the particular challenge of implementing marketing and service design across multiple countries and railways. In many cases, the

Western Balkans railways have abdicated the freight customer interface to freight forwarders (along with a share of the revenue of the shipment). This is particularly true of international shippers, who find the railways too difficult to deal with directly. If the railways want to grow their traffic, they will have to develop mechanisms to bridge the divisions and reach the customer with a coherent service package. This is not impossible—freight railways in the United States regularly market interline traffic to customers, for example. But it does require putting cooperative marketing, pricing and service design mechanisms in place.

160. ***Be selective about traffic carried***. In freight, the railways should carry profitable traffic and eliminate loss-making services. In passenger services, the railways should provide only services that are viable, whether from passenger fares or from fares plus a contribution from the government for those individual services considered socially necessary.

161. ***Establish a capital planning process that prioritizes projects according to financial rate of return***. A commercial railway operator develops its capital investment program using rigorous analysis to screen and prioritize potential investments. The Western Balkans railways have critical needs for renewal of motive power, shortages in certain freight wagon types and badly deteriorated passenger equipment. With limited investments funds available, renewal choices must be traffic driven and cost effective. A capital planning process along the lines on the one outlined below need to be instituted at each railway entity.

162. First, the investment must be consistent with the railway's overall strategy. An investment in an entertainment business, for example, might be very profitable but it is not part of the railway's strategy, so it should be screened out of the investment plan. Second, the investment must have a high return. Many commercial railways use a pre-tax hurdle rate of 22-25 percent as the minimum financial return an investment must provide.[74] The return can come from cost saving on an existing profitable activity, profitable new activity or a combination of both. In allocating limited budget funds, higher return projects will be funded and lower return projects will not.

163. Finally, the investment must be the most cost effective way to meet the need. For example, a railway may need to renew its locomotive fleet. It would examine the options of rebuilding existing owned locomotives, buying used locomotives, buying new locomotives and leasing new or used locomotives. The life cycle costs of each option would be compared and the alternative with the lowest life cycle cost would be selected. Establishing a rigorous capital planning process will be critical to reducing the subsidy needs of the Western Balkans railways and making them more competitive with private operators. The railways have previously operated in a government capital planning process that rewarded asking for as much investment as possible. In the current environment where funds are scarce and railway assets are both aging and excessive, a new, rigorous process to make best use of capital is sorely needed.

[74] A few investments, such as investments in safety or environmental protection, may be treated as investments that are necessary to be in the rail business and not subject to the hurdle rate. These investments would be subject to an alternatives analysis, however.

164. ***Boosting Productivity.*** Railway operations need to become more productive and be sized appropriately for the traffic they handle currently and expect to handle in the future. This will both reduce the railways' claim on the public purse and position the national operators to be more competitive with other operators.

- *Trim rolling stock.* Each railway has large quantities of non-functional rolling stock that should be cleared from the books (and the workshops and yards) of the railway. In addition, functional rolling stock that is not needed for current or likely future traffic should be sold, so that the railway only maintains the rolling stock it actually needs. As rolling stock must be renewed or replaced—an issue for all the Western Balkans railways—the railways need to think critically about whether the traffic the rolling stock carries earns enough to justify replacing the rolling stock. In some cases the financially sound choice will be to stop carrying the traffic rather than to invest in rolling stock for non-remunerative traffic. Finally the railways need to explore ways to get better utilization from their equipment. For locomotives, one opportunity is to run locomotives on through trains rather than changing locomotives at every railway and country border. (See the section on integration, below.)

- *Trim staff.* Railway staff numbers are clearly out of proportion to traffic, and need to be reduced. The railways recognize this difficult issue must be addressed, and are working through various means including union agreements (e.g., Kosovo) and severance packages (Serbia) to reduce staff costs. Given the magnitude of the problem it will require sustained and persistent attention, and no small measure of political support.

- *Trim facilities & contract out services.* The region has excess facilities for maintenance of rolling stock, and the atomization of the former Yugoslavia has resulted in every railway trying to maintain independent workshops for its small number of locomotives and wagons. Many of these facilities need to be closed and work contracted out to a few facilities with enough volume to be economical.

165. As noted above, the governments of the region must choose between two difficult strategic options. The first is to take incremental steps to commercialize the national carriers. This process is likely to need considerable financial support as the respective national carriers are unlikely to be as agile as their competition for some time to come, if at all. So this option will almost certainly result in continued traffic loss, increasing with the degree of competition, financial decline and eventual bankruptcy, or marginalization, of the national carrier.

166. The second option is to speed up the reform process and face the competitive challenge by privatizing the national carriers. This option also carries risks, but at least it offers the national rail carriers a stronger opportunity to survive, whilst ensuring the retention of some employment in the sector. It has the additional benefit of potentially realizing a positive price for the asset. However, to be competitive, the privatized national carriers would need: (a) clean balance sheets, free of any historic financial obligations; (b) no unsupported public service obligation or other social burden not borne by competitors; (c) private management and access to capital; and (d) a responsive labor force, with no inherited social obligations, which can be changed without excessive bureaucracy.

167. Commercialization/privatization may not be sufficient to allow a privatized national carrier to compete with international companies for international freight. The railways need to affiliate with others to provide competitive services. Consolidation in the international market is likely, and the national carriers are likely to join or be absorbed into larger carrier groups, especially if privatized.

REFORM OF GOVERNMENT SUPPORT FOR RAILWAY

168. ***Buying Smart.*** The governments in Western Balkans need to do their part to reduce subsidy requirements by becoming smart consumers of railway service. Potential does exist for improving efficiency and reducing cost in the provision of service. Nonetheless, a significant part of the subsidy problem is that government simply cannot afford to buy all the rail service currently being provided. Governments need to become more selective in their purchases.

- Governments should review the services being provided by the railways, evaluating the economic/social value of providing each service. In some cases, this may be very high (e.g., the Freedom of Movement Train in Kosovo) and well worth providing. But many of the Western Balkans railways provide expensive, but little used services to small communities for historical reasons. The railway has always provided this service and, while the new railway law does not require the railway to provide loss making services, the railway does not feel entirely free to alter the existing service pattern. Since government clearly does have the power to specify what service it will buy from the railway, government should exercise this power to buy the services with high value and eliminate the services with low value.

- Once a service has been determined to have high economic/social value, the government should consider the best way to obtain the service. In some cases, government may find that it can provide the same service less expensively or supply better, more frequent service at the same cost by purchasing service from bus, minibus or even taxi operators. Such services should be bought from the carrier/mode that supplies the service in the most cost-effective manner.

- Government contracts with the railways should specify and reward the railway for the features of the service the government considers important. For example, passenger service contracts in Stockholm specify and provide financial rewards/penalties for meeting specifications on the (a) frequency and capacity of the service provided, (b) cleanliness of coaches and courtesy of staff, and (c) appropriate maintenance of the assets used to provide the service. The contracts are publicly bid on a negative tender basis, so requiring the level of subsidy also receives strong emphasis.

169. ***Good Governance.*** In the Western Balkans region, national governments are the owners of railway stock and exercise supervisory control through Boards of Directors. This role should be used to encourage railway management to take up the strategy issues, discussed above, which are within the railway's control: commercial management, boosting productivity, and integrating railway services.

170. In addition, the Board of Directors would consider high level strategy issues including privatization of railway carriers. If privatization is to be pursued, it needs to be done quickly, before open access is legally effective (e.g., Croatia) or becomes effective in practice (e.g., Serbia). If privatization is delayed, competition will shrink the value of the national carriers and make privatization very difficult.

REFORM OF REGIONAL RELATIONSHIPS

171. ***Integrating Railway Service.*** The fragmentation of the former Yugoslav railway has left the Western Balkans railways with very short hauls and fragmented connections to the European freight marketplace. To overcome this, the Western Balkans railways must improve their links to the larger rail network.

- *Marketing and pricing.* To attract more than just local traffic, the railways need to develop a mechanism(s) for rapid, market responsive pricing and service development for movements that involve multiple railways. Currently, for international wagon load traffic, an accumulation of the railways' published tariffs is the basis for pricing. For unit trains, each railway along the route offers its price and the railway with the customer contract accumulates them and makes an offer to the customer. One solution to this issue is a joint marketing agreement. In such an agreement, two railways agree on a mechanism for providing joint service and for pricing and dividing the revenue of interline movements. Each railway agrees that the other railway may quote prices to customers for traffic involving both railways. Another option is to jointly invest in an international freight operator that may operate as freely as the current national carrier over the infrastructure of its owners.

- *Operations.* To make long distance railway service reliable and competitive with truck, the Western Balkans railways must improve the operations of joint train service. While not all border issues are under the railways' control, many are. For example, the railways can give schedule priority to international trains, so that they are assigned network slots at times consistent with good service. Similarly, international trains can be given priority in the assignment of available locomotives and crews.

- *Run-through, or block, trains.* An effective example of integrating services is the operation of through trains. In such trains, the locomotive continues along with the wagons/coaches across national borders, so that delay and unreliability is not introduced by the requirement that locomotives have to be changed at every border.[75] (Locomotive utilization would be improved also, because the locomotives would have longer runs.) Run-through trains are operated frequently in the United States, particularly for time sensitive traffic such as intermodal or automobiles, or when the haul on one railway is very short.

[75] A recent study of railway border crossings and performance of corridors IV and X recommends investigating the establishment of a joint pool of interoperable locomotives for the Balkan countries. ECORYS, *Trade and Transport Facilitation in Southeast Europe (TTFSE) 2—Railway Corridor and Border Crossing Study,* p. 46.

172. The World Bank, within the second phase of its Trade and Transport Facilitation Project, is proposing the corridor approach to improve the movement of international rail freight in, and across, the Western Balkans countries. The specific measures proposed entail a combination of elements including: (i) specific investment in the rail infrastructure, at the border primarily, where public investment is warranted and consistent with national priorities; and (ii) the removal of institutional impediments at border crossings. These include the following:

1. Removal of the need to change locomotives for freight trains at the border, or at least the relocation of the change and the related train technical checks (brake testing) from border crossing points to marshalling yard;
2. Implementation of information technology solutions to facilitate advance processing by railways and border agencies;
3. Promotion of joint processing of freight trains by Customs administrations at marshalling yards; and
4. Improved slot scheduling across the different networks to build on the first three points.

