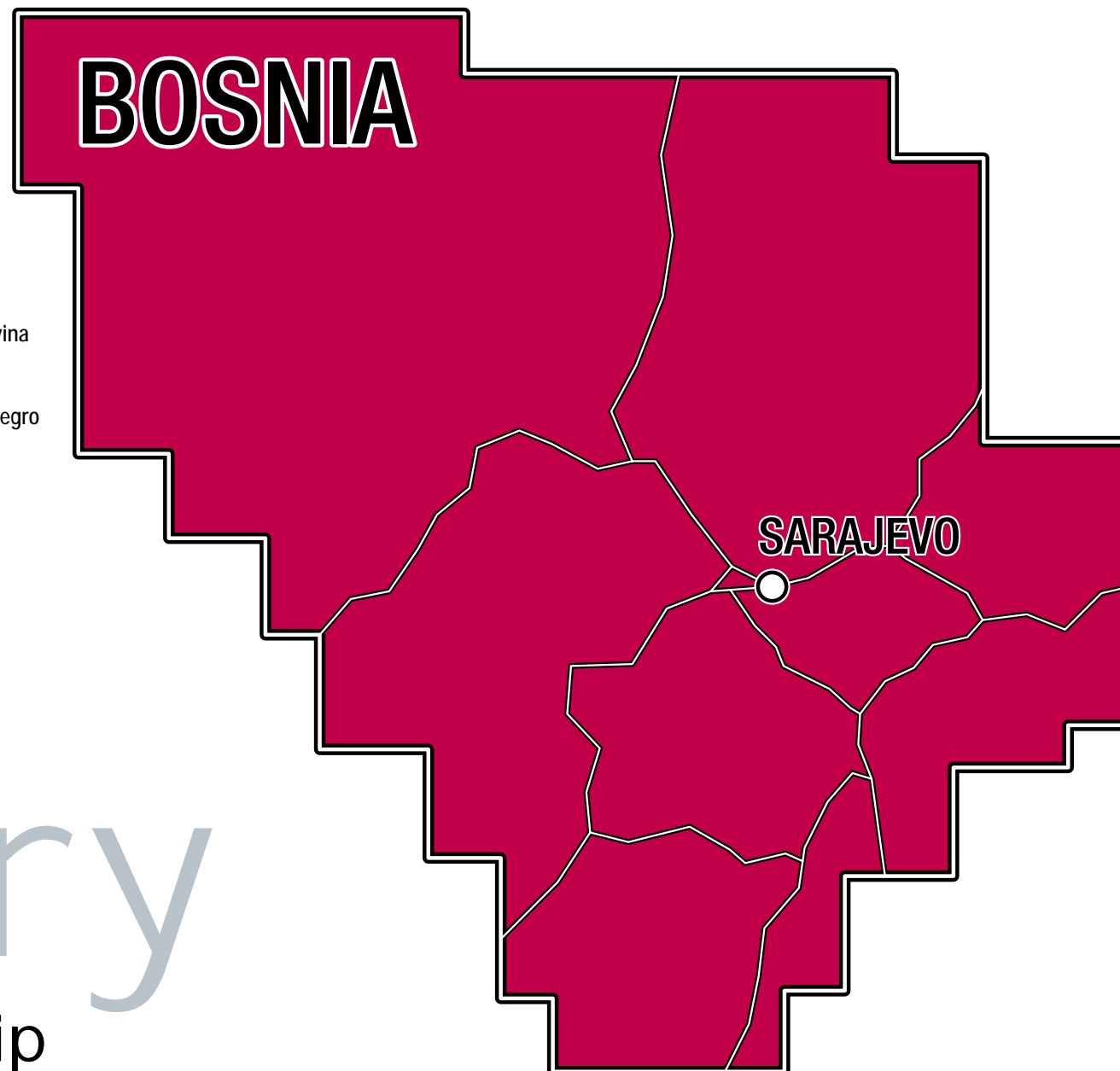


- 1. Albania
- 2. Bosnia-Herzegovina
- 3. Croatia
- 4. Italy
- 5. Serbia & Montenegro
- 6. Slovenia



