



# ***A Strategy for Slovakia's Transport Sector***

***“Act before there is a problem. Bring order before there is disorder”***

*Lao Zi, Chinese philosopher, 500BC*

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***Infrastructure Sector Unit  
Europe and Central Asia Regional Office***

## *Abbreviations and Acronyms*

CEC	Central European Countries
ČSAD	Czecho-Slovak Bus Operator (Československá Autobusová Doprava)
ČESMAD	Slovak Road Transport Association
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECMT	European Conference of Transport Ministers
EIB	European Investment Bank
EU	European Union
GDP	Gross Domestic Products
IMF	International Monetary Fund
IRU	International Transport Union
LTU	Lower Tier Unit
MC	Motorway Company
MoF	Ministry of Finance
MTPC	Ministry of Transport, Posts and Communications
NPF	National Privatization Fund
PSO	Public Service Obligation
SAD	Slovak Bus Operator – Slovenská Autobusová Doprava
SFRE	State Fund for Road Economy
SRA	Slovak Roads Administration
TEN	Trans-European Network
UNECE	United Nations Economic Commission for Europe
UTU	Upper Tier Unit
ŽSR	Slovak State Railways (Železnice Slovenskej Republiky)

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- A Transport of the Slovak Republic, Ministry of Transport, Posts and Telecommunications, March, 2000
- B State Road Fund for Road Economy, 1998
- C Railways of the Slovak Republic, ŽSR, 1997
- D Vienna International Airport ([www.viennaairport.com](http://www.viennaairport.com))
- E Slovak Navigation and Administration Authority
- F Joint Action Plan on Transport and the Environment, Ministry of the Environment and Ministry of Transport, Posts and Telecommunications (CD), 1999
- G Tunel Branisko, Slovak Road Administration, 1999
- H Bratislava Municipality

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## *Preface*

Slovakia's transport sector has not suffered from the dramatic reductions in demand and neglect of its infrastructure that have afflicted many of its neighbors. However, current under-maintenance is eating away at the stock of transport infrastructure and is unsustainable in anything more than the very short term. In addition, despite good intentions, progress on commercializing its transport operations has not progressed far enough to put them in a strong position to confront the pressures they will face when Slovakia enters the European Union, hopefully at the beginning of 2004. There is now a short window of opportunity to make good on deferred maintenance, establish a more sustainable maintenance regime and make good on the previous good intentions for commercialization. The opportunity exists also for the institutional structure of the sector to be revised so as to better reflect the interests of transport users, reform the way that infrastructure is financed and to systematically eliminate the remaining regulatory protections given to existing operators. The Strategy presented here shows how these objectives can best be reached, and how the World Bank can help bring them about. If the Strategy is implemented, action will have been taken before there is a problem and order will have been introduced before disorder takes over.

This Transport Sector Note was prepared following a visit to Slovakia in March, 2000. The Study Team comprised Robin Carruthers, Principal Transport Economist and Elena Kastlerova, Transport Specialist. Eva Molnar, Sector Manager extensively commented on the draft. The Sector Director is Ricardo Halperin and the Country Director is Roger Grawe. The Team greatly appreciates the help given to them by many people involved in the transport sector in Slovakia, particularly that from Peter Barek, Director General of Road Infrastructure Section of the Ministry of Transport, Posts and Communications. Other staff of the Infrastructure Sector Unit of the Europe and Central Asia Region of the World Bank provided valuable comments and suggestions. The Study Team has made use of the work of many other people, particularly that of Graham Smith, Lead Specialist at the World Bank, who led the first mission to prepare the strategy note. Antti Talvitie, Senior Transport Expert, helped in the understanding of the needs and costs of road maintenance and of how the roads sub-sector could best be restructured. However, the analyses reported, recommendations made and opinions expressed are those of the Study Team and should not be considered as reflecting those of the World Bank, its Directors or any of its members.

## ***I. Strategic objectives***

### **a. Economic growth and regional disparities**

The development of efficient transport services are crucial to Slovakia's economic growth, which is in turn critical to the government's attempts to raise living standards and deal with poverty and unemployment that are concentrated in the eastern regions of the country. While Slovakia recorded very high rates of growth in the mid 1990s, these failed to compensate for the negative growth between 1990 and 1993 when GDP declined by 23%. In the last two years the economy had stabilized but failed to achieve its anticipated growth rates. Prospects for next few years are for slightly faster growth, perhaps reaching 3% per annum over the next three years. For the longer-term, prospects depend on Slovakia succeeding in entering the European Union, and on how it meets the additional challenges and opportunities this will create.

***Table 1.1 Regional employment and incomes***

Region	% Industry	% Agriculture	% Service	% Unemployment	GDP/capita as % of national average
Bratislava	20.1%	2,6%	77.3%	6.0%	253.6%
Trnava	37.4%	13.9%	48.6%	14.4%	93.8%
Trenčín	51.5%	6.1%	42.5%	12.2%	89.6%
Nitra	33.4%	14.1%	52.2%	19.1%	74.5%
Žilina	38.3%	7.3%	54.4%	16.8%	72.6%
Banská Bystrica	36.7%	10.7%	52.5%	21.5%	85.9%
Prešov	31.1%	11.6%	57.2%	24.1%	55.8%
Košice	31.4%	8.3%	60.2%	25.0%	94.0%

*Sources: "Winners and Losers in EU Integration", World Bank, March, 2000 (page 203) and "Analysis of the conditions for international freight transport in Slovakia", For CSMED Slovakia by the Center for Economic and Social Analysis, Bratislava, 2000*

Despite, or perhaps because of the rapid growth of the early 1990s there is now a significant economic disparity between the eastern and western provinces of the country. While Bratislava and Trenčín, Žilina and Košice have less than 10% of their employment in agriculture, in Trnava and Nitra it is 50% higher; while Bratislava and Trenčín have less than 13% unemployment, in Prešov and Košice it exceeds 24%; and while per capita incomes in Bratislava are more than twice the national average, in Prešov they are almost half, so that the incomes in the richest province are five times higher than those in the poorest.

Closing the income gap between Slovakia and the EU, Slovakia needs 31 years to reach the EU average of per capita income, assuming 5 percent long term growth rate in Slovakia and only 3 percent growth rate in the EU countries (Source: Polastri, Progress toward the unification of Europe).

***The first strategic objective should be to help create the conditions for sustained economic growth of at least 3% per year, while at the same time reducing regional income disparities.***

**Characteristics of the Eastern Region**

*The eastern region fails to fit any specific category. Although it has a high share of industrial and agricultural employment, it holds no significant share in the national production of either. It is a region neither specialized nor very productive in either agriculture or industry.*

*Winners and Losers of European Integration  
World Bank, March 2000*

**b. Decentralization**

While it was a member of the Czechoslovak federation, Slovakia's administration was highly centralized. It is only now that the government is able to start implementing its policy for decentralization. Not only will this increase the number of administrative regions (kraj) from eight to twelve with an average area of about 4,100 km<sup>2</sup> and population of 450,000, it will delegate many financial and technical responsibilities to them for which they are willing but ill-prepared to accept.

Many of the regions will be too small to support the necessary technical staff, and unless substantial central government revenues are reallocated to them, they will lack the financial resources to fulfill their responsibilities. The new regional authorities will need extensive training in how to undertake their allocated tasks. Many decisions still need to be taken on what activities and financial responsibilities will remain with the central government and how technical expertise will be transferred to or otherwise be made available to the regions. All these considerations apply as much to the transport sector as to most others.

***A second strategic objective should be to facilitate the process of decentralization, through clarification of functional and fiscal responsibilities and planning for the execution of technical, administrative and other tasks.***

**c. European Union Accession**

The European integration process and the preparation for EU accession adds further urgency to addressing the growth and income distribution issues. As trade patterns are reoriented to the countries of the EU (Germany is now Slovakia's second most important trading partner after the Czech Republic), so its social links are being broadened from the previous concentration on those with the Czech Republic. Growth of trade with western Europe will make development of the eastern regions of Slovakia even more difficult than at present. Improvements to communications between the east and west of the country will be an essential component of a policy to stimulate growth in the east to overcome its comparative disadvantages. Slovakia's transport enterprises enjoy regulatory protection against competition from foreign operators. Much of this protection will be lost in preparing for accession to the EU, and there is a risk that those presently benefiting from it will be ill-prepared to face the more competitive conditions of the Single Market.

Approximation with the EC transport legislation and the set-up and strengthening of the EU-compatible institutions warrant further changes in the public administration in the transport sector (e.g. the means to enforce the social regulations) and an accelerated adjustment on behalf of transport undertakings (e.g. railways reforms). The total investment costs of the Slovakia TINA projects are estimated at 4-7.5 billion Euros subject to further verification of unit costs and the feasibility of the planned projects. Even if efficiency gains are realized (e.g. through radical reforms), the costs of accession in the transport sector are estimated to outweigh the benefits by around 1.2 billion Euros.<sup>1</sup>

Through the transport agreements between Slovakia and the EU (Interurban bus, air transport and inland waterway transport) integration with the Single Market and quasi accession is on a faster track in transport than the process of the legal accession. Therefore, the Slovak government has a very high degree of responsibility for EU-compatible reforms, which maximize the potential benefits of accession (e.g. real access to EU markets).

***A third strategic objective should be to facilitate reforms of the transport sector during Slovakia's European integration, its accession to the EU, and once this is achieved, to help it maximize the benefits of that accession.***

**Box 2**

**Regional Impacts of EU accession**

*The effects of EU accession would probably be distributed evenly across regions, but the developed industries in western Slovakia (Bratislava, Trenčín, Trnava and Nitra) stand to gain most, since they have already attracted a significant inflow of FDI. The other part of Slovakia that specializes in intermediate manufacturing (Banská Bystrica, Žilina and Košice) could face more significant adjustment costs. Southern Slovakia might gain large agricultural subsidies, but if Slovakia joins the EU after the other CEECs the agricultural sector will have the most to lose.*

*Winners and Losers of European Integration  
World Bank, March 2000*

**d. Competition**

A prerequisite for achievement of the first three objectives is that the transport sector functions efficiently and provides the quality of service that its users are prepared to pay for. While some parts of Slovakia's transport sector have been opened more to competition than their counterparts in other central European transition countries, others are still the preserve of state or private monopolies that are unwilling to concede their protected positions. Government policy is to introduce competitive elements into these remaining bastions of protection. On the other hand, while it is often best to leave markets to take care of themselves, they do need the support of an institutional framework and regulatory system that oversees the equitable application of market principles. This requires a minimum level of state regulation, which needs to be effectively and forcefully

<sup>1</sup> Costs and Benefits of Enlargement, The Slovak Republic country report, October 1999, Halcrow.

implemented, making transport operators adhere to the principles of a market economy and be subject to its systems of rewards and punishments. At the same time, it needs to discourage and castigate operators who apply their monopoly or quasi-monopoly powers against the interests of users.

*The fourth objective should therefore be to stimulate and support the implementation of market principles.*

#### **IMPEDIMENTS TO CHANGE**

Design and implementation of a successful transport strategy needs to take account of the impediments to change that can frustrate the achievement of its objectives. These can include the lack of financial resources to undertake all the desirable and justifiable investments, social attitudes that resist change, and the geographical and social context in which the strategy must be implemented.

##### e. Financial

The government's scope for action in achieving these objectives is hindered by the consequences of the financial actions of previous governments. The Mečiar administration in particular put emphasis in its transport policy on the construction of a motorway network. However, it lacked the finance to implement the policy without depriving much of the rest of the transport sector of its essential finance, especially funding of the agreed Public Service Obligations (PSOs) of the railways and maintenance of the national road network. To make up for this lack, the Slovak Roads Administration (SRA) and ŽSR (Slovak Railways) were both forced to turn to short-term loans, the amortization of which is now competing with the demands for much-needed maintenance and service improvements.

##### f. Social values

While Slovakia was part of the eastern European economic and social system, it developed a strong reliance on the state to fund and provide essential services, including transport. The emerging market-based system puts a stronger emphasis on the private sector, with users and other beneficiaries meeting most of the costs of operation and investment. For people whose life-experience has been under the socialist system, a change to the more aggressive market system poses many unattractive short-term choices, whatever the ultimate benefits might be.

The changed structure of the state's finances, especially a decline in public revenues, makes a continuance of the previous strong state support of the transport system unsustainable, even if in some situations it was desirable. With fewer state financial resources to support investment in transport infrastructure and subsidize transport services, greater reliance must be placed on recovery of costs from users.

g. Geographic and historical impediments

The geography of Slovakia has always been a barrier to its integration as a social and political unit. The Carpathian mountains act as barrier between the north and south of the country and impede movement between the east and west. The natural transport corridors in the east make land communications with Poland, Hungary and the Ukraine easier than with Bratislava.

During the socialist era, Slovakia's economy was based on the export of industrial products to the other countries of the eastern block and was highly integrated with the economy of what is now the Czech Republic. Social contacts, and therefore passenger travel, were also patterned on relationships within the Czechoslovak federation. Slovakia's transport infrastructure and services were oriented to satisfying demands based on this pattern of trade and social links.

Just as Slovakia as the more eastern member of the federation was less industrialized and developed than the Czech part, so now the eastern part of Slovakia is even less developed than the western and northern regions closer to the Czech border. While a transport strategy aimed at satisfying existing demands would focus on the western part of the country, one aimed at reducing economic disparities would be more focused on those in the east.