REFORM RECOMMENDATIONS FOR EACH RAILWAY

173. This general set of recommendations applies to all the railways in the Western Balkans region. However, each railway is at a different point in its restructuring process, with somewhat different priorities and critical issues, so the emphasis of each railway will be slightly different. Albania, for example, needs to focus on identifying which parts of the network have sufficient traffic to support a railway service, and closing the rest. Serbia, by contrast, has already reviewed its network and identified lines to close. But Serbia has created open infrastructure access, and urgently needs to figure out how to price access pricing so that infrastructure costs are paid by users, not a big government subsidy.

174. The table below indicates the key reform recommendations for each railway, based on its market situation and current progress toward reform. For each railway, the table covers reforms in railway sector institutions and regulation, reforms in management and structure of the railway entity, introducing marketing within the railway operating company, and reducing operating and capital costs. These steps should all contribute to a more efficient and market-oriented railway sector that needs less subsidy.

Table 14 Recommended Reforms

Albania Railway Reforms – Recommended Medium Term Reform Goals	
Institutional & Regulatory	• Government to develop process for prioritizing which loss making services to support through PSO, and analyzing whether the priority services are more cost effectively provided by rail or in other ways such as bus substitution. • Government to establish targets and incentives for railway that combine service, asset condition and subsidy reduction measures.
Management & Structural	• Management to analyze where HSH can offer profitable freight services or high value-for-money passenger services. Develop business plan to redesign the network and the services to serve those market segments.

	• Management to institute process for analyzing and prioritizing capital expenditures, based on economic rate of return.
Market Development	• Develop freight marketing department and initiate contact with potential major customers. • Redesign passenger services between Durres and Tirana.
Cost Reduction	• Reduce staff to 750. • Close lines from Elbasan to Pogradec and Fier to Vlore.
Bosnia and Herzegovina Railways – Recommended Medium Term Goals	
Institutional & Regulatory	• Government to develop process for rapidly divesting loss making local lines. • Government to develop process for prioritizing which loss making services to support through PSO, and analyzing whether the priority services are more cost effectively provided by rail or in other ways such as bus substitution. • Government to establish targets and incentives for railway that combine service, asset condition and subsidy reduction measures. • Government must prepare institutions (e.g., licensing of operators; infrastructure charging) for open access. • Government to consider privatization of freight operator.
Management & Structural	• Railway to separate infrastructure and transport accounts. Introduce profit centers with management incentives. • Management to institute process for analyzing and prioritizing capital expenditures, based on economic rate of return.
Market Development	• Develop marketing relationships with interline railways. • Implement service design to improve speed and reliability for interline movements.
Cost Reduction	• Staff reductions. • Reduce light density lines.
Croatia Railway Reforms – Recommended Medium Term Goals	
Institutional & Regulatory	• Government to develop process for rapidly divesting loss making local lines. • Government to develop process for prioritizing which loss making services to support through PSO, and analyzing whether the priority services are more cost effectively provided by rail or in other ways such as bus substitution. • Government to establish targets and incentives for railway that combine service, asset condition and subsidy reduction measures. • Government must prepare institutions (e.g., licensing of operators; infrastructure charging) for open access. • Government to consider privatization of freight operator.
Management & Structural	• Railway to separate infrastructure and transport accounts by 1/1/2006. Introduce profit centers with management incentives, as per business plan. • Management to institute process for analyzing and prioritizing capital expenditures, based on economic rate of return. • Railway to divest subsidiaries engaged in non-core activities (3 to 6 per year).
Market Development	• Develop marketing relationships with interline railways. Together with interline partners, negotiate freight services and rates directly with customers. • Implement service design to improve speed and reliability for interline movements.
Cost Reduction	• Combination of measures to improve staff and infrastructure productivity such that working ratio is reduced to 190% in 2006 and 150-170% in 2007 (PAL II condition).

Kosovo Railway Reforms – Recommended Medium Term Goals	
Institutional & Regulatory	• Action awaits resolution of the status of Kosovo
Management & Structural	• Management to institute process for analyzing and prioritizing capital expenditures, based on economic rate of return.
Market Development	• Action awaits resolution of the status of Kosovo
Cost Reduction	• Carry out agreed staff reduction plan. • Keep Kline-Prizen and Bardosh-Medare lines closed, with minimal expenditure on maintenance.
Macedonia Railway Reforms – Recommended Medium Term Goals	
Institutional & Regulatory	• Government to develop process for prioritizing which loss making services to support through PSO, and analyzing whether the priority services are more cost effectively provided by rail or in other ways such as bus substitution. • Government to establish targets and incentives for railway that combine service, asset condition and subsidy reduction measures. • Government to implement privatization of freight operator.
Management & Structural	• Railway to separate infrastructure and transport entities, and separate transport into passenger and freight profit centers. • Management to institute process for analyzing and prioritizing capital expenditures, based on economic rate of return.
Market Development	• Develop marketing relationships with interline railways.
Cost Reduction	• Reduce staff per business plan. • Evaluate revenues/costs of light density lines; consider closure.
Montenegro Railway Reforms – Recommended Medium Term Goals	
Institutional & Regulatory	• Government to develop process for prioritizing which loss making services to support through PSO, and analyzing whether the priority services are more cost effectively provided by rail or in other ways such as bus substitution. • Government to establish targets and incentives for railway that combine service, asset condition and subsidy reduction measures. • Government must prepare institutions (e.g., licensing of operators; infrastructure charging) for open access. • Government to consider privatization of freight operator.
Management & Structural	• Management to institute process for analyzing and prioritizing capital expenditures, based on economic rate of return.
Market Development	• Develop marketing relationships with interline railways. Together with interline partners, negotiate freight services and rates directly with customers. • Implement service design to improve speed and reliability for interline movements.
Cost Reduction	• Reduce staff.
Serbia Railway Reforms – Recommended Medium Term Goals	
Institutional & Regulatory	• Government to develop process for rapidly divesting loss making local lines. • Government to develop process for prioritizing which loss making services to support through PSO, and analyzing whether the priority services are more cost effectively provided by rail or in other ways such as bus substitution. • Government to establish targets and incentives for railway that combine service, asset condition and subsidy reduction measures. • Government must prepare institutions (e.g., licensing of operators; infrastructure charging) for open access. • Government to consider privatization of freight operator.
Management & Structural	• Railway to separate infrastructure, passenger, freight and rolling stock into subsidiaries. Introduce profit centers with management incentives.

	• Management to institute process for analyzing and prioritizing capital expenditures, based on economic rate of return. • Railway to divest subsidiaries engaged in non-core activities (3 to 6 per year).
Market Development	• Develop marketing relationships with interline railways. Together with interline partners, negotiate freight services and rates directly with customers. • Implement service design to improve speed and reliability for interline movements.
Cost Reduction	• ZTP have committed to reduce 'core' staff by 1900 in 2005, and a further 3000 in 2006. • ZTP have also committed to withdraw services from 13.8% of the network by the end of 2005, if no service specific subsidy is received.

REFERENCES

Agreement between the Federation of Bosnia and Herzegovina and the Republika Srpska on the establishment of a joint railway public corporation in accordance with Dayton Peace Agreement, Annex 9 signed in Dayton, Ohio on November 21, 1995 (April 1, 1998).

Alesina, Alberto and R. Perotti. (1995). "Fiscal expansions and adjustments in OECD countries. *Economic Policy*. Vol. 10, No.21, October 1995, pp. 205-248.

"Bauxite Mines Seek a Strategic Partner," www.pmcomm.com/montenegro/mining.htm.

Bosnia and Herzegovina Council of Ministers, (2005). *Law on Railways*.

Bosnia and Herzegovina Office of Statistics, (2005). *December 2004 Transport and Telecommunication Report*.

Bosnia and Herzegovina Railways Public Corporation, (2005). *Investment Plan 2005 – 2009*, Sarajevo.

Brittan, S. (2001). *'The greatest perversity of the European Union'*, Editorial in The Financial Times, April 26th, 2001.

CER, (2004) *Responding to the ECMT Report on Rail Track Access Charges in Europe*, June 2004.

Council of the European Union, (1991). *Council Directive 91/440/EEC on the development of the Community's railways*. Brussels: 29 July 1991.

Council of the European Union, (1995). *Council Directive 95/18/EC on the licensing of railway undertakings*. Brussels: 19 June 1995.

Council of the European Union, (1995). *Council Directive 95/19/ECon the allocation of railway infrastructure capacity and the charging of infrastructure fees.* Brussels: 19 June 1995

Council of the European Union, (1995). *Council Regulation 2236/95 laying down general rules for the granting of Community financial aid in the field of trans-European networks*. Brussels: 18 September 1995

Council of the European Union, (1996). *Council Directive 96/48/EC on the interoperability of the trans-European high-speed rail system*. Brussels: 23 July 1996.

Council of the European Union, (2004). *Council Regulation 807/2004*. Amendment to Council Regulation 2236/95. Brussels: 21 April 2004.

COWI, (2003) "*Regional Balkans Infrastructure Study – Transport: Final Report*", The REBIS report funded by the CARDS Program, European Union.

Di Pietrantonio, L. and Pelkmans, J., (2004). *The Economics of EU Railway Reform, College of Europe, Bruges European Economic Policy Briefing n° 8*. Bruges: September 2004.

ECORYS, (2005). *Trade and Transport Facilitation in Southeast Europe (TTFSE) 2— Railway Corridor and Border Crossing Study* .

Easterly, William; Jakob de Haan; Jordi Gali. (1999). "When is Fiscal Adjustment an Illusion? *Economic Policy*. Vol. 14, No. 28, April 1999, pp.55-86.

European Agency for Reconstruction, *Montenegro Annual Program, (2004)*. www.ear.eu.int/montenegro/main/montenegro-alc2i3c4.htm accessed April 20, 2005.