# The road to recovery

## Bosnia prepares for the trip

by Dr Mirsad Kulovic

*Bosnia has often hit the headlines for all the wrong reasons. Now, as the rebuilding is under way, thoughts are being turned to the transport infrastructure*

**D**uring the last 12 years, South Eastern European countries have experienced significant political and economic change. Reforms oriented towards the establishment of a market economy and the strengthening of institutions are the main characteristics of the transitional process in these countries. The adaptation of the transportation sector to the new conditions requires changes from a supply-based to a demand-based system, recognition of the real transportation costs, and provision of higher safety and environmental standards. The adaptability of the transport sector to the new conditions varies and depends on a

country's socio-economic and political transition.

One country with a minimal achievement of transportation targets is Bosnia and Herzegovina (Bosnia). There are two main reasons for this. First, virtually all parts of Bosnia's transportation system were damaged during the war. Second, the post-war structure of a country with two entities, one autonomous district and ten cantons, make the functioning of a state in many areas impossible.

### Background

Bosnia is one of the smaller European countries with an area of 51,129 km<sup>2</sup> and a population of 3.9m (in 2000). The declaration of independence of Bosnia from

the former Socialist Federal Republic of Yugoslavia in the spring of 1992 was followed by an exhausting war that lasted forty months. After the peace agreement initiated in Dayton and signed in Paris in 1995, Bosnia became a sovereign state with two entities, the Federation of Bosnia and Herzegovina and Republic of Srpska and as of 2000, the Brcko Autonomous District. Approximately half of Bosnia's population is urban.

The largest cities are: Sarajevo, the capital, (population 526,000), Zenica (146,000), Banja Luka (145,000), Tuzla (132,000), Mostar (126,000) and Prijedor (112,000). The war completely shattered the economy and left extensive human and physical devastation. The

GDP per capita fell from US\$2,500 (Euro2,350) in 1990 to US\$456 in 1995.

The transportation system comprises of 21,678 km of classified roads, 1,031 km of railways, four airports and three ports (two ports on the Sava River and one on the Adriatic Sea which is operated in agreement with Croatia). The development of the transport sector before the war was on the lower level of medium-developed European countries.

### Auto ownership

The auto ownership rate (cars per thousand inhabitants) is influenced by the economic status of the population and the availability of alternative modes of travel. This rate in most developed

countries in the world (the United States and Canada, for example) is over 500 cars per 1,000 inhabitants. In most developed European countries this ratio is between 400 and 470 (or 2.1 to 2.5 persons per car). In the countries in transition auto ownership varies from 34 to 424 cars per thousand inhabitants, like in Albania and Slovenia, respectively. (Figure 1). This rate in Bosnia before the war was 92 cars per 1,000 inhabitants (10.9 persons per car). It was estimated that during the war auto ownership decreased by about 15 per cent.

There has been a sharp increase in vehicle registrations after the war and auto ownership in 2000 was about 25 per cent above its pre-war level (Figure

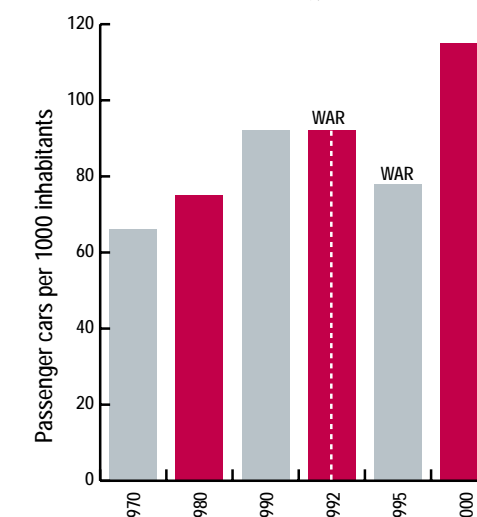
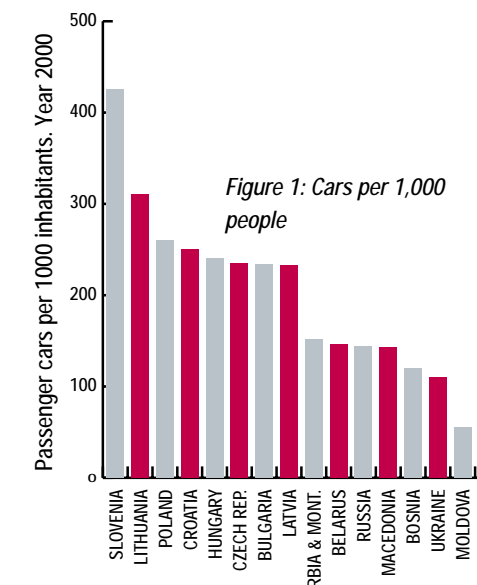