### **SECTOR POLICY**

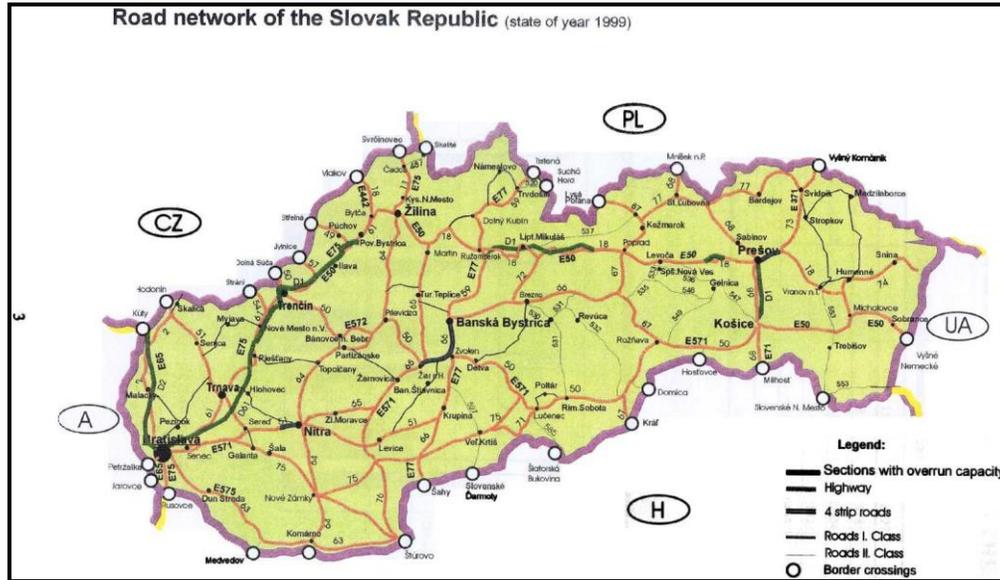
Development of Slovakia's transport administration and the implementation of a coherent transport strategy has made substantial progress since the "soft divorce" from the Czech Republic in 1993. This process has culminated in the Government's approval (Resolution No. 648/1993) of an initial "Principles of the Slovak State Transportation Policy". An update of this policy document "Up-date and Elaboration of the Principles of the State Transportation Policy of the Slovak Republic" was recently approved by the National Council (SR Government Resolution No.21/2000. The Policy is presented around twelve themes:

- i. The relationship between the State, transport carriers and citizens;
- ii. The equality of conditions of economic competition;
- iii. The priority of public interest in the funding of and charging for transport services and infrastructure;
- iv. The Modernization and Development of transport infrastructure;
- v. The relationship between transport and the environment;
- vi. The legal regulations and technical standards of transport operation;
- vii. Safety and reliability of transport operations;
- viii. The quality of transport services;
- ix. Information and statistics
- x. Labor, legal and social considerations
- xi. Integration with foreign relations, and
- xii. The role of science and research in transport

The main thrust of the Policy is in the importance of applying market principles to develop an efficient transport sector that serves the needs of the people. Harmonization of legislation with that of the EU is also an important consideration, *“to create the context to support the free movement of people , goods and services, work and capital in Europe, on the basis of harmonized conditions of carriers in the transport market in accordance with EC standards.”* The Policy emphasizes the importance of integration of transport services and the infrastructure that needs to be provided to support them. It addresses all the themes that will support the sector achieve its four objectives.

The transport strategy outlined in this note provides some suggestions on priorities in implementing this Policy, and gives some ideas as to what should be done in relation to specific themes, taking in account the financial constraints of the next few years.

## 2. Road Infrastructure



Until the “velvet revolution” of 1989, funding for maintenance and expansion of the road network was adequately provided from general tax revenue. The roads of Slovakia were in a good condition, if anything over-maintained, an embryonic motorway network had been build up over the previous ten years or so, and the development of the rest of the network was compatible with the demands that were placed on it. Now all that has changed. Attempts to expand the motorway network too rapidly and to too high a standard diverted funds from maintenance and development of the rest of the network. The condition of the road infrastructure, while not catastrophic, is deteriorating rapidly with many bridges now in a precarious condition. In the main corridors the rapidly increasing volume of heavy truck transport has not been matched by a corresponding expansion of capacity or strengthening of the pavements. A proportion of the revenues from the principal user charge, a surcharge on transport fuels, was supposed to be allocated to the Slovak Roads Administration (SRA) via a Road Fund, in amounts that when added to other user charges, should have been sufficient to cover all three demands. In practice, the amounts transferred were far from sufficient, so that the Road Fund resorted to short-term borrowing and neglected maintenance to make up the difference.

### a. Road network

The Slovakia road network administered by the SRA comprises about 17,734km, with a similar density in relation to area and population as Hungary, but only half that of the Czech Republic and Poland (*Table 2.1*). The length of motorways (292km) is similar to that of Poland and Slovenia, but much less than that of the Czech Republic and Hungary. There are about 25,000km of urban roads administered by towns and communities.

**Table 2.1 Comparison of road and rail network densities**

Basic statistics	Area	Population	Railway	Roads	Cars
	Km <sup>2</sup>	Million	Km	Km	(number)
Slovakia	49,035	5.39	3,665	17,600	1,236,396
Czech Rep.	78,866	10.29	9,464	55,364	5,536,020
Hungary	93,030	10.09	7,721	30,235	2,220,240
Poland	312,685	38.67	23,139	244,522	8,893,410
Romania	238,391	22.49	10,966	73,186	2,811,125
Slovenia	20,273	1.98	1,196	5,453	795,156
Derived statistics	Population Density Pop./ Km <sup>2</sup> of area	Railway Density Km of rail/ km <sup>2</sup> of area	Road Density km of road/ km <sup>2</sup> of area	Road Density km of road/ 1,000 pop.	Car Ownership (cars/ 1,000 pop.)
Slovakia	110	75	359	3.26	229
Czech Rep.	130	120	702	5.38	538
Hungary	108	83	325	3.00	220
Poland	124	74	782	6.32	230
Romania	94	46	307	3.25	125
Slovenia	98	59	269	2.76	402

*Source: Transport of the Slovak Republic, MTPC, March, 2000*

**b. The Slovak Roads Administration**

The Slovak Roads Administration (SRA) was formed in 1995 by the amalgamation of the former Directorate of Motorways and 36 Road Maintenance Districts. The present structure is based on the eight administrative regions of Slovakia, with a road density per region varying from 0.29 km/km<sup>2</sup> (Žilina) to 0.41 km/km<sup>2</sup> (Trenčín) and with the road length varying from less than 800 km (Bratislava) to 3,158 km (Banská Bystrica). Each region is responsible for contracting its own routine maintenance (snow clearing in winter and patching and resurfacing in summer). About half of road and all bridge maintenance is still carried out by force account, mostly in those regions that have found that it is more cost effective than contracting out to private companies. Since some maintenance work has been contracted on a competitive basis, total staff of the SRA has fallen to 5,000, with about 500 in the Bratislava headquarters, about 100 in each of the regional offices and 100 in each maintenance depot.

The headquarters staff are distributed between five functions, Planning and Engineering, Investment Planning and Implementation, Maintenance and Operations, Economics, and Accounting. A review of the activities of the first four of these indicated a high technical and professional standard, but only an incipient understanding of the potential benefits of a more commercial orientation of the Administration. There was a broad appreciation that the budget allocated to maintenance was inadequate, but little agreement as to how the situation could be improved. There was a fear that the proposed government decentralization would lead to a loss of expertise, with small and multiple regional administrations being unable to support a basic technical staff, and unwilling to pay for these services from a residual central SRA.

### c. Road expenditure

The State Fund for Road Economy (SFRE) was established in January 1994, based on an Act of the National Council No. 153/1993. Its function was to acquire and allocate funds for the construction, repair and maintenance of all state roads and motorways. It was an independent legal body administered by the Ministry of Transport, Posts and Communications (MTPC). Its main sources of funds were expected to be transport fuel tax revenues and road tax (vehicle license) revenues, but when these proved insufficient, it made substantial borrowings in the domestic and international loan markets.

The allocation of the fuel tax revenues were supposed to be “sufficient to provide adequate resources, when taken together with other revenues, for the needs of the Fund”. The Act that established the Fund did not fix any predetermined proportion of the fuel tax revenues to be allocated, although there was an informal understanding (between the Ministers of Transport and Finance) that this would be 40%.

In practice the budget allocations in most years were much less than 40%, and the actual transfers made by the Ministry of Finance from the fuel tax revenues were even lower. An estimate of the full fuel tax revenue in 1997 was about Sk 15 billion, of which the Road Fund share of 40% would have yielded about Sk 6 billion, whereas it received only Sk 2.6 billion. In Amendments to the Act in 1995 and 1996, the requirement that adequate funds from this source be transferred to the Fund was annulled by Amendments to the Act in budget legislation. The Fund managers therefore resorted to short-term borrowing in order to maintain the motorway development program, later converting some of these commitments into longer term loans. The indebtedness of the Fund in mid-2000 amounted to Sk 49.7 billion, with a debt service of Sk 4.5 billion. The Road Fund was restructured in April 2000 so as to be more dependent on its own revenues and budget allocations and less on borrowing. An independent auditing process was also established. This was however insufficient to prevent the government from deciding to discontinue the Road Fund, along with all other off-budget funds except for that of the maintenance of nuclear power stations.



Although the revenues of the Fund were intended to cover the three expenditures, in practice more than 90% was allocated to developing motorways and inadequate funds were allocated to development and maintenance of the rest of the network. For example, in 1998 69% of the resources were spent on motorway construction but only 2.6% were spent for maintenance of the whole of the remainder of the network.

**Table 2.2 Distribution of road revenue sources**  
(Actual 1997 and Projected 2000 (Sk millions))

Revenue source	1997	%	2000	%
Fuel surcharge ("Fuel tax")	2,600	63%	7,950	74%
Vehicle license ("Road tax")	1,170	28%	1,350	13%
Vignettes	287	7%	550	5%
Other fees	99	2%	891	8%
Total	4,156	100%	10,741	100%

Note: The total excludes any proceeds from loans Source: SFRE Annual Report, 1998 and own estimates.

d. Expansion of the motorway network

Motorways are access controlled, and in line with EU requirements, there is always an alternative free-access route. Users of motorways are required to display a vignette (special license), which can be for a fifteen day period or whole year. Expressways are similar to motorways, but with a lower design speed, narrower reservation, and users are not required to display a vignette, so there is no additional charge for their use and no parallel free access road is needed, and they are not limited to motorized vehicles.

The previous government had a policy to expand the motorway network to a total of about 862 km (later reduced to 648 km) by 2005. The length of the proposed network was based on the simple criterion of bringing every community to within half an hour driving distance of a motorway. Application of this criterion took no account of the cost feasibility or of the scale of benefits that might be achieved. The present administration has substantially revised the motorway development program, bringing it more in line with what is financially feasible, mostly by reducing the design standards, slowing down the rate of construction, building in short sections that have acceptable economic rates of return, and building most new sections as single carriageways ("half-motorways").



*Few middle-income countries, can afford the luxury of building new motorways that parallel existing well-developed railways. For Slovakia it would be more cost-effective to give priority to building a new, less-costly motorway in the southern E571 corridor from Košice to Bratislava, than completing one in the corridor north of the Carpathian mountains, where there is already a good railway, and the motorway will need many expensive tunnels.*

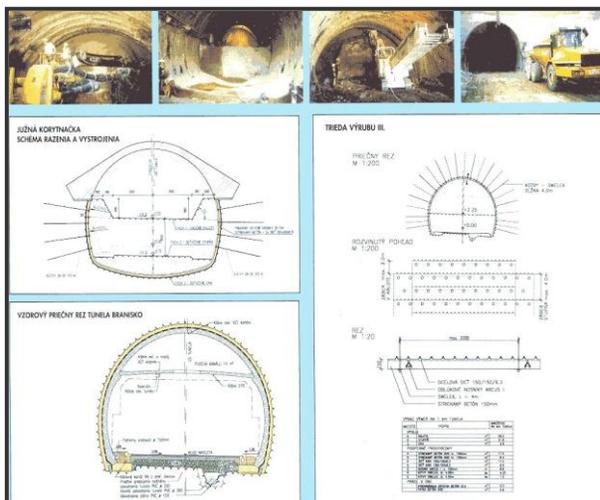
While this is a significant improvement, the basic motorway objectives and plan to complete the very costly Košice to Bratislava D1 motorway as the highest priority have not been reconsidered. Although each section of proposed new motorway is subject to a cost-benefit analysis, this does not take account of proposed developments in rail transport within the same corridor, or the potential complementarity of road and rail development.

Other countries have found that it is difficult to justify construction of limited access roads on the basis of traffic benefits when their design volumes (fifteen years or so after their opening) are expected to be less than about 15,000 vehicles per day. While few sections of the planned motorways are expected to achieve this level of traffic, the potential benefits to Slovakia of completing the motorway network are more than just savings in vehicle operating and time costs, and include reduced regional income disparities. Slovakia needs to stimulate the economy of its eastern regions that are isolated from their principal future markets in the EU and from deep-water ports such as Rotterdam and Hamburg. Potential investors in the region, in agricultural processing and light industry, as well as in tourism, are deterred by the poor road accessibility. While rail access to the eastern regions is rather better, and is benefiting from EU investment since the corridors are significant for EU trade routes (including a corridor that parallels the D1 Motorway route), potential investors claim it is the lack of adequate road transport that influences them. In practice, it is lack of access in general that inhibits development.