European Agency for Reconstruction, "On Track, a Legal Milestone for the Montenegrin Railway Services," www.ear.eu.int accessed April 20, (2005).

European Bank for Reconstruction and Development (2004), *Railways Recovery project: Final Report*).

European Commission, (1991) "*Directive 1991/440 – On the development of the Communities railways*", Brussels.

European Commission, (1998). *Transport network for the applicant countries of the European Union begins to take shape*. Press release. Brussels: 24 June 1998. IP/98/565.

European Commission, (2001a). "*Directive 2001/14 – On the allocation of railway infrastructure and the levying of charges for the use of railway infrastructure and safety certification*", Brussels.

European Commission, (2001b). *Transport and Energy Infrastructure for South Eastern Europe*. Brussels: October 2001.

European Commission, (2001c). *White Paper - European Transport Policy for 2010: Time to Decide*. Luxembourg: September 12, 2001.

European Commission, (2003). *Transport infrastructure*: *High-Level Group chaired by Karel Van Miert to identify the priority projects for the trans-European network in the enlarged Union*. Press Release. Brussels: 10 January 2003. IP/03/26

European Commission, (2004). *Energy and Transport in Figures 2004*. Brussels: December 2004.

European Commission *L'ERTMS en 10 questions*. Accessible on http://europa.eu.int/comm/transport/rail/interoperability/ertms_en.htm

European Commission, (2004). "*The Western Balkans in Transition*", DG for Economic and Financial Affairs, Brussels.

European Commission, (2004). *Proposal for a Directive of the European Parliament and of the Council, amending Council Directive 91/440/EEC on the development of the Community's railways*. Brussels: March 3, 2004. COM(2004)139 final.

European Commission, (2004). *COMMISSION STAFF WORKING PAPER: Proposal for a Directive of the European Parliament and the Council, amending Directive 91/440/EEC on the development of the Community's railways to gradually open up the market for international passenger services by rail: Extended Impact Assessment.* Brussels: March 3, 2004. SEC(2004) 236.

European Commission, (2004). *Proposal for a Directive of the European Parliament and of the Council on the certification of train crews operating locomotives and trains on the Community's rail network*. Brussels: March 3, 2004. COM(2004)142 final.

European Commission, (2004). *Proposal for a Regulation of the European Parliament and of the Council on International Rail Passengers' Rights and Obligations*. Brussels: March 3, 2004. COM(2004)143 final.

European Commission, (2004). *Proposal for a Regulation of the European Parliament and of the Council on compensation in cases of non-compliance with contractual quality requirements for rail freight services*. Brussels: March 3, 2004. COM(2004)144 final.

European Community (2004), *Opinion on Croatia's Application for Membership of the European Union*.

European Commission/World Bank Office for Southeast Europe, (2004). *Annual Report 2003*. Brussels: December.

European Council, (2003). *Agenda for the Western Balkans. Moving Towards European Integration*. Thessaloniki: June 20.

European Conference of Ministers of Transport (2003) *L'Aquis CEMT – Principal Acts of the ECMT 1953-2003*, OECD, Paris. (Available for download at http://www1.oecd.org/cem/pub/pubpdf/AcquisBIL.pdf.)

European Union, (1996). *Decision No 1692/96/EC of the European Parliament and of the Council on Community Guidelines for the development of the trans-European transport network*. Brussels: 23 July 1996.

European Union, (2001). *Decision 1346/2001/EC of the EP and the Council*. Amendment to Decision 1692/1996/EC. Brussels: 22 May 2001.

European Union, (2001). *Directive 2001/16/EC of the EP and the Council on the interoperability of the trans-European conventional rail system*. Brussels: 19 March 2001.

European Union, (2001). *Directive 2001/12 of the European Parliament and of the Council of 26 February 2001 amending Council Directive 91/440/EEC on the development of the*

Community's railway. Official Journal of the European Communities. Brussels: March 15, 2001.

European Union, (2001). *Directive 2001/13/EC of the European Parliament and of the Council of 26 February 2001 amending Council Directive 95/18/EC on the licensing of railway undertakings*. Official Journal of the European Communities. Brussels: March 15, 2001.

European Union, (2001). *Directive 2001/14/EC of the European Parliament and of the Council of 26 February 2001 on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification*. Official Journal of the European Communities. Brussels: March 15, 2001.

European Union, (2004). *Regulation (EC) no 881/2004 of the European Parliament and of the Council of 29 April 2004 establishing a European Railway Agency (Agency Regulation).* Official Journal of the European Communities. Brussels: April 30, 2004.

European Union, (2004). *Decision 884/2004 of the EP and the Council*. Amendment to Decision 1692/1996/EC. Brussels: 29 April 2004.

European Union, (2004). *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).* Official Journal of the European Communities. Brussels: April 30, 2004.

European Union, (2004). *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*. Official Journal of the European Communities. Brussels: April 30, 2004.

European Union, (2004). *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 ("Market Access Directive")*. Official Journal of the European Communities. Brussels: April 30, 2004.

EUROSTAT, (1999). *Transport in Figures*. Luxembourg: 1999.

Financial Times (2004), *Special Reports, Bosnia-Herzegovina* 23 November 2004.

Foster Christopher D. (1992) *Privatization, public ownership, and the regulation of natural monopoly,* Blackwell, Oxford, United Kingdom.

Halcrow *et al*., (1999). *Improvement of Competitiveness of Rail Transport in CEECs.* November 1999.

Hrvatske Željeznice, (2005). *Business Plan 2005-2009.* March 2005.

Janes Information Group Ltd. (2004), *Janes World Railway*, 2003-2004.

Jeremy Drew, (2000). *The Railways Supply Industry* , p. 87-101.

Johansson P and J. E. Nilsson, (2004) "An economic analysis of track maintenance costs", *Transport Policy*. Volume 11. Pages 277-286.

International Monetary Fund (IMF), (2004). Public Investment and Fiscal Policy. March 12, 2004. Washington, DC: IMF.

International Monetary Fund (IMF), (2004). Republic of Croatia: 2004 Article IV Consultation and Request for Stand-By-Arrangement. IMF Country Report No. 04/253. Washington, DC: IMF.

International Monetary Fund (IMF), (2004). Republic of Croatia: 2004 Article IV Consultation and Request for Stand-By Arrangement – Staff Report. IMF Country Report No. 04/253. Washington, DC: IMF.

International Monetary Fund (IMF), (2005). Albania: 2004 Article IV Consultation, Fifth Review Under the Poverty Reduction and Growth Facility. IMF Country Report No. 05/89. March 2005. Washington, DC: IMF.

IMF/WB Development Committee, (2004a). Seventieth Meeting, Washington DC, October 2, 2004, DC/S/2004-0038. Washington, DC: World Bank.

International Monetary Fund, (2004b). *International Financial Statistics*, Washington DC.

Infrastructure Steering Group, (2003), Stability Pact Regional Table, Thessaloniki December 16, 2002; "*Developing Regional Infrastructure Strategic Approach and Implementation of Projects"*, A Note by the Secretariat of the Infrastructure Steering Group, May 24, 2003.

Infrastructure Steering Group, (2003). *Implementing Regional Transport Priorities in the Western Balkans*. *A Report by the Chair of the ISG*. Brussels: December 2003.

Louis Berger S.A., (2002). *Transport Infrastructure Regional Study (TIRS) in the Balkans.* Final Report, March 2002. ECMT and Agence Française de Dévelopement.

Louis Berger S.A. (2004), *Albania National Transport Plan, Draft Final Report*. September 2004 p ES-11.

Marcial Enrique and Partners *et al*., (2002). *SCENES European Transport Scenarios*. Final Report, April 2002.

Nash, C., B. Mathews, & Thompson, Lou. (2005) *Charges for the Use of Infrastructure in ECMT Railways*, ECMT, Paris.

NEA, (1999). *Traffic Forecast for the Ten Pan-European Corridors of Helsinki. Final Report*. Rijswijk: August 1999.

NEA *et al.*, (2004). *TEN-STAC*: *Scenarios, Traffic Forecasts, and Analyses of Corridors on the Trans-European Transport Network. Traffic, Bottlenecks and Environmental Analysis of 25 Corridors*. Final Report, September 2004.

NERA, (2004), *Study of the Financing and Public Contributions to Railways,* (December 2004).

OTIF, (1980) *Convention concerning International Carriage by Rail*, 1 May 1980.

Republic of Croatia, (1999). *Transport Development Strategy*. Prepared by the Ministry of Maritime Affairs, Transport and Communications. Zagreb: November 1999.

Republic of Croatia, (2003). *Answers to Questionnaire of the European Commission*. October 2003.

Republic of Croatia, (2003). *Railway Act*.

Republic of Croatia, Central Bureau of Statistics, (2004). *Statistical Information*.

Republic of Macedonia[76], (2005). *Answers to Questionnaire of the European Commission*. February, 2005.

Republic of Montenegro, Infrastructure Development Program, www.donors.cy.yu/economic_reform/infrstructure.htm accessed April 21, 2005.

Republica Srpska, Institute of Statistics, (2005) *December 2004 Transport Statistics Report*.

SEK Advisory Services (2000). *Project Scoping for Railway Rehabilitation, Final Report* March 15, 2000.

Serbia and Montenegro Statistical Office, (2004). *Statistical Pocket Book 2004*,p. 43.

Scott Wilson Railways, Ltd.(2005) *Modernization of Albanian Railways – HSH, Final Report* 6 October 2005.

Scott Wilson Railways, Ltd. (2004) *Railway Border Crossing Study, Draft Final Report* December.

Swederail, (2003) *Draft Final Report on Restructuring of Railways in Kosovo* December 31, 2003.

UIC (International Union of Railways) (2004) *ETCS mitigation strategies on corridors and at national level – Cost/Benefit analysis,* Paris. Available for download at http://etcs.uic.asso.fr/docs/corridors/cba_v4.1.pdf.

[76] As in original, not FYR Macedonia.

UNECE, (1985). *European Agreement on Main International Railway Lines.* Geneva:31 May 1985.