Figure 2: Changes in passenger car ownership in Bosnia

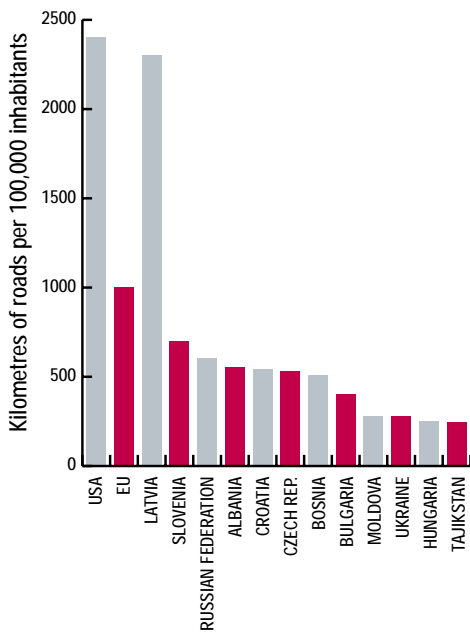


Figure 3: Road network densities

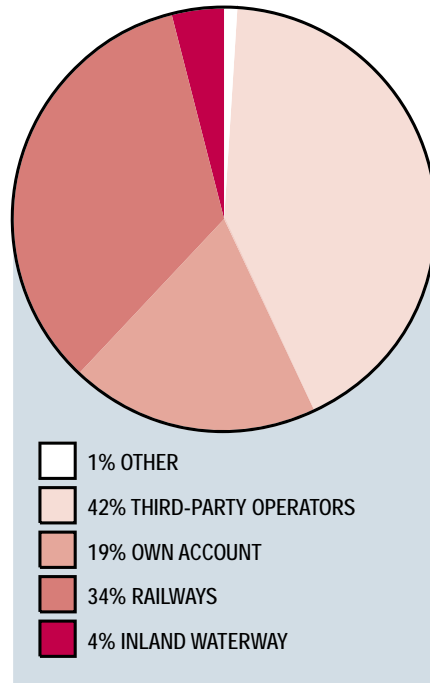


Figure 4: Year 1990 (tonne-km)

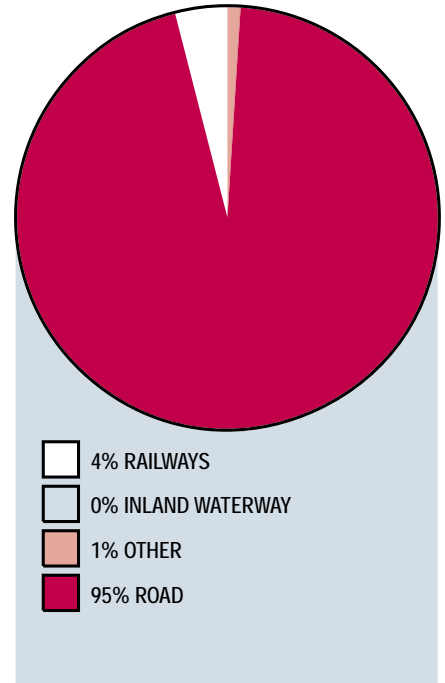


Figure 5: Year 2000 (tonne-km)

2). These significant increases are the result of a post-war free import policy and a good supply of pre-owned motor vehicles on the Western European market. This has had a negative impact on traffic safety and environmental issues in Bosnia because the average imported vehicle is over 10 years old.

