

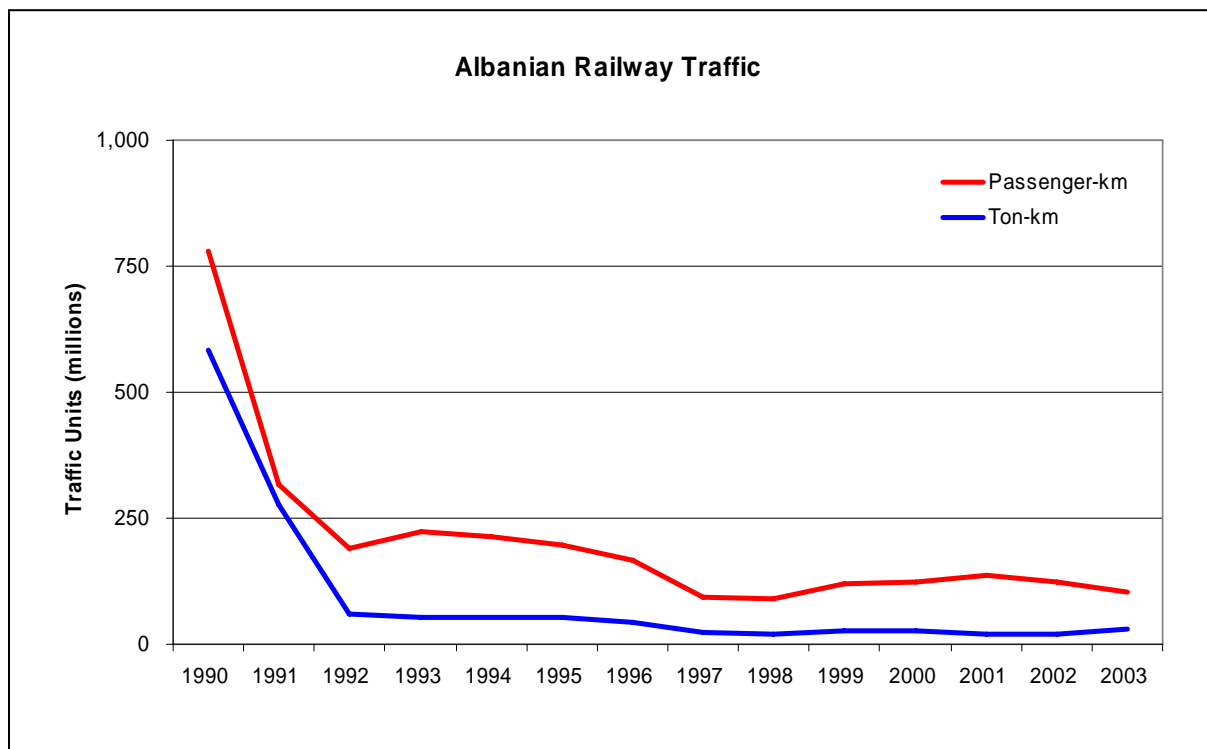
THE RAILWAYS OF THE WESTERN BALKANS REGION

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.

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 locomotives²⁸ 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