UNECE, (1991). *European Agreement on Important Combined Transport Lines and Related Installation*. Geneva. 1 February 1991.

UNMIK Railways, *Annual Report 2003.*

UNMIK Railways, *Business Plan 2005-07* (Draft 03/03/07).

Website of USSTEEL www.usteel.com , accessed 6 May 2005

Website of the EU in Kosovo, www.euinkosovo.org, accessed April 13, 2005.

Website of Kosovo Trust Agency, www.kta-kosovo.org, accessed April 13, 2005.

Website of United National Interim Administration in Kosovo, www.unmikonline.org, accessed April 13, 2005.

World Bank, (2003). *Serbia and Montenegro – Public Expenditure and Institutional Review*. Volume 1. Report No. 23689. Washington, DC: World Bank.

World Bank, (2004a). "*The World Bank Group in South Eastern Europe: Regional Framework Pape*r", Europe and Central Asia Region of the World Bank, Washington D.C.

World Bank, (2004b). "*Reforming Infrastructure: Privatization, Regulation and Competition*", Policy Research Report, Washington D.C.

World Bank, (2004c). "*A Framework for the Development of the Transport Sector in SE Europe*", Europe and Central Asia Region of the World Bank, Washington D.C. (available for download at http://lnts017:8080/Transport.nsf/ECADocByLink/BEF3FC761FF49D0785256FB200508860?Opendocument).

World Bank, (2004d). "*Framework for the Development of Regional Energy Trade in South East Europe*", Energy and Mining Discussion Paper No.12, Washington D.C.

World Bank. (2004e). Kosovo: Economic Memorandum, May 18, 2004. Report No: 28023. Washington, DC: World Bank.

World Bank. (2004f). Serbia and Montenegro, Republic of Serbia: An Agenda for Economic Growth and Employment. December 6, 2004. Report No. 29258. Washington, DC: World Bank.

World Bank, (2005g). "*Borrowing for Infrastructure in the Western Balkans – Is there Fiscal Space? A Suggested Approach*", September, 2005.

World Bank, (2005h). "*Public Expenditure Policies in South Eastern Europe*", September, 2005. World Bank Report No. 33400-ECA.

Workshop on Track Access Charges (2005), *Summary and Main Conclusions*, Brussels, June 8, 2005.

ZTP, Serbian Railways, (2005). *Annual Business Plan of the Railway Transport Company ZTP Beograd for 2005*, Belgrade.

ANNEX A – THE INSTITUTIONAL CONTEXT FOR THE RAILWAY SECTOR

THE *ACQUIS COMMUNAUTAIRE*

175. The institutional framework for the railway sector in the Western Balkans region is shaped by the European Union, because the countries wish to take on the "obligations of membership" in the EU. This requires aligning domestic laws, rules and procedures to the body of community legislation, the *acquis communautaire*, in such a way that ensures that the relevant EU law is fully incorporated within their domestic legal framework.

176. The transport *acquis communautaire* contains all the relevant EU Directives, Regulations and Decisions, together with all principles of law and interpretations of the European Court of Justice, all international transport agreements to which the EU is a party, including what is now termed as the ECMT *acquis*[77], and all relevant Declarations and Resolutions of the Council of Ministers. The following sections outline the current content of the *acquis communautaire*, as it pertains to transport, within three broad areas:

i. The early EU legislation from 1990 – 2001;
ii. The EU White Paper and the Subsequent Railway Packages; and
iii. The ECMT *Acquis.*

THE EARLY EUROPEAN UNION LEGISLATION 1990-2001

177. The rail liberalization process was formally initiated by directives issued in 1991 and 1995. Since that time, the EU has progressively built a large body of legislation which focuses on gradual opening of the rail market by regulating access to the infrastructure, interoperability of the European rail network, separation of infrastructure from transport operations, and a common approach on rail safety. This body of legislation includes a diversity of acts, which are binding on all member, accession and applicant countries unless specific derogations have been agreed. The following paragraphs contain a summary of the key acts, and the key mandatory requirements associated with each:

77 Which has recently been slimmed down to an essential 120 Resolutions, Declarations, Conclusions and Recommendations etc. See ECMT, (2003) for more information.

178. **Directive 1991/440/EEC**[78] on the development of the community railways is the parent piece of legislation for the opening of the rail market. According to this directive:

- There **must be** separate accountability for management of infrastructure and transport operations. Organization and institutional separation is **optional.**

- Railway undertakings must be administered on a commercial basis. Public service obligations (PSO) and public service contracts (PSC) must also be defined on a commercial basis.

- Railway undertakings **must** design their business plans—which **must** contain their investment and financing programs—to reach financial balance.

- Member States **must set up** appropriate mechanisms to help reduce the indebtedness of railway undertakings so as to permit them to reach financial viability. Specifically, Article 9 states that 1. In conjunction with the existing publicity owned or controlled railway undertakings, Member States **shall set up** appropriate mechanisms to help reduce the indebtedness of such undertakings to a level which does not impede sound financial management and to improve their financial situation. 2. To that end, Member States **may take** the necessary measures requiring a separate debt amortization unit to be set up within the accounting departments of such undertakings

- Railway undertakings **must** be independent from the State in management, administration and internal control over administrative, economic and accounting matters. Assets, budgets and accounts must be separate from those of the State.

- Railway undertakings **must** be free to establish international groupings and internal organization, set tariffs, and control staff, assets and management.

- Under certain conditions, rail companies from member states **must** be provided access to the national market for international combined freight transport; and the freight and passenger intra-union market must be opened to international holdings.

- The infrastructure manager **must** charge a track access fee for the use of the railway infrastructure. Member States **must** lay down the rules for determining this fee, after consultation with the infrastructure manager.

78 Council Directive 91/440/EEC of 29 July 1991 on the development of the Community's railways Official Journal L 237 , 24/08/1991 Pages 25 -28.

- The user fee **must** be calculated in a non discriminatory manner and, **may** take into account the mileage, the composition of the train and any specific requirements in terms of such factors as speed, axle load and the degree or period of utilization of the infrastructure.

179. In 1995, two subsequent directives were issued to complete the 1991 legislation by: (i) setting common criteria for the licensing of railway undertakings established in the European Union[79]; and (ii) laying down the first rules for the allocation of infrastructure capacity and for infrastructure access charging.[80] Directive 95/18 states that railway undertakings meeting a series of conditions laid out in the directive, can apply for a license that would be valid throughout the EU territory, with the intention of facilitating international access and hence competition.

180. Directive 95/19, which has recently been replaced by Directive 2001/14, states that each member state **must** design an allocation body that will allocate infrastructure on a fair and non-discriminatory basis. In addition a safety certificate **must** be issued for each operator.

181. The first step towards interoperability was the adoption of Directive 96/48/EC on the interoperability of the trans-European high-speed rail system.[81] The directive requires that this network **must** meet a common set of essential requirements, called Technical Specifications for Interoperability (TSI) so as to achieve interoperability, improved safety, and reduced environmental nuisance. The six areas of the network covered by those specifications are called subsystems, and are the following

1. infrastructure;
2. energy;
3. maintenance;
4. control and command and signaling;
5. rolling stock;
6. traffic operation and management; and
7. telematics applications for passenger and freight services.

182. The Commission adopted TSI for the six subsystems in May 2002[82]. The texts of the TSIs were published in the Official Journal L245 of 12 September 2002. They have since been replaced by the legislation based on the proposals of the first rail infrastructure package of 1998 which consolidates the rail liberalization process: In particular in the controlling and signaling subsystem, Directive 96/48/EC required a unified control system, the European Rail Traffic Management System (ERTMS), on the high speed Trans -European network. The rationale for proposing a uniform control system was the recognition that more than 15 different signaling systems

[79] Council Directive 95/18/EC of 19 June 1995 on the licensing of railway undertakings.
[80] Council Directive 95/19/EC of 19 June 1995 on the allocation of railway infrastructure capacity and the charging of infrastructure fees.
[81] Defined in Annex 1 of the same directive.
[82] Commission Decisions 2002/730,731,732,733,734,735/EC.

currently operate on the European network. For example, from Paris to Brussels, the driver has to face 7 different signaling standards, which create transition costs and safety issues.

183. The proposal to establish the ERTMS, set up by European Signaling suppliers, was intended to overcome these problems and provide a common rail traffic management system across the entire network. The system has a number of components, combining:

- ETCS (European Train Control System); a train based computer (Eurocab) which compares the train speed as transmitted by the track with the maximum permitted speed, and automatically brakes the train if the latter is exceeded; and.
- The GSM-R is a radio communication system based on GSM but using frequencies specific to rail, which will enable to exchange information (voice and data) between trackside and the train.

184. The Commission Decision of April 29 2004 established specifications of the ERTMS for both the Trans-European high speed system and the Trans-European conventional rail system. The cost[83] of installing the ETCS module on board depends on the type of locomotive or train set, but is estimated at US$120,000 for new equipment. Prices would vary between US$240,000 and US$360,000 when existing equipment has to be adapted.

185. The cost of installing ETCS on the infrastructure is difficult to estimate, because it depends on the traffic density and the way that costs are attributed. Since ETCS installation is very often coupled with complete overhaul of the line, cost estimates range from US$36,000 to US$360,000 per track km. The tentative cost estimate for installing ETCS on a 'significant part of the network' is over US$700 million per year for the next 10 years. Furthermore, a recent study by the UIC found the required investments to be unviable in economic terms even on the Western European Railways[84].