### The road network

The elements of the road network are classified according to its function in the network and the jurisdiction or level of the governmental unit that has overriding influences in the construction, maintenance and operation. These elements are main, regional and local roads. In 1991, there was a total of 21,678 km of classified roads in Bosnia, of which 3,722 km were main, 4,104 km regional, and 13,858 km local roads. This proportion has, with marginal changes, remained to date.

Among main roads there are six 'European' roads. One of them is a strategic backbone which aligns with the Pan-European Corridor Vc, which links major cities in Bosnia with port Ploce, Croatia and Budapest, Hungary.<sup>1</sup> All roads are two-lane highways with inadequate design elements (sight distance, horizontal and vertical alignment and cross section). The road network densities (kilometres of classified roads per 1,000 people) in developed countries

and countries in transition are shown in Figure 3.

During the war almost half of the highway network was damaged. In the period of 1996–2000 rehabilitation of 2,200 km of the main roads and reconstruction of 57 road bridges was completed by the Emergency Transport reconstruction Program (ETRP)

technological, organisational and infrastructure development in each mode. The damage to rail infrastructure, the decline in heavy industry, the growth of small and medium enterprises and fragmentation of the region's former single economic space and market explain the decrease in rail transport services.

Freight plays a significant role in road

**"These significant increases are the result of a post-war free import policy..."**

program. The construction of 12 km of the first freeway in Bosnia was finished in June 2003. The Bosnian government recently gave a positive answer to the private Bosnian-Malaysian company BOSMAL on their preliminary initiative to start planning and constructing the freeway on Pan-European Corridor Vc. This project could be the Bosnian exit from poverty and its way into the EU.

### Modal sharers

Roads are the dominant mode of transportation and accounted for 61 and 95 per cent in freight transport before and after the war respectively (Figures 4/5). This modal share reflects economic and political conditions in the former Yugoslavia, spatial and functional allocation of Bosnia's industry and the level of

transport in Bosnia and many other European countries. This type of transport is often overlooked and it could exacerbate the organisational and regulatory situation in the European Union, especially with its future enlargement.<sup>2</sup>

### The future

In order to accelerate the transitional process Bosnian authorities and decision-makers must find a way to remove the main obstacles, to enable more efficient development in the transport sector. These main obstacles are:

- Inadequate transportation policy, which is the result of a narrow approach to the sector, and an unclear vision of the integration of transportation modes, and unresolved political and social problems;

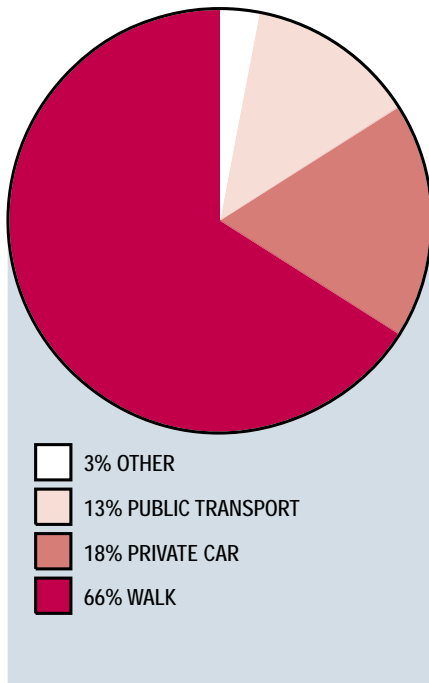


Figure 6: Passenger transport modal shares in Zenica (pop. 146,000)...