*An underutilized motorway that should have been built to half-motorway standard as an initial stage. The second carriageway could have been added later, when the traffic had increased enough to justify its construction...*

*.....as is being done with this tunnel at Branisko, near Prešov, on the D62 motorway. It is being built as a single bore until traffic increases enough to justify the parallel tunnel.*



With an access controlled motorway linking the region to Poland, Czech Republic, Austria and Hungary, as well as to Bratislava, one of the great impediments to its economic development would be significantly reduced. The economic assessment of completing the D1 motorway or building the alternative E571 corridor, as well as the E371 and E71 roads linking Poland to Hungary, should take account of these impacts on the regional economy as well as on the already committed development of rail access in the same corridor as the D1 motorway. There is no significant conflict of interest between Slovakia and the EU, in that roads most needed to stimulate domestic economic growth are largely the same as those needed for international transit traffic and therefore of interest to the EU, but in making the best use of scarce financial resources it would probably be best to concentrate road investment in the E571 corridor.

e. Road investment needs

The four road investment needs – deferred maintenance, routine and periodic maintenance, adding capacity to the basic network and expanding the motorway network -- compete for limited funds, with the first two having the highest priority and the last having the lowest. The total annual needs for road maintenance will be about Sk 7.3 billion (about US\$ 183 million or 0.9% of GDP), normal for a country at Slovakia's stage of development, but an order of magnitude greater than that presently undertaken. If expenditure on maintenance does not soon increase above the present level, the backlog of deferred maintenance will increase and the condition of the road network will rapidly deteriorate. In the future, even higher annual expenditures will be needed for reconstruction.

*Deferred maintenance*

Deferred maintenance should have the highest priority and relates mostly to bridges, many of which are in a precarious condition with 700 already having maximum load limits. There are also many Class 3 roads that have been neglected, largely because they were given a low priority when funds were short. However, if they are not soon rehabilitated they will later need a much more expensive reconstruction. If all the deferred maintenance is made up within the next five years, the cost will be about Sk 3.2 billion per year, about US\$81 million.

*Routine and periodic maintenance*

Routine maintenance, including snow clearing and summer patching, are estimated to cost about Sk 1.5 billion per year (just under US\$40 million), a higher cost than in many countries but necessary if the more expensive periodic maintenance costs are to be minimized and even more expensive reconstruction is to be avoided altogether. Periodic reconstruction (overlays) and bridge maintenance and reconstruction are estimated at about Sk 2.5 billion (about US\$73 million).

### *Additional capacity*

Without a detailed analysis it is difficult to estimate how much will need to be spent on expanding the capacity of the basic road network. A lower bound estimate would be for an annual rate of about the same as on routine and periodic maintenance combined, that would be about Sk 4 billion, about U\$100 million or 0.5% of GDP. To sustain an economic growth rate of 3% per year, investment in new road capacity of almost double this amount would be needed.

**Table 2.3** *Estimated annual road maintenance costs*

Activity	Road length Km	Unit cost Skm/km	Unit cost U\$m/Km	Frequency Years	Total Cost Sk m	Total cost U\$ m
Routine maintenance						
Motorways and high volume Class 1	700	0.20	5,000	1	140	4
Other Class 1 and Class2	6,500	0.12	3,000	1	780	20
Class 3	10,500	0.06	1,500	1	630	16
Sub-total	17,700				1,550	39
Periodic maintenance						
Motorways and high volume Class 1	700	2.60	65,000	10	182	5
Other Class 1 and Class2	3,500	1.00	25,000	10	650	16
Class 3	10,500	0.60	15,000	10	630	16
Bridges	6,800	10.00	250,000	50	1,475	37
Sub total	14,700	20.00			2,517	73
Deferred maintenance						
<b>Class 1 and Class 2</b>	300	2.00	50,000	5	120	3
Class 3	3,000	1.20	30,000	5	720	18
Bridges	600	20.00	500,000	5	2,400	60
Sub total	3,300				3,240	81
<b>TOTAL</b>					<b>7,307</b>	<b>183</b>

*Sources: World Bank estimates based on Parkman, 1998 and World Bank data.*

### *Motorway expansion*

Completion of the motorway network to the present design standards would cost about Sk 177 billion, about US\$4.4 billion (Parkman, 1998), which if spread over a period of 10 years and financed out of current revenue, would require an annual expenditure of Sk 17 billion, or 35% more than on maintenance and expansion of the basic network. The total cost could be reduced by lowering design standards, and the annual cost lowered further by extending the construction period and/or financing through loans or bonds. These would eventually have to be repaid through toll or vignette revenues and other charges to motorway users.

f. Funding for roads other than motorways

Many of the difficulties of the Road Fund were the result of its being used to finance motorway construction as well as maintenance and expansion of the basic road network.

The most important source of funding for roads has been a share of the revenues from fuel tax revenues, followed by 100% of vehicle license and vignette revenues (Table 2.2). The fuel tax was raised by 50% in January 2000 to bring Slovakian fuel excise duties in line with those for other EU countries<sup>2</sup>. Following this increase, the incidence of the fuel surcharge (as a percentage of the per capita income) is about the same as in France and Portugal and rather more than in Austria and Italy. This indicates that there is limited scope for further increases from this source. If the charge were to remain at its 2000 level, if there were to be an 5% annual increase in fuel consumption, and number of vehicles increases at 4% per year (much more conservative estimates than assumed in a study undertaken in 1999 by Parkman (UK)), and if 40% of the total revenue were budgeted for roads needs, the amount available by 2005 would be about Sk 16 billion.

This amount would be of the same order as the sum of the costs of maintenance, network expansion and debt amortization, with a small positive margin that could be absorbed by greater increases in unit costs of maintenance and construction (Table 2.4). Once the short-term debt was paid off, user fee revenues would be more than needed to maintain and expand the basic road network. By this time, about the year 2005, a decision could be made to reduce the level of user charges, spend more on making up the backlog of deferred maintenance, to invest more on expansion of the basic network, or make a contribution from user charge revenues to expansion of the motorway network. (The estimated costs below do not include the additional costs of maintenance due to the increased axle weight limits which will be necessary to harmonize with those of the EU).

Now that a decision has been made to eliminate the Road Fund, none of the fuel tax can be considered a user fee, and all of its proceeds should be considered a contribution to general revenue. With the abolition of the Road Fund, revenues for road maintenance and network expansion will have to come directly from general revenue, with the link between fuel surcharges and road expenditure having been broken. If Slovakia follows the experience of most other middle-income countries that do not have a Road Fund, budget allocations to road maintenance will be insufficient and more costly reconstruction will need to be undertaken as a substitute.

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<sup>2</sup> The EU principles, concerning road transport are: 1/ *users pay principle*, under which users are charged for the costs they cause; 2/ *territoriality principle* concerning fuel taxes and tolls, under which users are charged at the point of use; 3/ *nationality principle* concerning vehicle taxation, under which taxes are levied in the country of registration; 4/ *fair and efficient pricing*, and; 5/ *encouragement of the use of more environmentally friendly vehicles and fuel*.

Fuel taxation provides the key source of revenues for the road sub-sector both in the EU and the accession countries, since it is most related to the overall use of the road network. However, in the case of international traffic, the country where fuel is purchased and tax paid, is not necessarily the country where the vehicle transits. This is a special concern of all the smaller countries, where fuel prices are higher, than in the neighboring countries.

**Table 2.4 Projected road maintenance costs, debt obligations and user charge revenues (Sk billion, Year 2000 prices)**

Year	Maintenance	Network expansion	Debt Amortization	Total Cost	Revenue
2000	7.31	5.00	2.66	14.97	13.07
2001	7.40	5.13	1.99	14.52	13.61
2002	7.50	5.25	4.84	17.59	14.17
2003	7.59	5.38	4.65	17.62	14.76
2004	7.69	5.52	4.35	17.56	15.37
2005	4.15	5.66	1.00	10.81	16.00
2006	4.26	5.80	0.32	10.37	16.67
2007	4.36	5.94	0.30	10.61	17.36
2008	4.47	6.09	0.17	10.73	18.08

Sources: Maintenance: Own estimates based on Parkman, 1998 data  
 Debt: Parkman, 1998; Revenues: Own estimates  
 Note: Total debt in June 2000 was Sk 49.691 billion

The experience of the World Bank in designing and helping with the implementation of systems of user charges and ensuring adequate funding for road maintenance, and which are acceptable to the Ministry of Finance and other international lending agencies (in this case, the EU and IMF), could be made available to the government.

g. A strategy for road infrastructure

*Decentralization and development of the network*

The imminent decentralization of government functions will bring about a radical change in the way that roads are administered, and advantage should be taken of that change to implement other changes. Under the current decentralization proposals, about three-quarters of the road network (most of the Class II and many of the Class III roads) will be transferred from the SRA to the 14 new regional governments (“upper tier units” – UTUs). The remaining Class III roads will be transferred to local governments at the next level, (“lower tier units – LTUs). It is presently planned that the 4,700km of motorways, expressways and Class I roads will remain with the SRA. So far there have been no proposals for the transfer of revenues or technical expertise to the UTUs and LTUs so that they can manage these responsibilities.

There are at least three other strategies for managing the principal road network:

- (i) retain all roads as a single unit under the responsibility of SRA, decentralizing on a contract basis to the UTUs and LTUs the same roads as in the current proposal;
- (ii) separate the motorways and other roads that can earn a specific revenue (either from tolls or vignettes) into a separate organization, with the other Class I roads remaining with SRA, and the other roads being decentralized as in the current proposal;

(III) separate the motorways and expressways as in Option II, but with all other Class I roads being delegated to the UTUs, along with the Class II and some of the Class III roads. Under this strategy, SRA would become a technical agency only, without direct responsibilities for maintenance or development of the network.

Any option that combines responsibility for motorways with that for other roads (such as the Present and Option I), runs a risk that available funds will be over-allocated to motorways, as has been the case until very recently (and still is according to some NGO critics of the motorway program). Option II would resolve this problem, but its creation of another road agency could be seen as adding an undesirable level of complexity. Option III would avoid this problem by eliminating the SRA's physical responsibilities and leave it as an advisory agency to the UTUs and LTUs. The disadvantage of this Option is that without the practical responsibility for maintaining part of the network, it would be difficult for the SRA to retain its technical capability. Either Option II or III would be preferable to the Current Proposal or Option I. In the short to medium term, Option III would not be feasible, but as the new regional agencies increase their own technical capacity, it could be considered as a development of the preferred Option II.

**Table 2.5 Road decentralization options**

Road type	Option			
	Current	I	II	III
Motorways	SRA	SRA	MC	MC
Expressways	SRA	SRA	MC	MC
Class I	SRA	SRA	SRA	UTU
Class II	UTU/LTU	SRA	UTU/LTU	UTU/LTU
Class III	UTU/LTU	SRA	UTU/LTU	LTU

*SRA* Slovak Road Administration

*LTU* Lower Tier Unit

*UTU* Upper Tier Unit

*MC* Motorway Company

### *Motorways*

Although the motorways were not designed as toll roads, it would be feasible to create an open toll road network from them that would generate more net revenue than the present vignette system.

Electronic toll systems that could eliminate the need for manned toll stations already exist and are rapidly being introduced in other countries. A Motorway Company (MC) would be able to securitize its revenue from the existing toll network for the issuing of bonds to finance its expansion. The Motorway Company would initially be state owned, but once the revenue stream from tolls had been established, it could be concessioned (or sold) on a long-term basis to a private company. The motorway development plan to be undertaken over the period of the concession would be included in the terms of the concession, which would be for the network as a whole and not individual roads or parts of roads. While preparation of the development plan should take account of the revenue earning capacity of each section of the network to be constructed, it should also take an overall view of network finances. It would be the responsibility of the bidders for the

concession to propose a construction schedule and financing plan that are compatible with their estimate of the revenue earning capacity of their development schedule.

A toll equivalent to about 2.5 US cents per car km would produce an annual revenue of about U\$23million in 2005 from the existing motorway network, about double that from vignettes.<sup>3</sup> With an electronic tolling system that avoided the need for toll plazas, most of this be available to amortize investment in securitized bonds. These would provide for the construction of about 100km of motorway per year, and completion of the remaining 356km of the planned 648km network within about 4 years after the existing debt was paid off.

### *Other principal roads*

Development and maintenance of other roads would now need to be funded by annual budget allocations. Justification for a high level of investment from the national budget would be that total revenues from taxes on road users are greatly in excess of expenditure on the road network, and that the rate of return on road investment, particularly maintenance, is much higher than on most other public investments. Returns on road maintenance are also higher than those on most private sector investments. In addition, the benefits of a well-maintained and adequate road network accrue to the nation as a whole through improved accessibility to national and international markets, bringing about accelerated economic growth<sup>4</sup>.

Class I roads account for about 30% of the total vehicle-km out side the urban areas, and need an even greater investment than the motorway network to keep pace with increasing traffic. There will be competition for scarce budgetary resources between maintenance and increasing capacity to cater to national and international traffic. Budget revenues will need to be distributed between the SRA (for Class 1 roads), the new UTUs (for Class II and some Class III roads) , the LTUs for remaining Class III roads and the municipalities for urban roads.

Maintenance, including routine, periodic and deferred of these “other” roads and bridges would require over Sk 4 billion per year, plus that needed to make up for deferred maintenance. The recommendation that SRA, UTUs and LTUs prepare Road Development Plans would provide a basis for distributing this revenue, although if practices common in other countries are used, its allocation would be largely determined by the application of a formula.

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<sup>3</sup> Highways Investment Planning Study, Task 1, Road Financing, Parkman Consultants for SRA, April, 1998.

<sup>4</sup> See for example, *Infrastructure, transport costs and trade*, Bougheas, Demetraides and Morgenroth, Journal of International Economics, 47(1999), 169-189.



### 3. *Road Transport*

After the 1989 fall of the communist regime in former Czechoslovakia, the then state-owned monopoly road transport enterprise, CSAD, was transformed into a mixture of state, mixed and private enterprises for national and international transport. Inter-urban and international road passenger transport has not been privatized yet, but road freight transport is now fully liberalized.

#### a. Road freight transport

There are about 5,000 national freight carriers (1,700 in international transport, with about 8,000 trucks), of which about 57% are small (with 2 or fewer vehicles), 38% are medium size (owning between 3 and 10 vehicles), and only 4% are large (with usually 11-30 vehicles) and only 12% have more than 31 trucks. The total fleet of registered trucks is about 90,000, although the regularly active fleet is probably about 10% less. As well as transporting about 67% of national freight, international road transport is believed to earn up to U\$300 million in foreign exchange.