THE EU WHITE PAPER: EUROPEAN TRANSPORT POLICY FOR 2010: TIME TO DECIDE

186. In 2001, the European Commission proposed its white paper on transport policy. [85] The strategy of the white paper is based on the assessment of ten years of transport policy and the intention to address the following issues:

[83] Cost Estimates are extracted from the Memo/05/235 The ERTMS in 10 Questions, published on http://mct.sbb.ch/mct/en/infrastruktur_innovationen_etcs-eumemo-05-235_en.pdf.
[84] UIC (2004).
85 Brussels, 12.9.2001 COM(2001) 370 : White Paper, European transport policy for 2010: Time to decide

- The road market has been largely opened but the rail sector lags behinds in terms of modernization and liberalization. Today, the modal split is increasingly dominated by road;
- Congestion caused partly by this imbalance between modes is reported to cost to the Community 0.5 percent of GDP and an estimated 1 percent by 2010;
- Road safety is still not guaranteed at an acceptable level;
- It is crucial to construct a sustainable transport network, in particular to reduce dependence on energy, and reduce external cost on the environment and health. In particular the commission regrets that external costs are not well integrated in transport pricing; and
- The enlargement will remodel transport flows, and trigger high integration costs.

187. The white paper contains over 60 proposals which mainly aim to: (i) encourage modal switching to a more balanced modal split; (ii) eliminate the bottlenecks on the European network; (iii) improve quality of services and safety conditions for users; (iv) improve policy coordination and technical interoperability so as to achieve a single European transport network; (v) adopt an effective charging policy for transport; (vi) develop a high quality urban transport; and (vii) reduce environmental costs.

188. Rail transport is presented, within the white paper, as being an environmental friendly, long distance efficient mode but also a mode lagging behind road in terms of modern operational performance, operational management, transparent governance, and degree of liberalization. With only 6 percent market share in passenger and 8 percent in freight, revitalizing the rail mode is a top European priority. The White Paper identifies rail as '**literally the *strategic* sector, on which the success of the efforts to shift the balance will depend, particularly in the case of goods.**'[86]

189. For the EC the dynamism of the rail sector will be spurred by introducing competition and by solving the main problems that are 'holding back its development: (i) infrastructure not suitable for modern transportation and interoperability; (ii) poor information systems; (iii) opaque costing; (iv) uneven productivity; and (v) mediocre reliability. The white paper makes a number of proposals which are classified under the following objectives; (i) create an integrated rail transport market; (ii) use the infrastructure more efficiently; (iii) improve quality and safety for users; (iv) prepare for enlargement; and (v) reduce congestion.

190. The specific measures discussed under each of the headings include: opening national rail freight and passenger markets to cabotage and increasing the members' allocation of train slots to freight rather than passenger, which should be more efficiently served by a high speed rail network. In addition, the white paper proposes

[86] From EC, (2001), page 16.

to include some sections of the European Rail Freight Network (TERFN)[87] into the Trans European Network[88] (TEN) so has to have them eligible for European and national funding.

191. Directive 2001/12[89] amended the 91/440 directive, on the development of the Community's railways. In particular, it makes the following additions:

- The infrastructure manager **must** have responsibility for its own management, administration and internal control.

- The infrastructure manager **must** have established a business plan which includes the investment program and which is designed so as to ensure financial equilibrium and optimum use of infrastructure.

- So as to create a non-discriminatory access to infrastructure, capacity allocation, infrastructure licensing and charging **must** be undertaken by an organization which does not provide transport operations.

- The member states **must** ensure that the compliance with safety standards are verified, rolling stock and railway undertakings certified and, accidents investigated. This verification **must** be done by bodies independent from rail undertakings.

- In the financial statements of railway undertakings, revenues from PSO's **must** be shown distinctively and not be transferred to another item.

- Member states established railway undertakings **must** be granted access to the Trans European Rail Freight Network (TERFN) and to all the rail network by March 15 2008, for the purpose of operating international freight services.

- The Trans European Rail Freight Network (TERFN), granting access to EC licensed railway undertakings for international freight services **must** be extended to the entire rail network by 15 March 2015.The railway undertakings **must** be granted access and transit on that network, for the purpose of operating international freight services.

192. Directive 2001/13[90] amends council directive 95/18, and according to the directive:

[87] Directive 2001/12/EC defines a 500,00km long network to be opened to European freight service in 2003.
[88] Decision 1692/96 defines the Trans European network and its eligibility for European and national funding.
[89] Directive 2001/12/EC of the European Parliament and of the Council of 26 February 2001 amending Council Directive 91/440/EEC on the development of the Community's railways.

- The license issuing body **must** be independent from railway undertakings.

- A railway undertaking can also refer to the commission if he claims that the national requirements are applied in a discriminatory manner. In case of such an appeal, the Commission must issue a statement.

193. The key Directive 2001/14[91] replacing directive 95/19, defines the conditions for capacity allocation for infrastructure capacity and management, as well as access charges rule and applies to the entire network, and according to the directive:

- The infrastructure manager **must** publish a network statement, which describes the condition and limitation of the network, details of the charging scheme, rules governing the capacity allocation, priority rules which apply in case of conflicting demand[92].

- Member states **must** establish a charging framework and its specific rules. This task can be performed by the infrastructure manager

- The calculation of the charge and the collecting of that charge **must** be performed by the infrastructure manager. If the infrastructure manager is not independent from a railway undertaking, these functions other than the collect of the fees must to be performed by an independent body.

- The infrastructure managers **must** cooperate to ensure the effectiveness of cross member states transport operations,

- The railway undertakings **must** be provided a minimum access package and services described in annex II of that directive.

- Track access fees **must** be paid to the infrastructure manager and used to fund its business.

- Member States **must** also establish an independent regulatory body with the responsibility, among others, to receive claims and appeals to the decisions of the infrastructure manager.

- The directive also introduces compulsory safety certificates for railway undertakings.

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[90] Directive 2001/13/EC of the European Parliament and of the Council of 26 February 2001 amending Council Directive 95/18/EC on the licensing of railway undertakings, Official Journal L 075 , 15/03/2001 P. 0026 – 0028

[91] Directive 2001/14/EC of the European Parliament and of the Council of 26 February 2001 on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification, Official Journal L 075 , 15/03/2001 P. 0029 - 0046

[92] The contents of the network statement are defined in Annex 1.

194. This first rail package was introduced on the February 21st 2001, and member states and Member States must implement the provisions of the Directives in national legislation by 15 March 2003 at the latest. Subsequently, based on the contents of the 2001 white paper, the Commission released a second rail package in 2002 in order to speed up the integration of the European rail market. It contained five significant proposals, which were followed in 2004 by the adoption of related directives and regulation. So as to develop a common approach to rail safety, Directive 2004/49/EC stipulates the following;

- Each member state **must** establish binding national safety rules. Member states must annually collect standard safety indicators defined in Annex I of the same directive.

- Member states **must** establish a safety authority independent from any railway undertaking, infrastructure manager, or applicant and procurement entity. It must issue, renew and amend the safety certificates.

- Member states **must** establish an investigating body independent from any railway undertaking, infrastructure manager, or charging or allocating body. It **must** investigate any serious accident and publish an annual report following the template described in annex V of the same directive.

- Any railway undertaking **must** hold a standard safety certificate defined in the same directive.

- Any infrastructure manager **must** obtain a safety authorization defined in the same directive.

195. To achieve the opening of entire European market to national freight services no later than January 1st 2006. EC Directive 2004/51 amending EC. Directive 91/440 states that:

- Railway undertakings established in member states **must** be granted access to the Trans-European Rail Freight Network and to the whole network for international freight services by January 1, 2006 (instead of 2008 as stipulated by EC. Directive 91/440 amended by EC. Directive 2001/12).

- Access rights to the whole network must be granted to Railway undertakings established in member states by 2007 for all freight services.

196. To complete the interoperability principles, EC. Directive 2004/50 amends EC Directive 96/48 relative to the high speed rail system and EC. Directive 2001/16 relative to the trans-European conventional rail system. It harmonizes the two, taking into account the new legislation of the 2nd rail package, and extends the application to the whole rail network.

197. On March 3, 2004, the European Commission proposed a third railway package, the main contents of which are the following:

- A proposal for a directive requiring the opening of the market for international passenger services in 2010.[93] Railway undertakings established in member states must, by 1 January 2010 be granted the right of access to the infrastructure in all Member States for the purpose of operating an international passenger service. Railway undertakings must, in the course of an international passenger service, have the right to pick up passengers at any station located on the international route and set them down at another, including stations located in the same Member State.

- A proposal of directive concerning the certification of locomotive and train drivers which operate passenger and freight services within the Union.[94] This proposal of directive defines the conditions and procedures for the certification of train crew operating locomotives and trains on the Community's network. It also specifies the tasks for which the competent authorities of the Member States, the train drivers and other stakeholders in the sector, the railway undertakings, infrastructure managers and training centers are responsible.

- A proposal for a regulation concerning passenger rights for international transport, requiring minimum information for passengers, and establishing a minimum set of rules concerning delays and treatments of complaints[95]. This proposal sets minimum requirements for information to be provided to passengers relative to their journey, contract conditions, and the liability of railway undertakings in cases of accidents, delays or cancellations of services.

- A proposal for a regulation concerning the quality of rail freight services, requiring certain minimum clauses in contracts[96]. According to this regulation: railway undertaking must pay compensation calculated according to the market price at the place and at the moment of the loss or damage, partial or total of goods. In case of a delay in relation to the arrival time agreed in the contract, railway undertakings must pay the compensation laid down in the contract. The parties must define in the transport contract the amount of compensation by mutual agreement in case of the cancellation of a train by the railway undertaking or by a rail freight customer. The contracting

[93] Proposal for a Directive of the European Parliament and of the Council amending Council Directive 91/440/EEC on the Development of the Community's Railways COM(2004)139 final of March 3,2004.
[94] Proposal for a directive of the European parliament and of the council on the certification of train crews operating locomotives and trains on the Community's rail network- COM(2004)142 final of March 3, 2004.
[95] Proposal for a Regulation of the European Parliament and of the Council on International Rail Passengers' Rights and Obligations COM(2004)143 final of March 3, 2004.
[96] Regulation of the European Parliament and of the Council on compensation in cases of non-compliance with contractual quality requirements for rail freight services - COM(2004) 144.

railway undertaking, which has accepted goods for transport, must be responsible for the transport over the entire route up to arrival, including handling and/or transshipments of the wagons or the trains.