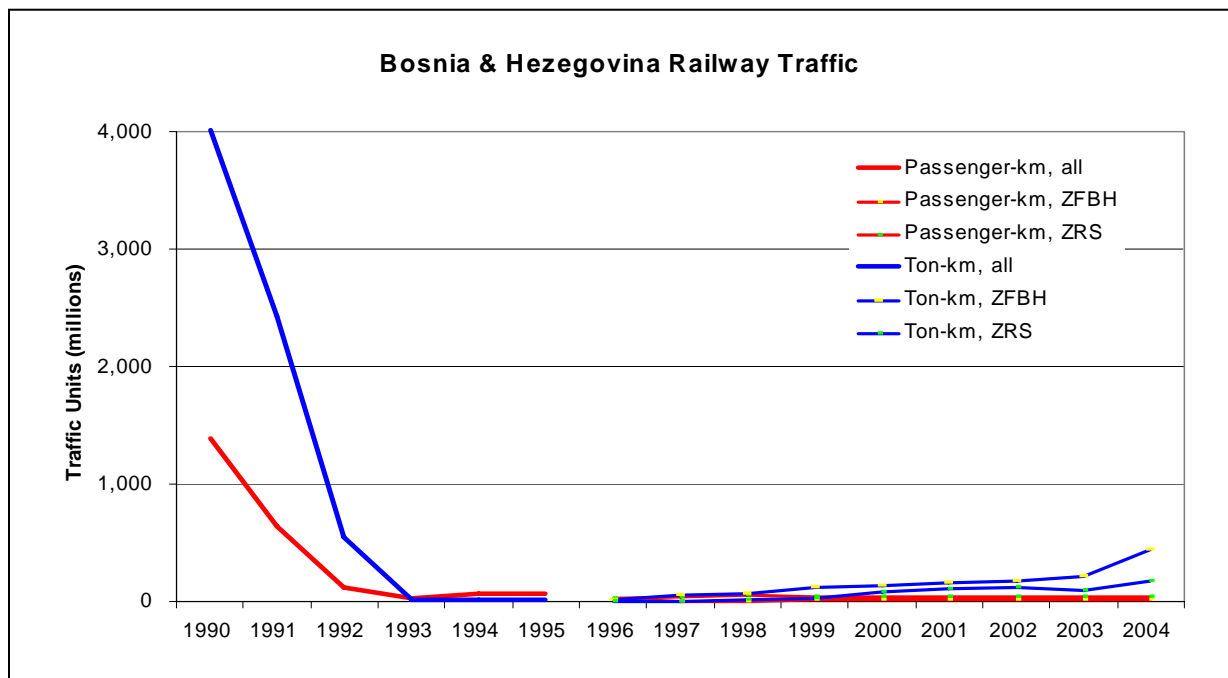
²⁸ Model C20-EMPi.

established in 1998²⁹, 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 Bosanskohercegovačke 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 Prijedor – 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

²⁹April 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

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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 railway³⁰ 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.

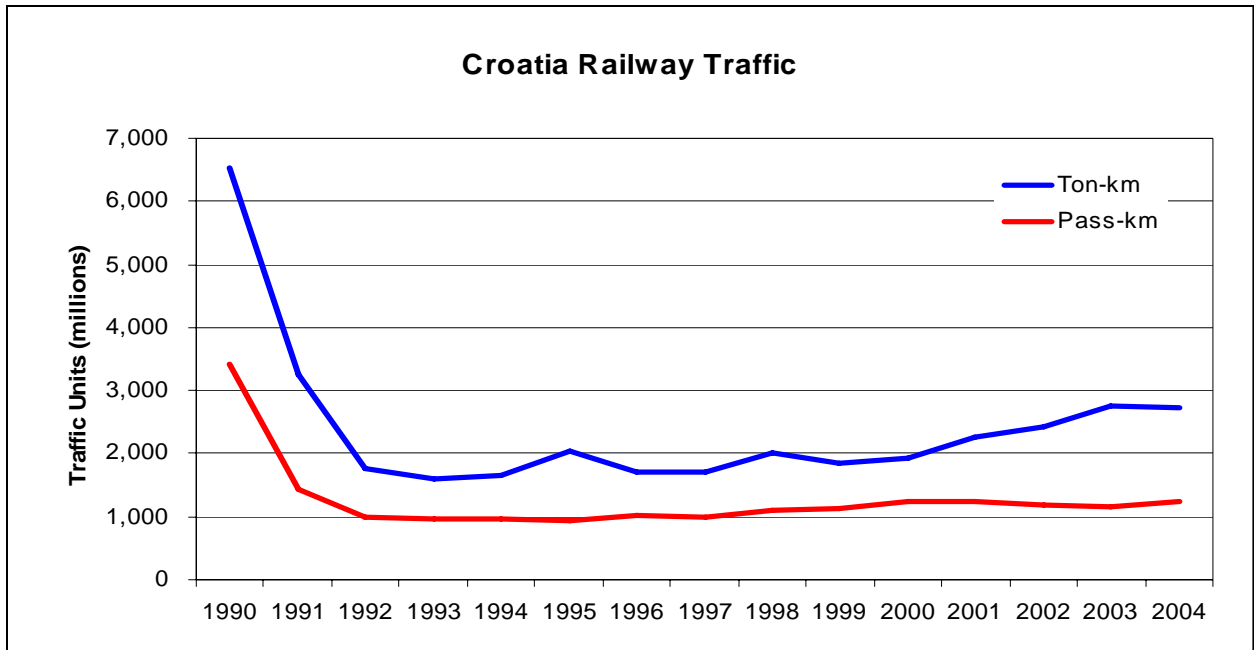
³² According to UIC statistics for 2003.

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 study³⁴ 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 2003³⁶ 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 single 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	<u>38.0</u>	<u>-0-</u>	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.