ČESMAD Slovakia, created in 1993, is the Slovak voluntary civil association representing most road carriers. Through its membership of IRU Geneva, and as a TIR guarantor, it represents the interest of the Slovakian road transport operators. ČESMAD is the agency authorized by the Directorate of Customs and the IRU to issue the international truck permits and TIR carnets. The UNECE's AETR agreement on social conditions in road transport, road safety, diesel emission standards and the UN guidelines for vehicle inspection have all been followed for a long time. The on-going introduction of the more stringent EC regulations will however have high costs both to the government (through more frequent roadworthiness tests) and to road transport operators (through the installation of tachographs and speed limiters, and restricted working hours for drivers).

All the operators, particularly the smaller ones, have found it difficult to renew their vehicle fleets, so now the average age of the truck fleet is almost 12 years (although trucks engaged in international transport are required to be less than 7 years old). The poor vehicle condition not only makes transport unreliable because of frequent breakdowns, but makes it difficult for Slovakian transporters to get licenses and permits to operate in other countries. To address this problem and improve reliability and remain competitive, many operators are now actively leasing or borrowing to update their fleets, but still only about 1,800 of the Slovakian international truck fleet have been granted a EURO 2 S (Super-green) license<sup>5</sup>.

The domestic road freight industry is highly competitive. A recent survey of ČESMAD members indicated that 85% of them considered lack of finance to be the greatest barrier to the entry of new competitors, while 38% considered regulations to be most significant. The transport operations of large state industrial companies were still considered to be their greatest competition by 44% of its members, rather more than the 38% who thought

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<sup>5</sup> ECMT classification.

large private companies their greatest threat, and many more than the 12% who feared individual entrepreneurs and 11% who feared other transport modes.

The distribution of the truck fleet throughout the country, as an indication of the level of road freight transport services offered, is another indicator of the relative poverty of the eastern provinces of Prešov and Košice. While having a slightly higher than proportionate share of the population, they, together with Žilina, have a lower than proportionate share of the number of trucks and the lowest truck ownership rate per person or per unit of output.

**Table 3.1 Truck ownership by region**

Region	% population	% trucks	Trucks/ U\$m GDP	Trucks/ 1000 people
Bratislava	11.5%	13.7%	115.38	1.50
Trnava	10.3%	16.0%	208.56	1.98
Trenčín	11.4%	10.0%	121.69	1.11
Nitra	13.4%	20.6%	219.43	1.95
Žilina	12.8%	7.9%	87.28	0.79
Bansk Bystrica	12.4%	12.5%	137.51	1.28
Prešov	14.3%	9.8%	103.91	0.87
Košice	14.1%	9.5%	84.51	0.86

*Source: World Bank estimates based on "Analysis of the conditions for international Freight transport in Slovakia" Center for Economic and Social Analysis, Bratislava for ČESMAD*

Operators now face a dilemma typical of the road transport industry -- an over-expansion of the vehicle fleet, with an increase in the numbers of operators, in the optimistic years of the mid-1990s makes it difficult for operators to earn enough to finance the loan and lease charges on these vehicles, but without them they cannot compete on service with those who renewed earlier. Vehicle utilization has dropped from the 150,000km per year that was possible five years ago and was enough to run a profitable enterprise, to 90,000km per year or less. At this level, the fixed cost of a lease or a loan becomes difficult to cover from tariff revenues. This problem will only deepen following Slovakia's (and other CEC's) accession to the EU, where over-capacity is already a problem. Therefore, it is crucial that operators are well and sufficiently informed (through ČESMAD) about developments of the European transport market, and adjust to the demand.

**b. International permits**

Slovakia still operates a quota permit system, similar to that used in neighboring countries, for foreign trucks to enter or transit the country. Slovakia has permit arrangements with 33 countries (90% within EU), giving a total allocation of about 260,000 one way trips. The numbers of permits with any country can be renegotiated annually, but cannot respond quickly to changes in the pattern of demand.

The main objectives of a permit system within Europe are to ensure a balance of transport activity between operators in each country that is party to the agreement and to ensure that once a truck enters the territory of the other country, it cannot engage in any

transport activity other than delivering its load. These objectives are clearly anti-competitive and protectionist of domestic operators and as such should be eliminated as soon as possible. But the quotas are established through bilateral agreements and would be difficult to change or eliminate on a unilateral basis. While the problem with EU countries will be resolved on Slovakia's entry, the problem will remain with Austria (which manages to retain its permit system with other EU countries) and Ukraine, which is not included in the next group of countries seeking EU entry.

c. Road passenger transport

In contrast to freight transport, inter-urban passenger transport is heavily regulated and monopolistic (within a given region), with one bus operating company, SAD (Slovenská Autobusová Doprava which has a subsidiary in each region), being an independent economic entity. Together, these SADs own more than 65% of the 10,000 buses registered for non-urban services and transport more than 70% of passengers. For domestic services, frequencies are specified by the MTPC and fares are specified by the Ministry of Finance. While both frequencies and fares have been liberalized for international passenger transport, the operation of a permits system similar to that for freight transport is a barrier to increased competition. Some municipalities can make enough profit from their monopoly international bus services to cross-subsidize their urban operations. Eurolines is the principal international operator, but its foreign partners provide mostly support services rather than operate services in Slovakia.

**Table 3.2 SAD Road passenger transport, 1998**

Market sector	Passengers (million)	Passenger kms (million)	Vehicle km (million)
International	4	321	15.4
Inter-urban (more than 20km)	17	765	35.6
Suburban (5km to 20km)	432	6,578	226.5
Urban (up to 5km)	199	919	34.5
Total	652	8,583	312.0

*Source (SAD Annual Report, 1998)*

d. A strategy for road transport development

*Freight transport*

Slovakian trucking companies will face significantly increased competition following accession to the EU, so the short interim period should be used to gradually increase competition in local and international markets. It would be unreasonable for Slovakia to unilaterally remove its quota requirements with these and other non-EU accession countries, but it would be a positive move for it to be willing to negotiate their elimination on a bilateral basis. Since similar problems will face the trucking industry in neighboring candidate countries (Poland and Hungary), it would be in the interest of all of them to agree to a mutual phased elimination of permits. This could be achieved by increasing the numbers available to truckers in adjoining countries by 20% each year.

While problems of over-supply of trucking capacity poses problems for carriers, it works to the advantage of users who benefit from competitive tariffs and services. Only if competition is so intense that it prejudices vehicle maintenance standards and safety does it have significant disadvantages. The government strategy should remain one of non-intervention on this issue, but it should ensure that maintenance standards are strictly enforced.

### *Multi-modal transport*

The multi-modal operation is a partially successful enterprise that depends on the restricted number of road transport licenses available for road traffic, and without a change in the permit system this advantage would remain after Slovakia's EU accession. It is also supported by an operating subsidy that keeps the rail tariff at Sk 30/km, just below the road tariff of Sk 34/km, although the multi-modal tariff is artificially high because the trucks that it transports have to pay the full cost of a road vignette, the same as if they traveled the whole distance by road. The rail service should be competitive with the road alternative, even without the support of a restrictive permit system and a subsidy. A recent comparison of the operating costs of road and multi-modal transport from the border with Ukraine showed that the latter had costs less than 80% of the former.

The necessary cost-saving and marketing measures needed to bring this about are unlikely to be implemented by the present state-owned ŽSR. Without waiting for the parent company to be commercialized, the multi-modal operation should be concessioned to an experienced private operator, the terms of the concession to exclude an operating subsidy and to assume a termination of the permit requirement for transit trucks from Ukraine.

### *Passenger transport*

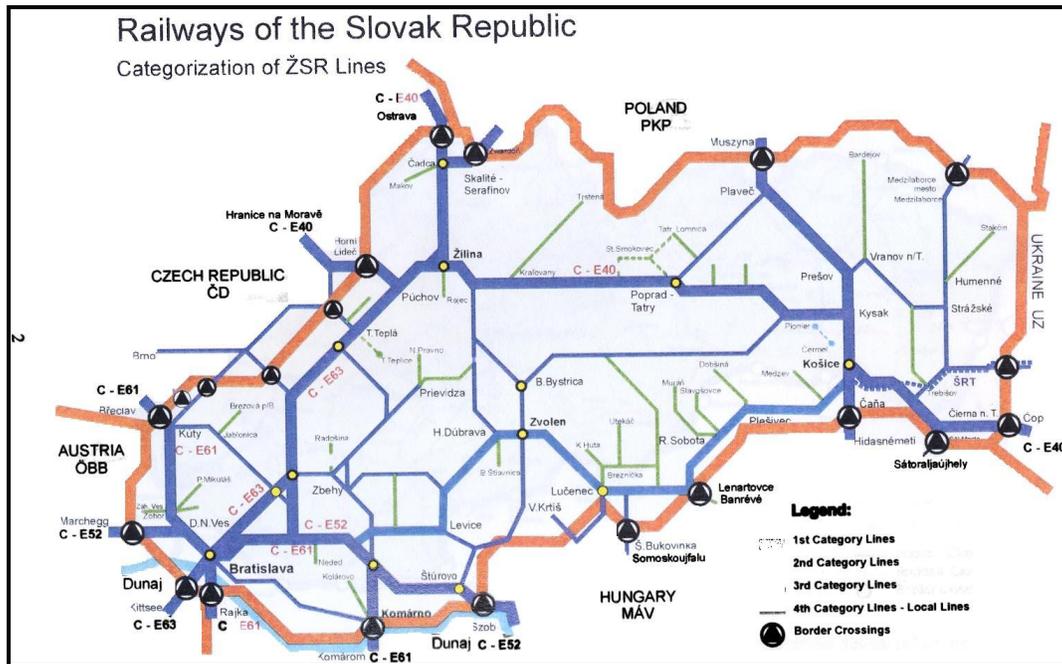
Early in 2001, the MTPC submitted privatization projects for the 17 subsidiary bus companies of SAD to the privatization ministry. In the first stage, 49% stakes of the companies will be privatized by direct sale to investors. In the second stage, a further 34% of shares will be transferred to local self-governments and the remaining 17% will be sold. In the first stage it is anticipated that the investors will cover 95-97 percent of purchase price by investments in new buses. Privatization of state-owned companies must be preceded by their transformation to joint-stock companies, scheduled for mid-2001. Subsequent sales of the 49% stakes should be carried out in the second half of the year.

In many other countries, deregulation of inter-urban passenger transport has been highly successful in terms of benefits to passengers from the resulting increased competition and better and more varied services. The principal losers from deregulation in Slovakia will be urban passengers who will lose the cross-subsidies from inter-city services, so that urban bus fares are kept low with only small direct subsidies from the municipalities. However, the disadvantages of economic and social inefficiency and lack of transparency more than outweigh any advantages of cross-subsidy, so the regulations on

frequencies and fares and number of operators should be relaxed as soon as possible, and certainly before the sale of the final 17% of shares and the loss of the cross-subsidies. The major constraint on privatizing inter-urban bus services will be on finding an alternative arrangement for organizing urban bus services and avoiding rapid increases in their fares, an issue dealt with in Section 5.

## 4. Railways

Slovak State Railways (Železnice Slovenskej Republiky- ŽSR) has still not fully come to terms with the political, social and financial role in which it will find itself as the country prepares for accession to the EU. Whatever role it takes, a first priority will be to resolve the outstanding debt and reduce railway staff to a sustainable level consistent with the new role.



ŽSR was established by an Act of the National Council of the Slovak Republic in 1993 (following the division of the former Railway Authority of the Czechoslovak Federation). It has since remained under the control of the Ministry of Transport, and manages the railway assets that have been entrusted to it by the Slovak Republic. The state owns the infrastructure and controls and approves ŽSR's activities. Until recently it was the sole operator of railways in the Republic, but some large clients now own their own rolling stock, and its largest client (the recently partially privatized Košice steel works) now operates some of its own trains.

### a. Rail system

ŽSR operates 3,665 km of railway lines, of which 42% are electrified and 28% are double tracked. Only 8% of the route kms are suitable for operating speeds of 120 km/hr and 18% for 100 km/hr or more, and one third of the route km is subject to speed restrictions through lack of maintenance. The network density of about 75 km track route per sq. km is significantly higher than the European average of 56 km track route per sq. km, but not very different than that of other central European states (other than the Czech Republic which has a 50% higher density, see Table 2.1). Its fleet consists of 1,600 locomotives of which about one third are electric, 28,000 freight wagons and 2,100 passenger coaches. It is currently the largest employer in Slovakia, with over 49,000 employees, although

recent privatization of workshops and some non-core activities brought the number down from over 52,000.

The ŽSR's staff productivity has reduced from 340,000 TU per employee in 1995 to 302,000 in 1998. Compared to other railways of similar network size and traffic density, this is rather low. This is mainly due to the decline in traffic volumes not being followed by equivalent staff reductions, a high proportion of passenger traffic (that is labor intensive compared with freight) and a reluctance and failure to close lines with low traffic density and very low staff productivity.