THE ECMT *ACQUIS*

198. Since 1953, the council of ministers of ECMT, throughout conferences and working groups, agreed on a series of recommendations relative to inland transport and addressed to governments and transport undertakings. The major recommendations, gathered in Principal Acts of the ECMT 1953-2003[97] represent the ECMT *acquis*.

199. The core text of the ECMT *acquis* is resolution 2002/1, which makes a number of recommendations in respect to interoperability, border crossing, market liberalization (regulation, infrastructure charge and access, infrastructure/operation interface). It is consistent with EU directives, and aims to covers the whole European network. In particular, the ministers agreed:

- To develop simplified custom procedures for new entrants in the international markets;
- To encourage European cooperation between infrastructure managers and railway undertakings;
- To take the measures necessary to ensure transparent and non discriminatory competition framework;
- To ensure that track access is granted on a non discriminatory basis;
- That access fee should take into account train characteristics and market segments;
- To coordinate their investment policy in view to promote international traffic;
- To eliminate cross subsidies from freight to passenger operations and request from railway operators to run unprofitable operations only against adequate financial compensation; and
- To consider providing funds to infrastructure manager and transport providers so as to compensate the current discrepant incorporation of external costs in road pricing.

Other regulations included in the ECMT *Acquis*

200. The Intergovernmental Organization for International Carriage by Rail (OTIF)[98] was established in May 1985 as a consequence of the Convention of 9 May 1980 (COTIF). The objective of this organization is to develop a uniform system of

[97] ECMT, 2003, Principal Acts of the ECMT 1953-2003.
[98] Convention concerning International Carriage by Rail of 9 May 1980 version applicable as from 1st November 1996 amended by Protocol of Vilnius of 3 June 1999 for the Modification of the Convention concerning International Carriage by Rail (COTIF).

law which applies to the carriage of passengers, luggage and freight in international through traffic by rail. These legal rules, which have been in operation for many years, are the CIV and CIM Uniform Rules. The following uniform rules applicable to international carriage by rail are contained in the Appendices:

- Uniform Rules concerning the Contract for International Carriage of Passengers and Luggage by Rail (CIV)
- Uniform Rules concerning the Contract for International Carriage of Goods by Rail (CIM), including
    - Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)
    - Regulations concerning the International Haulage of Private Owner's Wagons by Rail (RIP)
    - Regulations concerning the International Carriage of Containers by Rail (RICo)
    - Regulations concerning the International Carriage of Express Parcels by Rail (RIEx).

201. As of April 7 2005 the convention /protocol was ratified in Albania, Serbia and Montenegro, Croatia, Romania, Bulgaria, FYROM and signed by Bosnia and Herzegovina[99].

202. The UNECE major convention relevant to rail is the European Agreement on Main International Railway Lines (**AGC**), of 31 May 1985 which sets minimum technical standards for the proposed railway network "International E-railway network." The table below, extracted from annex II of AGC, lists the parameters agreed upon by the contracting parties (which includes the countries of Bulgaria, Romania, Bosnia, Serbia and, Montenegro, FYROM, and Croatia).

[99] OTIF, April 7 2005.State of the signatures, ratifications, acceptances, approvals, accessions and entry into force.

INFRASTRUCTURE PARAMETERS FOR MAIN INTERNATIONAL RAILWAY LINES

	A Existing lines which meet the infrastructure requirements and lines to be improved or reconstructed	B New lines	
		B_1 For passenger traffic only	B_2 For passenger and goods traffic
1. Number of tracks	-	2	2
2. Vehicle loading gauge	UIC */ B	UIC C1	UIC C1
3. Minimum distance between track centres	4.0 m	4.2 m	4.2 m
4. Nominal minimum speed	160 km/h	300 km/h	250 km/h
5. Authorized mass per axle: Locomotives (≤ 200 km/h)	22.5 t	-	22.5 t
Rail cars and rail motor sets (≤ 300 km/h)	17 t	17 t	17 t
Carriages	16 t	-	16 t
Wagons ≤ 100 km/h 120 km/h 140 km/h	20 t 20 t 18 t	- - -	22.5 t 20 t 18 t
6. Authorized mass per linear metre	8 t	-	8 t
7. Test train (bridge design)	UIC 71	-	UIC 71
8. Maximum gradient	-	35 mm/m	12.5 mm/m
9. Minimum platform length in principal stations	400 m	400 m	400 m
10. Minimum useful siding length	750 m	-	750 m
11. Level crossings	None	None	None

*/ UIC: International Union of Railways

Source: Reproduced from Annex II of the UNECE AGC Agreement.

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203. A similar agreement for Important International Combined Transport Lines and Related Installations (**AGTC**), of 1 February 1991, exists whereby the

contracting parties agree a set of railway lines of importance for international combined transport[100].

204. According to the agreement the above mentioned railway lines must comply with the specifications laid out in annex III of the agreement (which is inserted below). In addition the parties must undertake the adequate measures in order to achieve performance parameters and minimum standards for combined transport trains laid out in annex IV of the agreement. At this time, only Croatia is a contracting party in the Western Balkans region.

INFRASTRUCTURE PARAMETERS FOR THE NETWORK OF IMPORTANT INTERNATIONAL COMBINED TRANSPORT LINES

	A		B
	Existing lines which meet the infrastructure requirements and lines to be improved or reconstructed		New lines
	at present	target values	
1. Number of tracks	(not specified)	(not specified)	2
2. Vehicle loading gauge		UIC B[2/]	UIC C [2/]
3. Minimum distance between track centres [1/]		4.0 m	4.2 m
4. Nominal minimum speed	100 km/h[3/]	120 km/h[3/]	120 km/h[3/]
5. Authorized mass per axle:			
Wagons ≤ 100 km/h	20 t	22,5 t	22,5 t
≤ 120 km/h	20 t	20 t	20 t
6. Maximum gradient [1/]	(not specified)	(not specified)	12.5 mm/m
7. Minimum useful siding length	600 m	750 m	750 m

1/ Not of immediate relevance for combined transport, but recommended for efficient international combined transport.

2/ UIC: International Union of Railways.

3/ Minimum standards for combined transport trains (see annex IV).

Source: Reproduced from Annex III of the AGTC Agreement.

[100] Contained in annex I of the AGTC agreement.

ANNEX B – THE DEFINED 'CORE NETWORK' AND PLANNED EXTENSIONS

205. The European Union has supported a number of analytical efforts to define regional transportation infrastructure needs. These include:

- The Trans-European Transport Network (TEN-T) for the European Union;
- The Transport Infrastructure Needs Assessment (TINA) network for the eleven 1996 accession countries; and
- For Western Balkans countries, the strategic network of the Transport and Energy Infrastructure for South Europe strategy paper, which was further refined into the core network by the Transport Infrastructure Regional Study (TIRS) and the Regional Balkans Infrastructure Study (REBIS).

These studies for the Western Balkans region identify broad transport corridors, and outline principles for appropriate investment in those corridors, based on traffic demand and economic return. At times, however, the transport corridors identified in the European studies become mixed with the desire to have "European standard" infrastructure immediately. This results in demand for infrastructure investment that has poor economic returns and is unrealistic in amount, given fiscal conditions. A careful review of the studies defining the European Corridors demonstrates that they would not support such investment.

BACKGROUND

206. The European Union undertook an extensive planning exercise in the 1990s to define a European transport network serving the entire continent. Three Pan-European Transport conferences took place—in Prague in 1991, at which the corridor concept was defined; in Crete in 1994, where the alignments of nine long-distance transport corridors were identified; and in Helsinki in June 1997, at which a tenth corridor and the Pan-European Transport Areas (PETrAs) covering maritime areas[101] were added. In addition, the overall design of the Trans-European Transport Network (TEN-T) of the European Union, as well as its extension to the applicant Central and Eastern European countries was confirmed. In parallel, in July 1996, the EU adopted Guidelines for the development of the Trans-European Transport Network[102]. The

[101] Black Sea, Mediterranean, Adriatic/Ionian Sea and Barents/Arctic Area.

[102] EU, 1996. *Decision No 1692/96/EC of the European Parliament and of the Council on Community Guidelines for the development of the trans-European transport network*. Brussels: 23 July 1996.

document contained outline plans for the land transport networks and criteria for network nodes such as airports or seaports.

207. In 1996, in preparation for the Eastern enlargement of the European Union, the European Commission launched the Transport Infrastructure Needs Assessment (TINA) to guide and oversee the development of an integrated multi-modal transport network in the eleven Central and Eastern European countries that were applicants for EU membership at that time—Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Cyprus. The TINA exercise was intended to design an extension of the TEN-T network (existing in the EU) on the territory of the candidate countries, [103] creating a coherent transport network in Europe, to ultimately "increase the efficiency of the Single Market and maximize the potential of European trade"[104].

208. The TINA network development was to take into account relevant work of the United Nations Economic Commission for Europe (UNECE), (Working Party on Transport Trends and Economics, WP 5) and previous analytical work of the European Commission services, while complying with the principles, objectives and criteria set out in the EU Guidelines[105] for the development of the trans-European transport network.

209. An important element of the TINA methodology[106] was that any identified investment, for either existing or new infrastructure, had to be compliant with UNECE recommendations (WP 5), while "*relating technical standards and features of infrastructure with capacities and expected traffic on the network*". Potential investments should concern "upgrading or construction of entire or part of network components, of which the standards of the existing infrastructure do not comply with the needs". The cost of the network had to be consistent with realistic forecasts of financial resources, so that average costs would not exceed 1.5 percent of each country's annual GDP over the period up to 2015.

210. As the EC launched the TINA process, a Group of Senior Officials (the TINA Senior Officials Group) was established with representatives from all Member States and the 11 applicant countries, and three regional subgroups–Baltic Sea area, Central European area and Southern Central European area. A secretariat (the TINA Secretariat) was set up as a technical support unit in Vienna.

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[103] The Structured Dialogue between the Transport Council of the EU and the Transport Ministers of the associated countries recommended, in September 1995, undertaking a Transport Infrastructure Needs Assessment (TINA) for the candidate countries for accession. On the basis of this recommendation, the Commission launched the TINA process, with a view to defining the future Trans-European Transport Infrastructure Network in the enlarged European Union, using the criteria of Decision 1692/96/EC.