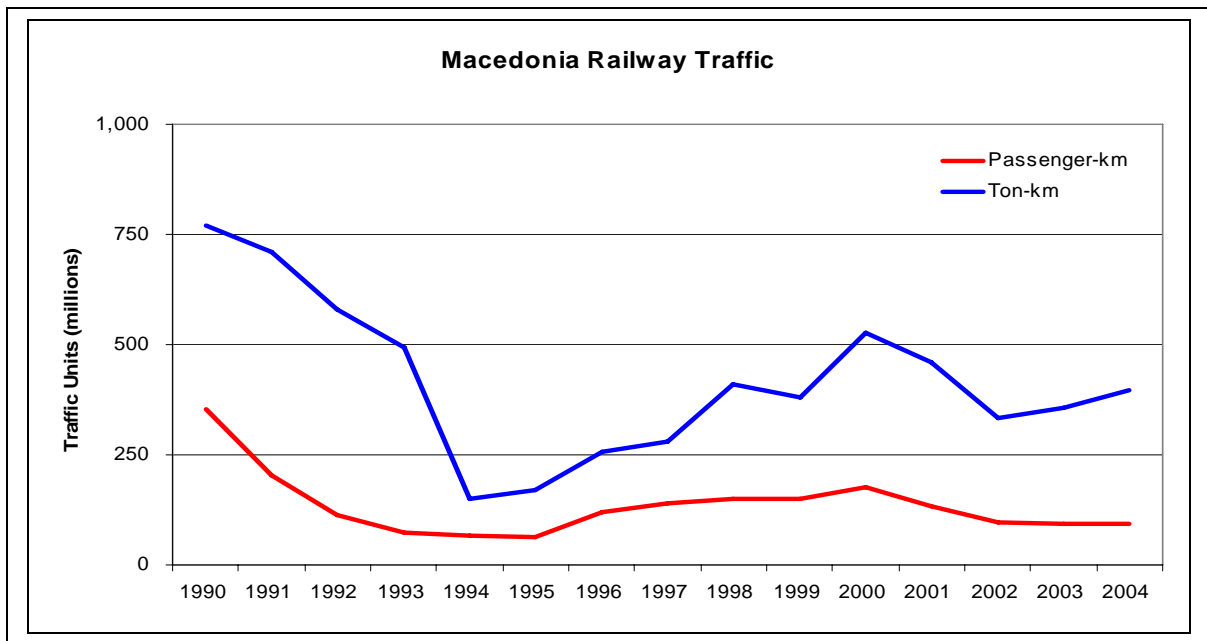
⁴¹ Estimated at 150,000 traffic units per employee. This indicator is inflated by the higher rates paid to contract drivers, but overall staff productivity is nonetheless low.

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.

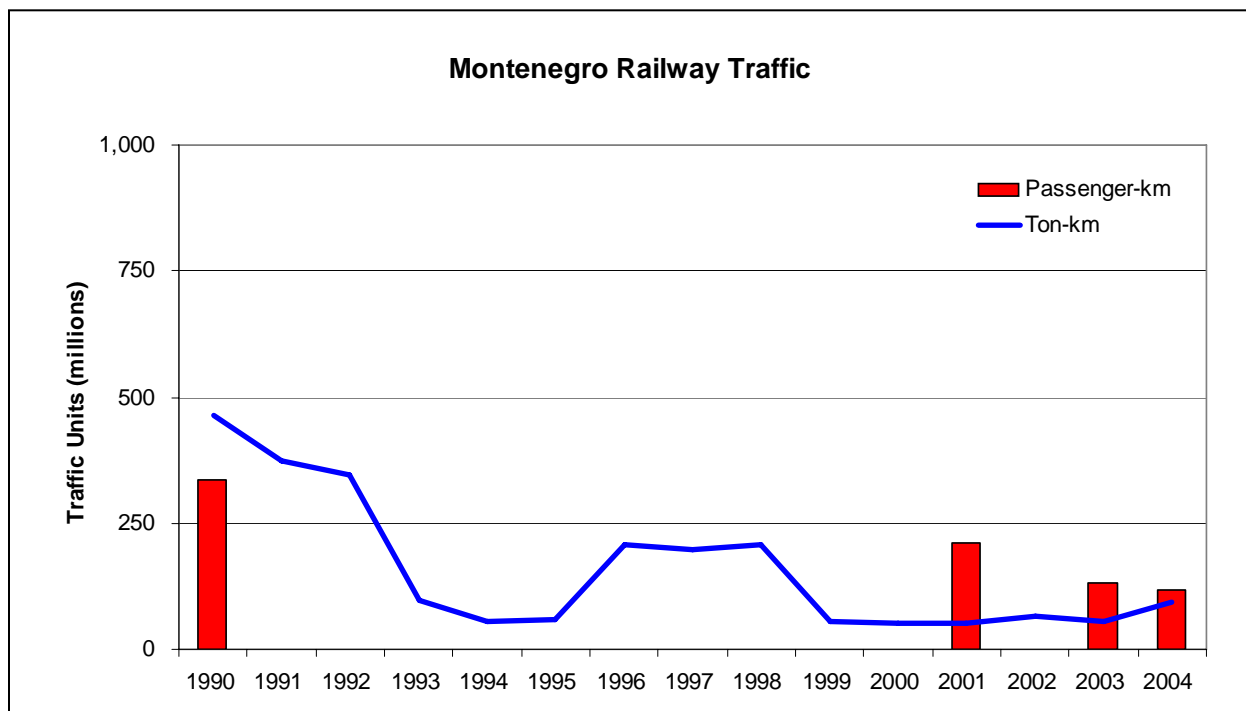
MONTENEGRIN RAILWAYS (ZCG)