**Table 4.1 Staff productivity**

Country	Network Size (km)	Traffic Density in 1998 ('000TU/km)	Staff Productivity ('000TU per employee)			
			1995	1996	1997	1998
Croatia	2,730	1,135	142	130	132	140
Poland	22,285	4,218	396	401	415	401
Romania	11,380	3,323	310	329	305	315
<b>Slovakia</b>	<b>3,665</b>	<b>4,045</b>	<b>340</b>	<b>300</b>	<b>308</b>	<b>302</b>
Belgium	3,410	4,566	389			389
Chile	2,700	670	740			740
Tunisia	3,640	1,773	398			398
Rep. of Korea	3,120	13,828	1,207	1,215	1,236	1,365

*Source: World Bank Railway Database*

**b. Mode share**

The railway's share of both freight and passenger transport has declined steadily since 1993, accelerated by the economic reforms of the early 1990s and ŽSR's failure to increase its efficiency and reduce its costs in the face of increasing competition from road transport. Inter-urban freight traffic has reduced from 25.5 billion net ton km in 1985 to 11.8 billion in 1998 (about 56 million tons km), representing a fall in market share from 72% to 24% of this market. The main products transported are imports of iron ore from the Ukraine, steel products from the Košice steelworks, and the general flow of trade across Slovakia's borders. Rather surprisingly (even to ŽSR) freight traffic increased about 18% in the first quarter of 2000 (but domestic freight only increased by 14%). Passenger traffic has fallen just as precipitously, from 6.7 billion pass-km in 1985 to 3.1 billion in 1998 (a fall in market share from 23% to 12%), but this trend was only reversed in 2000 with a 4% increase, indicating that the impacts of the 50% tariff increase in May 1999 have largely been overcome.

**c. Strategic and Restructuring Plans**

The long-term goals of the Restructuring Plan for the period 1996-2000 include covering operating costs from its own resources, with its revenues including payment for the Public Service Obligation (PSO) on remaining passenger services. It seems that this is

expected to be achieved through increases in traffic resulting from service improvements brought about by investments in track and rolling stock, and divesting non-core activities. In compliance with the Plan, on 1<sup>st</sup> January 1997 ŽSR adopted an organizational structure which provides for the relative economic independence of individual divisions and internal organization units. A potentially more significant change, the transformation of ŽSR into a joint stock company, is scheduled to be completed during 2001.

A Strategic Plan for the period 2000 to 2007 has been agreed with the government and its implementation is a condition of a recent EIB loan. The Plan foresees significant cost - reduction measures, which together with long-delayed increases in passenger tariffs are expected to bring about a financial transformation.

d. International and transit traffic and European integration

International and transit traffic is an important part of ŽSR's traffic - more than half of total tons, and almost two thirds in terms of ton km and gross revenue. It should be even more important in the future, as competition from road transport becomes more intense for domestic traffic using an improved road network, and Slovakia's international trade becomes a more significant part of its GDP. A first sign of this trend has been the 20% increase in international traffic in the first part of 2000. The greatest potential growth is with neighbouring countries as they accede to the EU. While attention has been paid to the investment needs for international trade, less attention has been paid to how ŽSR can best position itself to realize its potential for increasing market share.

Evidence of its failure so far is in the results of various attempts to develop multi-modal traffic between Slovakia's eastern and western neighbours. This traffic grew less than any other market segment in the first quarter of 2000, when it might have been expected to grow fastest. Pilot operation of a multi-modal service between Bratislava and Rotterdam lasted only one year, before it was discontinued. Although it attracted sufficient traffic from Bratislava, it proved impossible to find significant volumes of back-haul traffic. With the outbound traffic having to cover almost the full cost of the operation, it was impossible to establish a tariff that was acceptable to users. The success of such an operation depends on establishing a close relationship with freight forwarders in the destination country and being flexible with back-haul tariffs so that they only have to cover marginal and not average costs, so long as the sum of total revenues covers total costs.

ŽSR recently undertook economic studies to evaluate the cost of upgrading its corridors to meet the standards of Trans-European Networks (TENs) accepted at the Second Pan-European Conference of Transport Ministers. These corridors, upon which rail freight traffic in Slovakia is concentrated, are: Corridor IV from Hungary to the Czech Republic; Corridor V from Austria to the Ukraine and Corridor VI from Corridor V to the Czech Republic and Poland and would require the following investments:

**Table 4.2 Proposed EU railway corridor investments**

<b>Corridor</b>	<b>Modernization cost in US\$m</b>	<b>Time period</b>
Corridor IV	350	1997 – 2010
Corridor V	1,070	1997 – 2010
Corridor VI	40	1997 – 2001
<b>Total</b>	<b>1,460</b>	

*Source: Appraisal Report of EIB loan for Slovakian Railways Modernization (1999)*

The most urgent of these investments in Corridor VI are the subject of a recent EIB loan. The loan will also finance the purchase of 35 lightweight passenger railcars, 462 new freight wagons, the refurbishment of a further 1,361 wagons and the installation of a new communications system. While these investments will reduce some of the barriers to development of ŽSR's international traffic, by themselves they will do little to stimulate its growth. Ways need to be found to bring outside experience into ŽSR's marketing and operational efforts, possibly through concessioning the multi-modal freight terminals and services, and forming closer alliances with freight forwarding agents as a way of finding more back-haul traffic.

A recent report for the EU (Costs and Benefits of Enlargement: The Slovak Country Report, Halcrow and Partners for Phare, October, 1999) concluded that ŽSR was already fully in compliance with one of the relevant Union Directives (that on separation of accounts for infrastructure and operations), partially in compliance with another (on the licensing of railway undertakings) and still not in compliance with the third (on charging for infrastructure). The report notes that a draft act for the railways scheduled for implementation in 2001 will bring ŽSR into full compliance. It also notes that the state has failed to fulfill its PSO obligations, paying only Sk 2.2 billion in 1998 compared with a claim for Sk 5.8 billion. ŽSR now puts the difference in its financial statements as an account receivable, even though not agreed with the state. The report concludes that Slovakia appears to comply with EU requirements in respect of state aid, but that the present relationship between ŽSR and the state is unsustainable.

#### e. Finances

The financial position of ŽSR has been deteriorating since its creation, with an increasing deficit, now at an annual level of about U\$275 million (more than 1% of GDP) since its last profitable year of 1995. The main reasons for the increasing deficit have been:

- a failure of the government to pay its agreed PSO obligations, and a consequent need to resort to expensive short term loans to cover the financial deficit;
- the government, with ŽSR's initial acquiescence, failing to increase passenger tariffs in line with inflation, to the extent that tariff revenue only covers 16% of the operating cost of passenger services;
- increasing competition from a rapidly developing road transport industry, that has attracted much of the railways' high revenue freight traffic;
- failure to reduce staff in proportion to the reduction in traffic;

- failure to maintain the efficiency of use of locomotives and wagons as traffic declined

ŽSR has been aware of its deteriorating financial position for some time and various consultants analyzed the causes and potential remedies. The present Restructuring Plan, the implementation of which is a condition of disbursement of an EIB loan, reflects the ideas of several of them in requiring:

- the termination of 23 of the highest loss-making passenger services and the closing of 240km of uneconomic lines and 70 stations;
- further increases in passenger tariffs, which were last increased by 35% in May 1999. It has been agreed by ŽSR and the Government that increases will be implemented over the coming three years to improve the cost recovery level of passenger traffic to at least 50%, mostly through tariff increases of 80-100% in real terms, and partly through cost and service reductions. A tariff increase of 30% was scheduled for May 2000;
- a reduction of at least 3,000 in staff levels by 2002, and by 10,000 by 2007 (23% of the workforce. Some versions of the Plan envisage a faster reduction). However, most of the reduction is expected to come from the separation of non-core activities, and little through making the core activities less labor intensive. While the former might improve ŽSR's financial position, only the latter will bring about the operational efficiencies needed to improve its long-term competitive position;
- some investments in infrastructure in the Žilina -Zwardoń corridor, to increase operating speeds for international and transit traffic between Czech Republic, Poland and Ukraine.

The EIB loan is for EUR 200 million, and would require counterpart funding of about EUR 226 million over about three years. Finance for this is expected to come from government sources, as ŽSR's own revenues will be insufficient. The financial projections being made by consultants for ŽSR show a capital transfer from the government of about US\$100 million each year. No exceptional expenses are shown to fund expected retrenchment costs, although these will amount in total to about US\$120million for the full number of 10,000, and U\$40 million for the first tranche of 4,000.

Some of the investments to be funded from the EIB loan are to improve passenger services but are unlikely to make an overall positive impact on ŽSR's finances (no calculations of the financial benefits of the individual schemes have been made) but an optimistic assessment has been made (the investments are essential for the continuing operation of the railway, are provided at a reasonable cost, and the overall financial effects will be to increase revenues and reduce costs). This assessment is apparently now being reviewed by international financial consultants.

The excessive short-term debt incurred throughout the mid-1990s, totaling some US\$250 million equivalent, was largely converted to long-term debt during 1999, reducing the short term amortization obligations, and interest charges from US\$56 million in 1999 to less than US\$25 million by 2003.

f. Institutional change

ŽSR is managed by a Board of Directors consisting of 9 members appointed by the government, including the General Director, who is the senior full-time executive in ŽSR. The General Director, his deputy and four other board members are appointed by the Minister of Transport, Posts and Communications, while the other three are elected by the staff. A new Board was established in early 1999 and has reoriented both the mission of the railway and the way that it intends to achieve its objectives.

The statement is a clear indication that the new management is aware of the need to bring ŽSR close to providing the services that its clients are looking for and are prepared to pay for. However, there is insufficient understanding of what is needed to bring this about. Creation of a 100% state owned joint stock company will make little difference to ŽSR's efficiency, what is needed is an input of profit based motivations for its managers and staff. The identification of actions necessary for commercial orientation says nothing of exiting from markets that are not profitable or cannot be made so. Competitive prices do little for ŽSR's bottom line if they are less than costs.

**Box 4**

***ŽSR Mission Statement***

The ŽSR will provide the safest, most efficient and most environmentally friendly transportation of people and merchandise in the Slovak transportation market. The ŽSR can fulfill its mission only through its transformation into an effective commercial and market-oriented entity which emphasizes customer service and the professional growth of its employees.

A necessary condition for the transformation of ŽSR is to harmonize Slovak legal regulations concerning the development and legal position of a railway company with those of the EU. Another precondition is to achieve such financial results as will make ŽSR eligible to obtain the financial resources necessary for its long-term financial stability.

The objectives of the transformation are: (i) making ŽSR's position the same as that of other EU railway operators in compliance with EU Council Directive 91/440/EHS on the independent management of railways; (ii) revitalizing ŽSR through the capitalization of its assets.

A long-term priority is to establish a commercial joint-stock company with 100% state ownership, internally divided into entities responsible for infrastructure, transportation, rolling-stock and commercial activities.

ŽSR, in order to meet the priority of commercial orientation will have to provide a wide spectrum of services and products. It will have to dynamically adjust its assortment of services, prices and quality to the existing demand, on the basis of a thorough analysis of the transportation market and its competitors. It will be necessary to build customer loyalty through quality service, competitive prices, precision and courtesy of its employees, transparent and clearly defined contractual relationships, as well as a targeted approach to individual market segments.

*ŽSR Annual Report, 1998*

The Appraisal Report for the EIB loan holds out a hope that a Contract Plan will be made between ŽSR and the government. This can be useful in defining relative financial responsibilities and the expectations that each party has to the other, but is only necessary when the railway lacks a commercial objective and continues to depend on government funding. When the joint stock company is really independent, commercially viable and eligible for commercial loans without a government guarantee, a Contract Plan will not be necessary. Such a Plan can only be beneficial in an interim situation while the company is striving to escape from its previous state dependence. Implementation of the joint stock company would be the first serious step in making ŽSR a more competitive and efficient railway. With its formation, its mission and motives and organizational and management structure will of necessity change

g. A strategy for railway development

The Restructuring Plan and Strategic Plans provide a sound basis for the future development of the railways, but lack a long-term vision of its future role. In the short term, reduction of the government's control of ŽSR through the creation of a separate Railway Company (scheduled for early 2001) will coincide with the decentralisation of responsibility for funding the PSO for passenger services. This will provide an excellent opportunity to reorient the railway. Given its relative small size, it would be inappropriate to divide ŽSR into separate regional railways, but the large difference between its principal businesses (freight, long distance passenger, and local passenger services) indicates that a separation in this way would make sense, although it would not deal directly with the infrastructure issue. The EU only requires an accounting separation of infrastructure from operations, so that track charges for other railway users can be determined on an equitable basis, and this is what most EU railways have done. Separation into businesses without separation of infrastructure would require that each business be responsible for its own part of the infrastructure, making it available to the other businesses as well as to other operators.

The decision as to how to restructure the railway should be taken before the creation of the separate Railway Company, as it could influence how the Company itself should be structured. It would also be convenient for the payment of PSO by multiple regional governments to have a system in place before their formation that does not have to be changed within a few years to accommodate a new institutional structure of the railway. Compliance with EU regulations about separate accounting for infrastructure and opening the railway to other users has already been achieved.

The present Restructuring Plan includes modest proposals for reducing the level of staff, but these are far from being enough to make any part of the railway as efficient as a private railway would be. Experience in much of the world has been that estimates of minimum staffing levels made in advance of privatization of a railway are higher than the outcome after a few years of private operation of the railway. Once they are stripped of non-essential activities, the three railway businesses should be able to operate with less than 25,000 staff, even fewer if the new regional governments decide they cannot support local passenger services. If a source of funding were available to cover redundancy costs, ŽSR could reduce staffing by about 10,000 within three years rather than the seven years indicated in the Restructuring Plan.

Although there is rather more time to decide whether to keep the new Railway Company, or any of the separated businesses, in 100% public ownership or to find a way to introduce private capital and operating experience, any lengthy delay will either deprive the railway of much needed investment or burden it with large debts. Since the freight railway will be the closest to being profitable, it should be the first where a decision will have to be taken. While there might be strong technical arguments for outright sale of the freight railway, strategic considerations will probably make long-term concessioning or sale of a minority share to a strategic partner more realistic political possibilities.