[104] European Commission, 1998. *Transport network for the applicant countries of the European Union begins to take shape.* Press release. Brussels: 24 June 1998. IP/98/565.

[105] EU, 1996. *op. cit.*

[106] Available for download from: http://www.tinavienna.at/tinasecretariat/methdlgy.html.

211. The TINA exercise was completed in October 1999 with a network proposal of 20,290 km of railway lines, 18,030 km of roads, 38 airports, 13 sea ports and 49 river ports on the territories of Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. The TINA network was a continuation of the alignments of the TEN-T network within the European Union. The Report sets the time horizon for the completion of TINA at 2015. The total estimated costs amounted to around US$ 110 billion (Euro 97 billion) (over US$44 billion for rail).

212. The TINA exercise went through two main stages. First a differential modal design was adopted for the ten multimodal Pan-European transport corridors on the territory of the TINA countries. The European Commission proposed these as a starting point for the TINA process, e.g., a "backbone network" Later, additional network components were defined where appropriate to complete a coherent network.

213. The TINA network was drawn in line with the conclusions of the PHARE study "*Traffic Forecast on the ten Pan-European Transport Corridors of Helsinki*"[107], which was completed in July 1999, and which had been launched by the European Commission to inform work on TINA. The TINA cost estimates for investment measures were done on the basis of own estimates of the TINA countries, and estimates (unit cost estimates for segments of the network) in a project "*Updating of Transport Unit Costs in Acceding Countries*" financed under PHARE in 1995[108].

214. The completion of the TINA process engendered recognition that further planning was necessary to integrate the five countries of Southeast Europe – Albania, Bosnia and Herzegovina, Croatia, Macedonia, and Serbia and Montenegro – with the European transport network. The concept of the 'Core Network' for transport infrastructure in the five countries was originally proposed by the European Commission in its Strategy Paper "*Transport and Energy Infrastructure for South Eastern Europe*"[109], published in October 2001.

215. The 'Core Network' was further clarified and elaborated by the TIRS (Transport Infrastructure Regional Study) commissioned by the ECMT with EU support in 2002, and the REBIS (Regional Balkans Infrastructure Study – Transport) study, which was funded by the EU in 2003. A further exchange of views on the network took place at the three High Level Meetings on Regional Transport in South East Europe held, under the auspices of the Infrastructure Steering Group (ISG), in 2003.[110] The definitive network was agreed at the Third High Level Meeting in Paris,

[107] NEA *et al* (1999), pp. 67-69.
[108] COWI Consult, 1995. *Updating of Transport Unit Costs in Acceding Countries.* (An overview is provided in the TINA report, pp. 60-62).
[109] European Commission, 2001. *Transport and Energy Infrastructure for South Eastern Europe.* Brussels: October 2001. Available from: http://europa.eu.int/comm/ten/infrastructure/doc/tren_se_en.pdf.
[110] The three high level meetings were hosted respectively by the European Investment Bank (Luxembourg, February 2003), the European Bank for Reconstruction and Development (London, June 2003) and the World Bank (Paris, October 2003).

hosted by the World Bank, in October 2003. The identification of the network's final physical size was carried out in cooperation with the countries concerned. The methodology used in the definition of the network was similar to that applied to the candidate countries of Central and Eastern Europe within the TINA framework.

THE GENESIS OF THE CORE NETWORK

216. The European Commission's Strategy Paper "Transport and Energy Infrastructure for South Eastern Europe" provided guiding principles for the definition of the SEE strategic transport network. They include:

- Consisting of multimodal links and their nodes, at which efficient interchange of goods and passengers between transport modes can be accomplished; connections with the network within the region and with the TEN-T and TINA corridors are considered part of the network;
- Priority is given to the use of existing infrastructure, by repairing and rehabilitating it; upgrading or new infrastructure components should be kept to a minimum;
- The network design uses the principles of the EU transport policy in aspects such as the development of competition and co-operation between transport modes and privileging those modes of transport which pollute less over those which pollute more; and
- An investment program for the execution of the transport infrastructure plan must be based on the economic viability of projects; the density of the network must reflect the financial strength and capacity for implementing large projects in the countries concerned.

217. Criteria for the selection of network sections are:

- The network definition should take account of the infrastructure planning of the UNECE European agreements to which South East Europe countries have agreed, as well as of the declarations of the Pan-European transport conference of Helsinki in 1997, including the relevant sections of corridors IV, V, VII, VIII and X in the backbone network;
- The network should interconnect all capitals within the region, while also linking them to the capitals of the neighboring countries; in addition, the network should include connections to and with cities of major regional importance (Banja Luka, Nis, Novi Sad, Podgorica and Pristina);
- The network should concentrate accessibility to only a few Adriatic ports, with the aim of supporting short sea shipping, which requires the convergence of substantial traffic flows. These ports should be adequately linked to the land transport network and equipped for combined transport; and
- The network should concentrate air transport development in a few international airports in the region able to guarantee sufficient services.

Adequate land accesses should be provided to ensure sufficient accessibility to air transport services to the whole region.

- The regional air traffic control system should be upgraded, according to the "Air Traffic Infrastructure Regional Study", to cope with increasing traffic at regional and international levels.

218. Criteria for the selection of projects are:

- Application of Trans European Motorways (TEM) and Trans European Railways (TER) technical minimum standards and EU *acquis communautaire* for the quality of network components;
- Technical quality of the transport infrastructure asset must correspond to the expected traffic in the next decade[111]; and
- The technical standards and the quality of transport infrastructure assets should correspond to the expected traffic and ensure adequate socio-economic rates of return to prevent a misallocation of scarce economic resources. Feasibility studies must also ensure interoperability conditions in all modes: railways (electrification, signaling, etc.); roads (axle loads, signing); inland waterways (clearance, draught) and aviation (ATC systems).

219. With respect to railways, in particular, the EC Strategy Paper concludes that "to a large extent the SEE railway system is a patchwork" and does not form "a real network." It notes that traffic is comparatively low and a minimum capacity would be sufficient for lines with less than 20 trains per day, while double-track electrified lines permitting speeds up to 160km/h are only required for those lines on which more than 100 trains per day can be expected. The EC Strategy Paper intended to provide "a common ground for the development of a multimodal transport infrastructure network"[112] as a follow-up step.

220. The follow-up came with the Transport Infrastructure Regional Study (TIRS), covering Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Serbia and Montenegro, and Romania which was completed in March 2002. The TIRS reviewed the SEE governments'[113] plans for establishing the basic regional infrastructure network. It offered a first technical elaboration of a long term development plan for the Core Network, with recommendations on the nature of investments in the various sectors (e.g., rehabilitation rather than development investments, sustainable funding of maintenance, and sector reform issues).

221. The TIRS also provided a multi-criteria assessment of existing transport projects, a priority ranking of these projects, and a short/near/long term investment

[111] European Commission, 2001. *op. cit.*, p.10.
[112] European Commission, 2001. *op. cit.*, p.5.
[113] The TIRS encompassed seven countries – Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Yugoslavia, Macedonia, and Romania (e.g., also two EU candidate states).

plan for the region. The study estimated that over the period 2000-2015 rail traffic will remain broadly steady. Current traffic is mostly primary commodities and inputs/outputs of heavy industrial sectors. These industries are undergoing restructuring, retrenchment and in some cases reinvestment. Increasing per capita income in the region is likely to contribute to increased motorization and a shift in market share from rail to road. The study was funded by Agence Française de Développement (AFD).

222. The Regional Balkans Infrastructure Study - Transport (REBIS), encompassing Albania, Bosnia and Herzegovina, Croatia, Macedonia, and Serbia and Montenegro (including, Kosovo under international administration as per UN Resolution 1244 of June 10, 1999) was completed in July 2003, was conceived as a "continuation and deepening of the TIRS", (according to the interpretation of the ISG[114]). It aimed to assist the SEE countries in developing coherent strategies for transport infrastructure development and the identification of priority investment in transport infrastructure. According to the REBIS study, over the period 2001-2025 rail traffic in the region will increase by 60-140 percent. It estimated a total of US$14 billion for upgrading the railway network to a level compatible with forecasted traffic by 2015.

223. The "core network" proposed by REBIS includes the Pan-European Corridors in the region (the "backbone" of the core network), adding to these the interconnections between the five capitals of the region and the cities of Banja Luka, Podgorica and Pristina. It also links these with the capitals of the neighboring countries and provides connections with the Adriatic ports of Rijeka, Split, Dubrovnik, Ploce, Bar, Durres, Vlore. The study was funded by the European Commission under its CARDS program (Community Assistance for Reconstruction, Development and Stabilization), and prepared by a consortium of consultants.

224. To accelerate the implementation of priority investments for the period 2004-2009, a Transport Projects Preparation Facility (TPPF) was launched by the European Commission in October 2003. It is funded under the EC CARDS program and supported project preparation work for EBRD/EIB/World Bank funded activities in the transport sector in SEE. The total value of the investments which were assisted by the instrument is estimated at approximately US$440 million. The total budget of the TPPF was US$3.3 million.

225. A Memorandum of Understanding (MoU) on the development of the South East Europe Core Regional Transport Network, was signed on June 11, 2004[115] in Luxembourg. The MoU defined in broad but clear terms the alignments of the

[114] ISG Report, "*Developing Regional Infrastructure Strategic Approach and Implementation of Projects*", A Note by the Secretariat of the Infrastructure Steering Group, May 24, 2003.) Stability Pact Regional Table, Thessaloniki December 16, 2002.

[115] Signatories are: the European Commission, the Governments of Albania, Bosnia and Herzegovina, Croatia, former Yugoslav Republic of Macedonia and Serbia and Montenegro, and UNMIK for Kosovo under international administration according to UN Resolution 1244.

network and the fields in which cooperation will be carried out. It also envisaged the establishment of a regional mechanism for coordination – a Regional Steering Committee (RSC), composed of junior Ministers or senior civil servants from the signatory countries and the European Commission, with the task of stimulating and monitoring the action needed to implement the goals of the MoU in practice, and of reporting back to the ministers at their regular meetings. The RSC will be composed of members who are well-anchored in their national administrations and able to ensure that the Core Network is fully integrated in the national transport plan and the infrastructure budget of their countries.