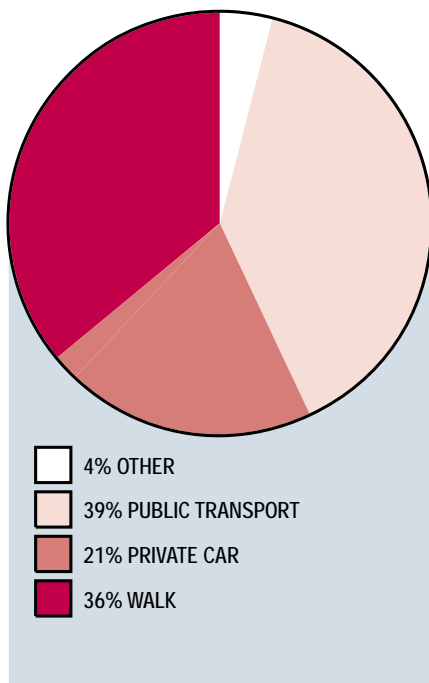


Figure 7: ...and Sarajevo (pop. 526,000)



Figure 8: 'Zauzeto' means occupied, which, by coincidence, reflects the state of the adjacent car park

- Underestimation of the role of transport in transitional conditions;
- Insufficient funding for the transport sector;
- Inefficient management and lack of expertise in the sector at all public and private levels;
- The lack of continuous monitoring of relevant transportation parameters and chronic lack of adequate statistical data.

Bosnia has opted for liberalisation and privatisation as basic principles of its economic reform.<sup>3</sup> The strategies for the future development of the transport sector have to be based on these principles. The priorities should be directed toward the strengthening of state institutions, improving organisation and developing strategic measures to encourage harmonisation of legislation, initially within Bosnia and then with neighbouring countries. There are also other challenges and demands for the future development of the transportation system which involve:

- Formulation and adoption of the long-term, medium-term, and short-term transportation strategy on a state level with emphasis on a balanced transportation system, safety and protection of the environment;
- Definition and adoption of multi-modal transportation policy according to the specific needs and future development of Bosnia with respect to regional and EU transportation policy. Multimodal transportation policy must take into account factors which contribute to increasing demand for transportation, particularly factors which cause extensive use of private cars in urban areas. In formulation of this policy special consideration should be given to the cost of transportation (social and individual) and transport/city/land use and environment interrelation;
- Improvement in principal road and corridor segments;
- Replacement of obsolete truck and bus fleets with the emphasis on environmental protection, in line with EU standards;
- Establishment of a Transportation Research Board as an agency of the National Academy of Sciences. The Board will conduct research and disseminate information relevant for innovation;

- Establishment of a Transport Training Institute, which will ensure a sufficient number of experts in the future and develop instruments for strategic planning and the application of new technologies;
- Development of standards and consistent measurement criteria for efficiency, quality and costs for each mode of transportation;
- Definition of a cross line for market and government regulation in the sector. In order to accomplish a balanced transportation system in urban areas, reduce congestion and pollution, government should subsidise urban transportation.

## Conclusion

The rapidity and effectiveness of transitional changes in Bosnia and its real reintegration depend on efficiency and quality of transportation services. An efficient transportation system will enable inner reintegration of Bosnia's market and regional and international integration as well.

The strategies for the future development have to be based on the principle of liberalisation, privatisation and harmonisation of the market. Bosnia desperately needs investment in infrastructure. The recent initiative of the public/private partnership, BOSMAL, is a positive move toward the exit from poverty and a test of Bosnian readiness for real transition. To attract more investors in the transport sector the regulation of effective market forces is prerequisite. ■

## References

- 1) J.E. Thompson, E. Declercq and K. Nagayama, *International Aspects of the Bosnia and Herzegovina Transport Master Plan*, ITE Journal, August 2002.
- 2) *Road Freight Transport for Own Account in Europe*, European Conference of Ministers of Transport, Round table 115, Paris, November, 1999.
- 3) *Development Strategy BiH-Poverty Reduction Strategy Program, Annex VII Infrastructure*, Draft for public discussion, Working group FBiH/RS, December 2002.

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