**Table 4.3** *Slovak Railways (ŽSR), Profit and Loss Account, 1996 to 1998*

	1996	1997	1998	1998
	Skm	Skm	Skm	US\$m
<b>REVENUES:</b>				
Freight	10,676	9,740	9,665	224
Rolling Stock Rent	1,358	1,321	1,388	32
Passenger	1,548	1,520	1,604	37
Other Operating Revenues	1,953	1,779	1,704	39
Other revenues	366	92	56	1
<b>TOTAL</b>	<b>15,901</b>	<b>14,452</b>	<b>14,417</b>	<b>334</b>
<b>COSTS AND EXPENSES</b>				
Raw materials, consumables and services	5,196	5,892	6,256	145
Labor and related expenses	8,065	8,755	9,682	224
Repairs and maintenance	1,399	1,636	2,392	55
Depreciation and amortization	2,238	2,485	2,943	68
Provisions	570	3,233	1,146	27
Other costs	836	1,271	2,163	50
<b>TOTAL</b>	<b>18,304</b>	<b>23,272</b>	<b>24,582</b>	<b>569</b>
<b>LOSS BEFORE INTEREST, SUBSIDY AND TAX</b>	<b>-2,403</b>	<b>-8,820</b>	<b>-10,165</b>	<b>-235</b>
INTEREST:				
Interest expense	-434	-1,398	-1,763	-41
Interest income	20	83	74	2
<b>NET INTEREST EXPENSE</b>	<b>-414</b>	<b>-1,315</b>	<b>-1,689</b>	<b>-39</b>
<b>LOSS BEFORE TAX AND SUBSIDY</b>	<b>-2,817</b>	<b>-10,135</b>	<b>-11,854</b>	<b>-274</b>
INCOME TAX	23	3	2	0
<b>LOSS BEFORE STATE SUBSIDY</b>	<b>-2,794</b>	<b>-10,132</b>	<b>-11,852</b>	<b>-274</b>
STATE SUBSIDY	1,998	2,200	5,676	131
<b>NET LOSS</b>	<b>-796</b>	<b>-7,932</b>	<b>-6,176</b>	<b>-143</b>
CASH FLOW	1,442	-5,447	-3,233	-75

Source: European Investment Bank, *Slovakian Railways Modernization, Appraisal Report, June 1999*

Either of these should succeed in making the freight railway operate on a commercial basis. The local passenger services company would be unlikely to attract a private operator as it would have extraordinarily high and fixed infrastructure costs, and be heavily dependent on the new regional governments for a large part of its annual revenue, so it is the most likely of the three businesses to stay in public ownership. The long distance passenger company would also have an uncertain future, as the size of the country is more appropriate to motorway based bus services than to express passenger trains. Few other EU countries can maintain a profitable inter-urban passenger service and most depend on a continuing subsidy in one form or another. One possibility would be for the state to contribute the existing passenger railway assets at a nominal value to a joint venture with a strategic and experienced operator. The passenger operators in some other EU countries with close connections to Slovakia could be interested in such a proposal.

**Table 4.4 Key financial ratios**

	<b>1996**</b>	<b>1997</b>	<b>1998</b>
Working Ratio*	92.2%	112.7%	127.1%
Annual change in Total Revenues	-0.2%	-9.0%	0.0%
Annual change in Freight Revenues	-6.0%	-9%	-1%
Annual change in Passenger Revenues	5.8%	-2%	5%
Annual change in Labor costs	16.1%	9%	11%
Annual change in materials/ consumables/services costs	53.8%	13%	6%
Annual change in Net Interest paid	313.5%	318%	28%
Sk Inflation Rate	5.8%	6.1%	6.8%

\* Operating costs excluding Depreciation and provisions divided by operating revenues

\*\* Based on Slovak Accounting Standards as IAS only available from 1997 onwards

Source: European Investment Bank, *Slovakian Railways Modernization, Appraisal Report, June 1999*

Until ŽSR finds its role in a market-based economy it will be unable to control its costs, earn sufficient revenue to finance investments, and be unable to meet its customers needs.....



*ŽSR still operates too many under-utilized marshalling yards, the “graveyard” of a railway that must compete with trucks.....*

*.... and it has been unable to attract significant multi-modal traffic*



*Picturesque rural passenger services can often be replaced by more cost-effective buses*

*... but long-distance passenger services should be able to cover all their costs from revenues, without the need for subsidies*



*Chair-lifts should not be operated by a state railway.....*

*..... neither should rack railways unless they serve an identifiable social and environmental at minimum cost*

## 5. *Urban public transport*

### a. Vehicles and passengers

Unlike some other transition economies, urban transport in Slovakia has not yet entered a stage of catastrophic decline. At least until 1997, the last year for which comprehensive data is available, the number of daily trips by public transport has remained constant although the number of cars has increased. Although the rate of car ownership is still increasing (it reached 435 per 1,000 people in Bratislava in 1999), the rate of increase has halved since the mid-1990s, to 4.6% per year in 1999. This is in part due to a dramatic decline in the number of motorcycles, which is now only one quarter the number of just three years ago. The mix of public transport vehicles has changed a little, with diesel buses declining from 65% to 60% of the fleet, trolleybuses increasing from 11% to 16% and trams remaining constant at about 24%. The share of passengers by each type of vehicle shows a rather different pattern, with trolleybus passengers increasing from 8% to 14%, but diesel bus passengers have increased from 56% to 59% and tram passengers reduced from 36% to 27%.



*Different public transport modes are well integrated in Bratislava and Košice, but their mode share will reduce unless traffic restraint and demand management are used more.*

The number of passengers carried each day by each vehicle has increased

(since numbers of passengers have changed less than numbers of vehicles). Whereas passengers per tram used to be almost double the number per trolleybus, now it is only 20% higher. Passengers per diesel bus are now about 12% higher than for trolleybuses whereas in 1993 they were about 18% higher. But the average passengers per vehicle per day at about 919 is still about 20% below that usually considered indicative of an efficient system. The reason for the decline in numbers of diesel buses and trams is not known. Although it is probably due to a lack of funding to replace them (the average age of the remaining diesel bus fleet is about 12 years), it could also be due to a drive for more efficient and cost effective operation of public urban transport systems.

**Table 5.1** *Urban transport vehicles and passenger trips, 1993 -1997*

	1994	1995	1993	1996	1997	1998
<b>Vehicles</b>						
Buses	1,029	1,009	1,110	968	942	932
Trams	407	399	405	390	379	373
Trolleybuses	177	241	192	261	250	222
Total public transport	1,613	1,649	1,707	1,619	1,571	1,527
Cars	994,046	1,015,794	994,933	1,058,424	1,135,914	1,196,109
<b>Passengers</b>						
Buses	298	318	294	327	313	307
Trams	161	146	189	143	140	126
Trolleybuses	48	51	43	72	74	76
Total	507	515	526	543	527	509

**b. Vehicle operators**

More than 90% of public transport services are provided by 17 public joint stock companies with the government the only stockholder, set up after a reorganization in 1996 before which there were 53 operators. Although there is a long-standing policy to privatize them by 2004, little progress has been made to date, and no strategy has been outlined as to how this is going to be achieved. So far there are five small private bus companies, but these provide international charter and not urban services. The new government was expected to give this policy a high priority but little progress has been made so far. Urban public transport fares are regulated by the state but not those for inter-urban passenger transport. There is an overall operating deficit of about Sk3.5 billion per year, but the state subsidy is only Sk2 billion, resulting in a cumulative debt of about Sk13 billion since 1993. All of the companies run a deficit on their bus operations, but revenues from non-bus activities make six of them profitable. Bratislava bus company had a profit of Sk23 million in 1998, mostly through profits from international services.

The present companies own about 5,100 buses (of which only about 20% are used in urban services) and employ about 12,000 staff. Bringing the average vehicle life down to the usual front-line service life of about eight years would require an average replacement rate of more than 600 buses each year, more than ten times the present rate. Trolleybuses are operated in the five largest cities (Bratislava, Košice, Žilina, Banská Bystrica and Prešov) and trams in Bratislava and Košice. Bratislava has 1,791km of bus routes, 227km of tram routes and 227km of trolleybus routes, giving an overall route density of 6.08km per km<sup>2</sup> and with a fleet of 895 vehicles, 500 people per vehicle. Since 1995, the number of seat kms has increased by 9% and vehicle km has increased 1%, while passenger kms has fallen by about 20%.<sup>6</sup>

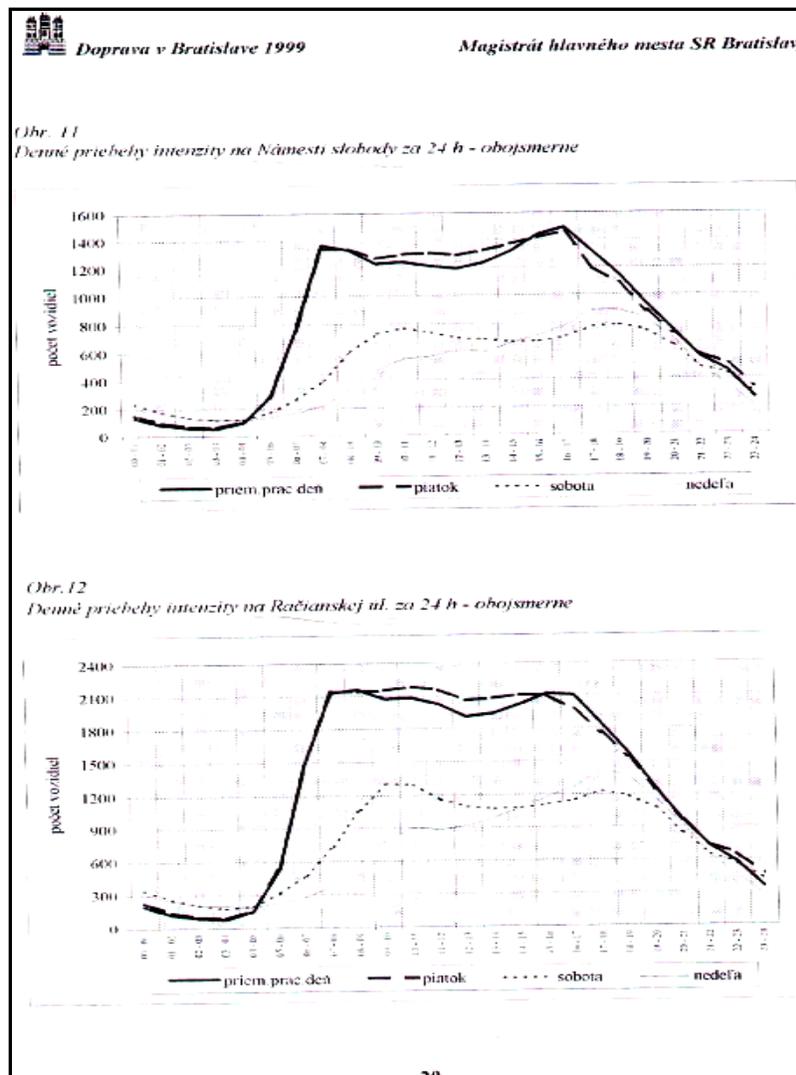
<sup>6</sup> Doprava v Bratislave 1999, Magistrat hlavného mesta SR Bratislavy.

### c. Urban road maintenance and traffic management

Bratislava and Košice are the only two municipalities that finance the maintenance of part of their road infrastructure, albeit with some financial support from the State. All road works - rehabilitation, periodic and routine, are contracted. The current municipal Transport Plan for Bratislava is based on completion of the motorway ring-road, so that through traffic will avoid the downtown area, and improving the integration of public transport modes.

As the number of private road vehicles continues to increase, traffic management will be increasingly important to constrain congestion and allow public transport vehicles to continue operating efficiently. Traffic on Bratislava's radial routes has been increasing at about 8% per year for the last five years, while that in the downtown area has been almost static, an indication of constraint by congestion. Diurnal traffic patterns throughout the urban area also show consistently high traffic levels on weekdays from before 7am until after 5pm, indicative of a road network approaching capacity.

#### *Diurnal traffic patterns at two locations in Bratislava*



The overall higher rate of increase of road traffic than of vehicles is a sign of increase in the use of each motor vehicle, a disturbing trend that needs to be reversed to avoid high rates of congestion of high and counter-productive expenditure on increased road infrastructure (counter-productive as all available evidence is that increasing urban road infrastructure does nothing to reduce congestion, it simply allows higher rates of vehicle use). It is not only downtown traffic that is already constrained by congestion, as diurnal traffic patterns from all parts of the urban area show sustained peak-level traffic throughout the day.

As a consequence of the increasing congestion, the on-time performance of public transport has been deteriorating, with almost 12% of services arriving late in 1999 compared with less than 5% in 1996. To address the declining service quality, Bratislava has been expanding its number of signalized intersections, but not the number that are centrally controlled.

#### d. Safety

Road safety is not yet a serious problem in Slovakia's urban areas, with the fatality rate still below the average for comparable other European areas. In 1999 there were 38 road fatalities in Bratislava, a rate of 0.84 per 1,000 people or 1.9 per 10,000 vehicles. The incidence of fatalities in total accidents is also quite low, compared to the neighboring countries, indicating a relatively low severity. Although, the fatality rates in Slovakia (about 5 per 10,000 vehicles) are twice the EU average (about 2.4 per 10,000 vehicles), the road safety situation in Slovakia is not quite as bad as in other Central and Eastern European countries, where the death toll is between 7 (Croatia) and 20 to 25 (Bosnia/Herzegovina, and Albania). This safety situation provides an excellent context for sustaining the positive attitude of the population to road safety.

#### e. A Strategy for urban public transport

A high market share of urban public transport is desirable to avoid (or at least defer) the problems of urban traffic congestion and air quality degradation that come with increased ownership of private motorized vehicles. There is evidence from many parts of the world that the share of public transport is higher when there is either a heavily subsidized municipally owned service that responds to simulated market pressures, or a genuine private sector service that operates in a competitive context. The municipally owned and operated service model has not performed well and eventually involves a level of subsidy and debt that is unsustainable. The strategic objective for urban public transport in Slovakia should be to provide an acceptable level of service to users, while controlling the level of operating subsidy.