226. The Core Network, as defined in the MoU, comprises 4,300 km of railway lines and 6,000 km of roads, connecting all capitals and cities of regional importance among themselves and with the capitals of neighboring countries through the Pan-European transport corridors IV, V, VIII and X and other links. The Core Network includes 58 cross border points (road and rail) between the SEE countries themselves and between them and their other European neighbors.

227. The MoU also provides for the establishment of a South East Europe Transport Observatory (SEETO), headquartered in Belgrade. One of its most important functions is foreseen to be collection of data, preparation of annual and multi-annual work plans for the implementation of the projects defined in the REBIS Study (Core Network), and coordination with the existing task forces or transport observatories on specific transport corridors. SEETO will be equipped with an Information Technology system connecting the Transport Ministries of the participating countries. In addition, the SEETO is to assist the RSC—also established by the MoU—to supervise and promote the implementation of the Core Network. The implementation progress of the SEETO was presented at the Fourth High Level Meeting, held on October 25-26, 2004 in Paris. If not fully operational at this stage, it is already legally established in Belgrade (as of September 27, 2004), with a total budget of EUR 1 820 000, provided under a contract with the European Commission, for an initial period of three years, until December 31, 2007.

228. In January 2003, High-Level Group was appointed to revise the alignments of the major Pan-European Transport Corridors covering the territory of the enlarged EU and Bulgaria and Romania by concentrating investment priorities on a more limited backbone network[116]. A further High-Level Group II was established with a similar purpose in 2004, following a ministerial seminar on Wider Europe for Transport in Santiago de Compostela on 7-8 June 2004. Its task is to identify priority projects on the major transnational transport axes connecting the EU with its neighbors, while also analyzing some horizontal issues such as intermodality and interoperability. The EC has recently commissioned a study – "*Status report of the*

[116] European Commission, 2003. *Transport infrastructure: High-Level Group chaired by Karel Van Miert to identify the priority projects for the trans-European network in the enlarged Union.* Press Release. Brussels: 10 January 2003. IP/03/26.

Pan-European transport corridors and areas", to cover the period 1994-2003. This study should be completed in August, 2005[117].

[117] Contract notice was published June 2004 and is available for download from: http://ted.publications.eu.int/official/Exec?DataFlow=call_one_detail.dfl&Template=TED/result_one_detail.xsl&TableName=TED_EN&TocQuery=ND:"101640%202004"&Lang=EN&StatLang=EN).

ANNEX C—RAIL INFRASTRUCTURE ACCESS PRICING

Introduction

229. The governments of the Western Balkans region have recently passed railway laws that create the legal possibility for multiple carriers operating over shared infrastructure. As the governments set up agencies to implement the new railway laws, they will soon face the practical problems of how to price use of the railway infrastructure.

230. This problem has been faced by railways and governments in many countries in the European Union, the Former Soviet Union, Australia and the United States. There are as many access pricing methodologies as there are countries, perhaps more.[118] Nonetheless, certain broadly accepted principles can be articulated that serve as a foundation for any infrastructure methodology. These principles are discussed below.

231. In addition, much of the existing and potential traffic for the Western Balkans railways is international. To be able to link their railways into the European rail network, they will need access pricing that is compatible with EU standards and structured to encourage international movement.

What Costs Should Be Considered in Setting Access Charges?

232. The universe of costs that should be considered in setting access charges should be limited to the costs of an efficient network. Charges should not reflect costs of lines that that carry little traffic or for excess track in stations and yards. Similarly, users should not be charged for construction or maintenance of infrastructure to a higher standard than needed to meet traffic demand. Further, users should not be charged for inefficiencies in operation that are government-induced, such as requirements to employ more staff than needed to operate safely.

233. Infrastructure charges do provide pricing signals about how much capacity to demand/supply (see discussion below). However, they are not an efficient means for

[118] In the United States, for example, freight and commuter access on freight railway infrastructure is based on full costs, but intercity passenger carrier access on freight railway infrastructure is based on marginal cost.

accomplishing network rationalization. A network study, such as the one Serbian Railway recently undertook is the appropriate approach to this pressing problem.

What Costs Should Be Charged to Users?

234. In theory, the users of railway infrastructure should be faced with a charge that is equal to at least the marginal social cost that their trip imposes on society, If applied consistently across all modes, it is also asserted to ensure a socially optimal distribution of traffic on all modes, as it would fully reflect the externalities, the social and environmental costs that are currently not considered in the decisions of users in their choice of mode. Although, in practice, the introduction of such a charging system, based on the marginal social costs of use, for all modes, given the difficulties of identifying and quantifying the extent of the social and environmental costs even in the EU15 countries, may be an objective for the medium to long term.

235. In the short to medium term, a pricing system for infrastructure charges that reflects at least the marginal cost of each trip on the rail infrastructure is asserted to result in the most efficient level of traffic on the network. Track renewals should be included in such costs because they are caused by use, although lumpy and displaced in time from the use that caused them.[119] Evidence suggests that a system based on marginal costs is likely to cover 20%-30% of the total costs of infrastructure provision. This ensures that any traffic that can cover its own direct costs is not precluded from using the infrastructure, as specified in EC.Dir 2001/14.

What Costs Should Be Paid by Government?

236. However, the level of the access charge in each country is a political decision, reflecting the difference between the financial contribution from the respective Government in the form of subsidy and the total cost of infrastructure provision. At a minimum, Government should bear the fixed costs of any rail lines that it requires to be kept open for social or strategic reasons, even though they do not have enough traffic to be financially viable. Government should also pay for any inefficiency imposed on the railway (such as excess labor) for social reasons.

237. Where budgets are constrained, an individual governments may choose to recover a greater proportion of the fixed costs from users, and the level of cost recovery in neighboring countries runs at an average of 60 percent of total costs[120]. But the policy choice is also constrained by markets: If the access charge exceeds marginal costs by more than the market will bear, it may drive users—and any contribution they make to fixed costs—off the network.

[119] European Conference of Ministers of Transport Council of Ministers, *Railway Reform and Charges for the Use of Infrastructure* (April 29, 2005), p. 13.
[120] As some examples, Bulgaria 60%, Romania 50%+, Hungary 80% etc (see Workshop on Track Access Charges, 2005).

238. Many of the cost of providing infrastructure are fixed in the short term, but variable in the long term as capacity is replaced or expanded. Charging short run marginal cost gives users the correct pricing signal for optimal use of existing capacity. Charging higher, long run marginal cost gives the correct pricing signal to users to demand appropriate quantity of capacity and to infrastructure managers to expand/contract capacity appropriately. In determining whether to charge users for some of the cost of providing capacity, governments should consider what pricing signal this will send and whether it is an appropriate pricing signal, given their capacity situation.

How Should Access Prices Be Structured?

239. Marginal costs should be charged to users in a way that reflects cost causality, is readily measurable and straightforward to administer. Many railways use gross ton-km as the basis for charging variable costs. If needed, the gross ton-km can be factored to reflect cost differentiation. For example, if a certain types of trains have a higher axle weight or higher speed, so that each gross ton-km of those trains wears the track more than a gross ton-km of other trains, the gross ton-km of the higher cost trains can be factored up.

240. The determination of costs and the basis for charging should be transparent. We caution against manipulating the calculation of marginal costs or the basis for charging so as to favor passenger services and cross subsidize them from freight. Attempting to hide passenger deficits by burying their costs in the freight charges will only discourage potentially profitable freight customers from using rail.[121]

241. How to charge users for any fixed costs is much less clear cut. Typically, the basis for charging is a compromise between competing goals, including:

- Provide incentive (or minimizes the disincentive) to make optimal use of existing capacity,
- Provide incentive (or minimizes the disincentive) to demand/supply optimal level of capacity,
- Encourage competition,
- Encourage international movement of goods and people.
- Provide infrastructure manager with predictable and adequate revenue,
- Straightforward to administer.
- Prevent discrimination between users.

242. A variety of methods are used to charge fixed costs to users. In general, we recommend a variable basis such as train-km rather than fixed fee because a fixed fee acts as a barrier to entry to small operators and a barrier to movement across national

[121] "The current practice – of low tariffs for passenger services, effectively cross-subsidised by freight – will significantly hold back the development of the international (and domestic) rail market. Community of European Railways, *Responding to the ECMT Report on Rail Track Access Charges in Europe* (June 2005), p. 7.

boundaries. The exception to this is when a line has a single or very dominant user, e.g. a suburban passenger service or one industrial user. In such a case, the infrastructure manager may charge the fixed cost of the line to the single/dominant user on a fixed basis.

243. Continuity, predictability and transparency are important in setting access prices. Railway operators must make long term investments in rolling stock and contract commitments to customers. Infrastructure managers must make long term investments in track and facilities. "Frequent changes of calculations, which often involve changes of levels of charges" are detrimental to business models and markets."[122]

What Does EU and International Trade Require?

244. The EU directs members to charge users for marginal costs. Fixed costs may be paid by government or charged to users. If charged to users, a variety of charging basis may be used. However, the charges must not discriminate between like customers. In particular, international traffic should not be charged higher rates than domestic traffic.

245. To encourage international rail movements—one of the main purposes of the EU's infrastructure separation requirements—the structure of access prices needs to be similar in all the countries of the region. The absolute level of charges does not need to be the same, but they should be simple and the relative proportions charged to use and to capacity should be similar. "These charges need not be uniform in level but must be consistent in structure and should be based on a set of simple factors of use…"[123]

246. To encourage international rail movements, infrastructure managers should meet regularly to discuss pricing and the division of revenue.

[122] Workshop on Track Access Charges, *Summary and Main Conclusions* (Brussels, 8 June 2005), p. 2.
[123] European Conference of Ministers of Transport Council of Ministers, *Railway Reform and Charges for the Use of Infrastructure* (April 29, 2005), p. 74.