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, ZCG 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

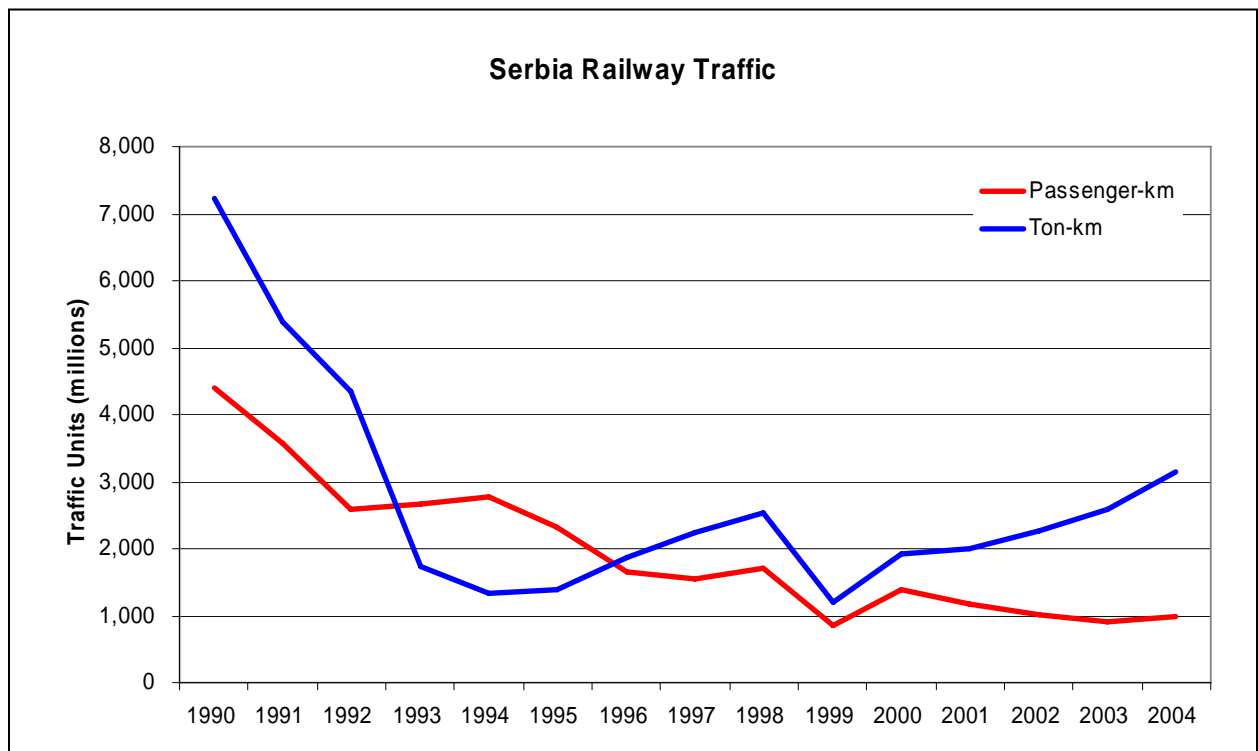
⁴⁷ Republic of Montenegro, Infrastructure Development Program, www.donors.cy.yu/economic_reform/infrastructure.htm, accessed April 21,2005, p. 2..

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 Montenegro 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.