The main issues facing urban transport in Slovakia are how, in a context of decentralization, to implement a system that incorporates private operating experience and capital, with market based incentives, while ensuring an acceptable quality of service to users, including reducing the average age of the vehicle fleets, and not increasing (and if possible reducing) the present level of subsidy. Public transport fares in Slovakia are among the lowest in Europe and some increase is inevitable if the strategic objectives are to be achieved. Under the current privatization proposals, the state would keep control of

the privatized companies by retaining a majority (51%) voting share ownership. This is likely to impede achievement of better quality and more cost effective services, and to make attracting private investment and operating experience more difficult. An alternative proposal in which the state would retain only 34% state retention should be reconsidered.

The current privatization proposal is the fourth by the present administration, and has a good chance of success since it has the approval of the present companies, the unions, and the Ministries of Transport and Finance. However, the proposals might not be implementable given the lack of experience of private bus operations within Slovakia, the need for local knowledge in the operation of municipal public transport services, and the proposed state retention of majority ownership. A form of PSO financing is envisaged between the companies and the regional or municipal authority, but this arrangement will have to be considered in respect of the expected decentralization program and its proposal to create more regional authorities. Although some small municipalities are looking for competition between the partially privatized companies themselves, most municipalities still have to be convinced of the benefits of competition.

The delay in implementing the present proposal indicates that the government might still be considering other models for privatizing services. An option that would create a financially viable and socially acceptable method of operating urban bus services at a minimum cost to the government while providing an acceptable service to the users, would include the following:

- Creation of a national bus leasing agency, with the present bus fleets as assets to be leased to private operators. The agency would not necessarily buy new vehicles, unless there were already established on-leasing arrangements (this might be less costly to small operators than buying or leasing their own vehicles);
- Municipalities to concession routes, possibly to cooperatives or existing bus companies, creating more competition than the alternative of concessioning the whole network of each municipality. Gross cost rather than net cost concessions would probably be most appropriate, given the high level of subsidy expected to be retained. Under this type of agreement, concessionaires would collect fares but pass the revenues on to the municipality. Trams and trolley buses would best be concessioned as networks. Municipalities would retain control of fares (which would be specified in the concession contracts), but under the decentralization policy, they would also be responsible for funding any operating deficit.
- Extensive use of traffic management, including greater use of centralized signal control, more public transport only lanes and price controls on parking, will be necessary to constrain the use of private motor vehicles and maintain the quality of public transport. Traffic management will eventually need to be supported by demand management, with peak period road capacity being rationed by price. This situation has not yet been reached in Slovakia's urban areas, but planning and preparation for its implementation should start now.

## 6. Aviation

### a. Airports

Despite its relatively small size and short distances between major cities, Slovakia has five airports licensed for scheduled domestic and international passenger services. Most services are based on Bratislava, handling 71% of passengers and 45% of aircraft movements, followed by Košice with 24% of passengers and 36% of movements. Of the 276,000 passengers handled at Bratislava airport in 1999 (compared with 0.89 million in 1989), more than 90% were on international flights. Bratislava airport has a new passenger terminal and a 3,100m runway, suitable for all regular flights. It has Category 2A navigation equipment and is in the process of upgrading to Category 3, necessary for classification as a full international airport. However, it is presently used only to about 20% of its capacity, while up to 300,000 international passengers from Bratislava use Vienna airport.

### b. Air passenger services

Since the break up of the federation there has not been an airline capable of sustaining a comprehensive domestic air passenger service. There are three private airlines presently providing domestic air services. One operates mostly summer charter flights to the Middle East, another is really a subsidiary of a travel company and owns more helicopters than aircraft, while the third, still with 34% state ownership, operates a few short-haul international services well as regular but infrequent domestic services. The last of these operates three Tupolev 154 aircraft and a leased SAAB 340 on its passenger services.

As Slovakia does not have a national flag carrier for international services that needs to be protected, it has found it relatively easy to enter into open-skies agreements with other countries. After a two year transition period, all airlines based in EU countries will have unrestricted access to Slovakia airports.

### c. Bratislava airport

Although the government has announced its intention to privatize Bratislava airport by mid-2002 there are still uncertainties as to whether this will be selling equity in a still-to-be created 100% publicly-owned corporation, or by seeking additional equity from a strategic partner. It would need at least a five-fold increase in present use for the airport to be financially viable. It has poor road access and no rail or tram link. However, as it is under-utilized and has low landing charges compared to other central European airports, and as Slovakia does not have a national airline it feels obliged to protect, the airport has several potential roles, including acting as:

- a secondary hub serving central Europe for a major European or US airline;
- a freight distribution center for central Europe for a freight consolidation company
- part of a combined airport with Vienna Airport, which is nearing capacity.

There are two possible variations in the secondary hub role. It could serve major European cities within about 1,500km for one of several US airlines that already have a hub in the west of Europe and now want to develop their eastern European traffic from a low-cost airport without getting tangled up with a national airline. Bratislava and Slovakia satisfy both these conditions. Alternatively it could provide services using regional jets to secondary cities, for an airline that already serves major cities out of Vienna. Secondary routes benefit from operating from relatively uncongested airports that have good road and rail passenger links to major population centers and easy connections (surface or air) to airports that are major continental gateways. Vienna will fulfill this role now that Austrian Airlines has become a member of the Star Alliance, so members of competing alliances will be looking for alternative airports.

Bratislava will soon have good road connections with Vienna and other major central European cities. Freight consolidation companies and especially those in the package business (FedEX, DHL, TNT etc) prefer to operate from uncongested airports that have good surface road infrastructure connections to other cities in the region and are supported by a government that gives incentives to new businesses. Again, Bratislava and Slovakia satisfy these conditions

One of several promising prospects is for Bratislava to operate in conjunction with Vienna airport, only 40kms away. Vienna, with close to 10 million passengers and 200,000 aircraft movements per year, is reaching the capacity of its two runways (they cannot operate independently of each other, so their effective capacity is that of about one and a half runways). Demand is projected to increase to more than 26 million passengers by 2015, and with all the short-term measures to increase capacity, the existing runways and terminals will be operating at their limits by 2005.



Vienna airport is operated by a private company (*VIA - Vienna International Airport*), with its shares quoted on several European exchanges. Although the

development plans for the airport are well-advanced, they will require such a large investment (about US\$600m) that its financial viability as a privately operated airport would be in doubt. If Bratislava, which already functions as the alternative to Vienna when the latter is closed for climatic reasons, were operated as a close partner to Vienna, it could take the freight traffic or perhaps some of the regional passenger traffic. This could defer the need for an additional runway for about five to ten years. There are plans to revive earlier discussions on these possibilities, which were broken off when no agreement could be reached on how to fund completion of the rail link between the airports and the balance of interest in the joint-venture agreement. Vienna found short-term solutions to its capacity problems and decided to go ahead with its own expansion

plans. However, these are bound to encounter social and environmental problems as the land area of the airport will have to increase to allow the operation of a new runway parallel to one of the existing runways, and its noise contour will expand.



*Vienna airport will soon be connected directly to Austria's high speed passenger rail network. There are plans to extend this to Bratislava, whether or not the two cities airports work in conjunction.*

d. A strategy for aviation

Government policy for civil aviation (as outlined in “Conception of Civil Aviation,”) is to leave the provision of services to the private sector and retain only a regulatory function. In pursuance of this appropriate policy, it is likely to sell its share in Slovak Airlines, which in turn is likely to quit the scheduled passenger services when it loses its subsidy. This will leave Slovakia without any scheduled domestic air passenger services. With the size of the country and the quality of inter-urban rail services, this should not cause significant problems. Application of the same policy to airports, which presently have an overall operating subsidy estimated at about Sk 50 million, (almost certainly an underestimate) will result in three of them (Piešťany, Sliac and Poprad) losing their classification for regular passenger services within two years.

Bratislava still has the potential to be a viable commercial airport, and there are several potential roles that it could fulfill. If the present strategy to look for a strategic investor should fail to produce an acceptable and transparent proposal, the MTPC should commission a study of the financial viability of different roles for the airport, undertaken by a reliable advisor, knowledgeable in the air transport market of central Europe and its particular issues, but independent of any airline, freight or airport operator so as to avoid a conflict of interest. Once the study is completed and its recommendations accepted, MTPC should further contract to find the strategic partners to implement the strategy. Given the precarious financial future of the airport, it has more chance of resulting in a politically, socially and financially viable outcome since it will be based on a viable perspective of the airport's future. Once the Category 3 navigation system is installed, no further investment should be made in the airport or its land access facilities until its role is decided, and even then, most new investment should be made by the strategic partner.

## 7. *Inland waterways*

As in most other countries, Slovakia's inland waterways are a grossly underutilized transport resource. Where waterway transport is feasible, it usually offers the least cost and most environmentally friendly form of transport for bulk freight and other products that are not time sensitive. Slovakia's two waterway ports provide a direct connection via the Danube and Rhine rivers (connected since 1992 by the Rhine - Main canal) to the North Sea port of Rotterdam and the Black Sea ports at the mouth of the Danube, as well as to the river ports of the intervening countries. During the embargo against Yugoslavia and later also because of the debris of the Osijek bridges bombed by NATO in the Danube, river traffic on the Southern Danube was practically put on a hold. Now, with the opening up of Yugoslavia, the importance of the Danube has come to the limelight again. The Danube area covers one twelfth of the European continent. It was recognized as a priority transport investment target by putting it on the list of Pan-European transport corridors as Corridor 7. Critics complain that very little has been done in order to make better use of the river, be it transport, environmental protection, tourism, agriculture or other sectors. Overall there are 34 Danube E-ports, included in the UN ECE AGN Agreement, but 16 of these ports do not have a good connection to the hinterland, i.e. to the E-road network.

### a. Danube river

The Danube is the longest international river in Europe. It flows through Germany, Austria, Slovakia, Hungary, Croatia, FR Yugoslavia, Romania, Bulgaria, Moldova and Ukraine, and is 2,850 km long, of which the navigable part is 2,414 km. It forms the core of the European network of navigable inland waterways. After the Main-Danube connection was created, it became a part of the trans-European waterway linking seaports at the North Sea (Rotterdam, Amsterdam) and at the Black Sea (Constanca) - 3.505 km long. Even though the expected benefits of this canal have not been realized, there are many other proposals for connecting the waterways of central Europe, including the Váh project in Slovakia to join the Danube to the Vistula and Oder rivers.

### b. The Rhine-Main-Danube Canal

The northern border of the Roman Empire ran along the line of the Danube-Main-Rhine Rivers. Unfortunately, the river system was not continuous and Roman ships sailing up the Danube could proceed only to a certain point, beyond which they could go no further.

The cargoes then had to be laboriously unloaded and carried over a land-bridge until the headwaters of the Main were reached. At that point, the cargo could once again be loaded onto a ship that would carry it down the Main and on to the Rhine to reach Roman cities such as Mainz or Cologne.



and began work in 793, it was not until 1921 that serious work began on a 106-mile-long canal linking the Danube with the Main and the Rhine. The Main-Danube Canal which crosses the watershed of Europe by means of huge locks up to 100 feet deep was finally opened in 1992. The Danube now forms part of the transcontinental Rhine-Main-Danube Waterway that allows vessels to travel 2,200 miles from Rotterdam on the North Sea to the Ukrainian port of Sulina on the Black Sea.

Both the Rhine and the Danube are international waterways, but the Main-Danube Canal is retained by Germany as a national waterway. This central link of the system was built so that it is too narrow for the wider vessels used on the Danube, so Slovakian vessels can proceed no farther than Kelheim, where the Main-Danube Canal begins. The situation is exacerbated by the presence of three low bridges that prevent the passage of fully laden container vessels, necessitating unloading of the top row of containers to pass under each one. The German river fleet is thereby spared competition by foreign fleets but the usefulness of canal, so long in the making, is now questionable.



The opening of the Main-Danube canal was expected to lead to a rapid growth in waterway traffic from Slovakia. Perhaps these expectations were exaggerated given the different characteristics of the Rhine and the Danube. More than 200 million tons of freight cross the German-Swiss border, but less than 1 million tons cross that between Austria and Slovakia, even when the Danube is not blocked by the debris of war.

The first reason for this difference lies in the differing characteristics of the rivers. The Rhine has a consistent flow throughout the year and a general absence of floods and periods of low water mean that ships can sail fully loaded between Rotterdam and Basel for up to 360 days a year. Navigation on the Danube is still restricted by floods and periods of low

water. The Danube is also subject to freezing in winter as it lies in the colder interior of the continent. The Danube can freeze so quickly that ships must make for harbor or risk being caught and crushed in the ice. In a severe winter, ice can bring navigation to a stop for several weeks. So it can only be reliably used by vessels with a full load on an average of 300 to 310 days a year, or about two months less than the Rhine. The second reason is that the Rhine connects the busy industrial economies of the richest countries on the continent—Switzerland, France, Germany, and the Netherlands—and is heavy with trade between these countries. The Rhine flows directly into the North Sea and connects with the busiest trade route in the world to the United States.

By contrast, the Danube links the economically less developed countries of Southeastern Europe, Slovakia, Hungary, Croatia, Serbia, Bulgaria, Romania, Moldova, and the Ukraine and there is relatively little trade among them. In contrast to the Rhine's feeding to the world's busiest trade route, the Danube flows away from major trade routes on the

Atlantic. It empties instead into the remote and almost landlocked waters of the Black Sea, which give access only to the former Soviet Union and the Middle East.

c. Waterway traffic

With the stimulus of the new connection to the Atlantic, Slovakia's waterway transport increased by about 50% between 1994 and 1995 and maintained that new level until the bombing of bridges during the NATO attacks on Serbia blocked navigation on the Danube. The 20% or so of traffic that previously moved south can no longer use the waterway. Most of the 1.8 million tons of freight now transported is petroleum, with some coal fertilizer and grain. Attempts to develop a container service between Rotterdam and Bratislava following the opening of the Main Danube canal failed, although a market for the transport of empty containers in the reverse direction was developed.

The increase in traffic in the mid-1990s led to an increase in the vessel fleet of about 25% (from 374 to 448 registered vessels from 1995 to 1996), but the number has since fallen back to 280. This is in part a response to the gross over capacity of vessels on the whole European waterway system, a result of capacity not falling as quickly as demand for a long period of time. Only one of the registered freight vessels is self powered, indicating that Slovak operators depend on foreign companies to push their barges.

In contrast to the falling volume of freight traffic and size of the fleet, tourist passenger transport is going through a period of resurgence. In addition to about a score of conventional vessels, a hydrofoil service now operates in the summer between Vienna and Budapest via Bratislava. However, few of the passenger vessels are owned or operated by Slovakian companies.

d. Industrial organization

There is presently a single company, Slovak Navigation and Ports Administration Authority (Slovenská Plavba a Prístavy - SPaP), that operates the ports of Bratislava and Komárno on the Danube and a fleet of about 200 river vessels. Since 1997 it has been a joint venture enterprise albeit with 87% public ownership. Both Bratislava ports, one specializing in bulk liquids and the other in bulk solids have environmental problems, although those of the petroleum port are sufficiently serious to consider relocating closer to the refinery which is a short distance away. It is unlikely that the port operating company can raise the finance for this relocation, so it would have to be funded by the state. The land occupied by the present port could be sold for redevelopment and the proceeds used to help defray the cost.

Waterways operations are regulated by the SPaP, a member of the International Maritime Organization. The Belgrade Convention of 1948 applies only to the Danube and not its tributaries. It declares the Danube as international water and permits freedom of movement to vessels of all nations and equal treatment for vessels of participating countries. As a result charges for use of the Danube cannot be levied. Bilateral agreements are in force therefore to regulate the conditions of market access. In the early '90 a unified regime for the Danube and the Rhine river transport was called for by

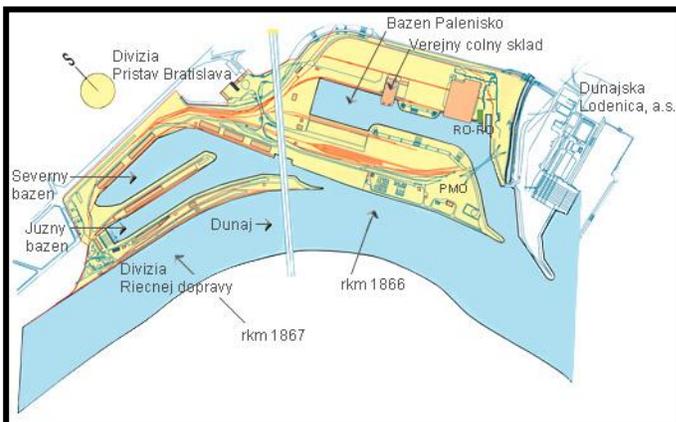
several European countries. Negotiations are still going on to at least establish closer cooperation between the two regimes. Therefore bilateral reciprocity is the main basis of market access for the Slovak SPaP.

e. A strategy for inland waterway transport

The government privatization agency (NPF) recently (January 2001) announced it will accept bids by April 20, 2001 for its 87 percent stake in SPaP. Although a sound strategy, the timing is possibly not the best given the probability that navigation on the lower river Danube could be reinstated within a short time. This would give the company a chance to reestablish itself and show a potential for profitability before it is sold, and thereby attract a much higher price.

The strategy of non-intervention by the state will probably lead to the eventual end of inland waterway transport from Slovakia, with the possible exception of oil and petroleum products. The application of strict market principles, when the pricing system fails to account for environmental costs, can lead to sub-optimal outcomes. Since one of

the main advantages of waterway transport is supposedly its lower environmental costs than other modes, its loss would have negative environmental impacts. Relocation of the oil terminal in Bratislava would be an example of this, where the operators and users of the port could sustain the financial cost of an environmentally preferable location, and if they cannot continue in their current location, the transfer of the transport of oil to road vehicles will have possibly



greater negative impacts than continued use of the present port. If this turns out to be the case, the state as representative of the national interest, should intervene to support the transfer of the port.



*Bratislava port has separate berths for ro-ro, container and petroleum and other bulk liquids. Only the last of these has environmental problems.*

## 8. *A Transport Strategy*

### Objectives

The prime objective of transport strategy should be to stimulate increased competition, since it is essential for achieving the other three objectives of facilitating economic growth while reducing regional income disparities, decentralization and entry to the European Union.

### Competition

While several transport activities have been commercialized or corporatized as steps on the way to introducing market principles and the rigors that they bring, unless more progress is made quickly, Slovakia's entry to the EU will find its transport sector ill-equipped to face the increased competition that this will bring. In particular, road infrastructure needs to be reorganized to make it more responsive to users needs, the railway needs to be restructured so that it can better meet the challenge of road competition as well as that of other railway operators who will be free to use its infrastructure once EU entry has been achieved. Inter-urban and international road freight operators are still over-protected from competition. Further challenges must be faced in urban public transport, where the present financial model of cross-subsidizing loss making services from the profits of international coach travel is unsustainable, in air transport where a great opportunity exists from the proximity of Bratislava to the increasingly congested Vienna airport, and in waterway transport where the EU itself still has much to do to reduce over-capacity and bring about the conditions where waterway transport can fulfill its potential.

**Table 8.1 Recommended policy actions**

Road Infrastructure	<ul style="list-style-type: none"> <li>• Create a separate Motorway Agency (eventually to be privatized) to finance, build and operate the own-revenue generating road network</li> <li>• Reformulate the financing of the development and maintenance of Class I, II and III and local roads, with focus on bridges</li> <li>• Reallocate responsibility for Class II and Class III roads to new regional governments and restructure the SRA to administer Class I roads and provide technical services to regional road agencies</li> <li>• SRA, regional road agencies and municipalities to prepare Five Year Road Development Plans, as a basis for receiving their first-year allocated share of road user revenues. The SRA Plan should include proposed road developments to stimulate regional development. In following years, confirmation of implementation of the previous year's Plan and submission of an updated Development Plan would be the basis for each agency to receive their share of the annual road budget either directly from the Treasury</li> </ul>
Railways	<ul style="list-style-type: none"> <li>• Dispose of all non-railway and non-essential railway activities and concession specific multi-modal services</li> <li>• Prepare proposal to create freight, long-distance passenger and regional passenger subsidiaries, and implement by January 1, 2003</li> <li>• New regional governments to be responsible for financing PSO for regional passenger services</li> <li>• ŽSR to prepare Five Year Development Plan (Investment, Staff, Finance) for rail infrastructure, compatible with expected revenues from rail service operators and regional agencies (PSO)</li> <li>• Complete assessment of staffing needs for remaining core activities and reduce to proposed level by 2005</li> </ul>
Inter-urban road transport	<ul style="list-style-type: none"> <li>• All remaining state shares in operating companies to be sold</li> <li>• All remaining links between interurban and urban passenger operators to be severed, with inter-urban services to be deregulated</li> </ul>
Air Transport	<ul style="list-style-type: none"> <li>• Corporatize Slovakia's three viable passenger airports and close others or decentralize to regional agencies</li> <li>• Commission study of possible uses of Bratislava airport</li> <li>• No investment to be made in Bratislava airport or its access links until strategic partner found</li> <li>• Dispose of state holding in Slovak Airlines</li> </ul>
Urban Transport	<ul style="list-style-type: none"> <li>• Corporatize urban transport companies as planned</li> <li>• In Bratislava, Košice and Prešov, concession tram and trolleybus networks</li> <li>• In all cities concession diesel bus routes</li> <li>• Prepare urban transport development plans for three major cities, including policies for demand and traffic management</li> </ul>

## 9. *Potential Role of the World Bank*

The potential role of the World Bank is subject to what the Slovakian government would request. However, the Bank could play a major role in helping the government strengthen its capacity in public investment planning; improve its road financing system; embark on a more ambitious railways reform program; and complete liberalization of bus operations and the commercialization/privatization of air services operations. Complementing the role of the other players (EU, EIB, EBRD), the Bank's assistance would be built on partnership, and emphasize selectivity.

The emphases, however, should be put on helping Slovakia to complete reforms so as to restore sustainable growth, advance the process of EU accession, and improve living conditions especially among vulnerable groups. Therefore, the World Bank assistance would focus on the following objectives: (i) completing the transformation reform (including privatization) of a whole sub-sector, such as the railways (including funding the retrenchment scheme); (ii) strengthen governance and build more effective public institutions, such as Slovak Road Administration; (iii) eliminating the main transportation bottlenecks, such as main network bridges. A workshop based on the current strategy paper would offer broad consultation on transport reforms and it could also serve as a preparation for selecting the best method of Bank interventions.

### a. Institutional reform

Reform of Slovakia's transport operating agencies into private companies is already under way (disinvesting from an airline, corporatization of bus operations, privatization of trucking companies and waterway operations, corporatization of airports and railways) but is impeded in the case of the railways by a lack of funding for the retrenchment of up to 10,000 staff. The European Institutions, the main source of financial support, limit their involvement to infrastructure investments, and do not (with minor exceptions) address sustainability and institutional reforms. The Bank can offer its experience and assistance in strengthening governance and institutions through completing the transition reforms.

Reform of road financing, including the review of user charges (their structure, as well as their level) cannot be delayed long. Road user charges in Slovakia need further harmonization with the *acquis* and they are also expected to better reflect the use of the roads. In addition, a Motorway Corporation should also be established to plan, finance and operate the motorway network at a rate compatible within the capacity of user charges to fund it.

The proposed corporatization of the railway should be seen as first stage in the introduction of private capital and operational experience. ŽSR has received technical assistance from various sources that have recommended different ways that this could be done, but so far its management has been reluctant to take the final decision on what to do.

In summary: there are therefore three potential roles for the World Bank in supporting this objective that could materialize in the form of adjustment lending:

- First, given the amount of advice already provided in straightforward technical advice on how to go about privatization of transport agencies, the role of the Bank could be to organize a Transport Reform Workshop, with presentations from government agencies involved in the process, and from those who have achieved success in this field in other countries.

- Second, with specific reference to the railways, once a committed program for reform had been initiated by the government, the Bank could provide funds for part of the retrenchment of railway staff. This would concentrate on the excess staff in the core activities of the railway, not those who would simply be transferred to concessionaires or contractors.

- Third, technical advice on how to reform the management of the Slovak road network (radical reform of road funding, set-up of an independent motorways agency, etc.).

#### b. Infrastructure maintenance

Slovakia's needs for rehabilitation and expansion of its transport infrastructure are extensive and compelling if it is to benefit from the accession to the EU. The roads sub-sector alone requires about US\$350 million a year of investment, while the railways need about a quarter of that amount. EIB sources will provide only about 5% of the road investment (much of the remainder coming from user charges, but there will still be a financing gap of about US\$100 million a year) and this is exclusively on the corridors that form part of the EU priority road network. The World Bank could support maintenance/improvement of the existing road capacity and enhance accessibility in the eastern regions (those with the highest rate of unemployment and the lowest rate of investment in productive industries) through a small investment into the bridge rehabilitation program.

#### c. Decentralization

Decentralization of transport administration and regulation as foreseen in a new state structure will require a rapid training of staff and implementation of measures to ensure that expertise now residing in the central administration is made available to the new decentralized agencies. The role of the World Bank would be in assessing the professional needs of the new regional agencies once their responsibilities were defined, and coordinating the funding of technical training that are planned to be financed mostly from European sources.

#### d. Regional development

Development of the eastern provinces of the country could be facilitated by improving its access to potential markets for its output, now seen as being mostly in the EU. The most impressive way of improving the accessibility of this region would be to complete the D1 motorway as quickly as possible. But this would have to be consistent with not diverting

funds from other applications, in so far as possible, getting the users of the motorway system as a whole to finance its expansion through user charges. The main role of the World Bank would be covered by the road maintenance activity, mainly through road financing reforms, so that its funding allocation procedures took account of economic imbalances between regions.

These above activities could be the components of a Utilities and Infrastructure Adjustment Project, aimed at getting the Slovakian transport sector in shape to face the rigors of decentralization and entry to the EU. The size of the loan component would be about US\$80 million. The three components would be for:

- the retrenchment of about 5,000 staff from core railway activities, so that ŽSR can better compete in the competitive environment of the EU, conditional on commitment to an agreed feasible restructuring plan (about US\$50million);
- deferred maintenance of the Class I, II and III road network bridges (mainly in the east of Slovakia; about US\$20 million)
- full restructuring of the road financing and management (including establishment of a Motorway Agency to finance and manage the motorway and expressway networks) and implementation of a scheme based on decentralized responsibilities.

The last component would be in the form of technical assistance and training (managed by the WBI), and could amount to US\$5 million to US\$10 million.

## ***Bibliography***

***Multi-country transport programme: Costs and Benefits of Enlargement: The Slovak Republic Country Report,***

*Halcrow Fox, for the Phare Programme of the European Commission,*  
October, 1999

***Slovak State Highway Fund Debt Financing Strategy in the International Capital Markets***

*SBC Wartberg,*  
October, 1996

***Agglomeration in the global economy***

*Gianmarco Ottaviano and Diego Puga,*  
*Centre for Economic Performance, London School of Economics,*  
Discussion Paper No. 356, August, 1997

***Accident Rate on the Road Network of the Slovak Republic in 1998,***

*Slovak Road Administration*

***Infrastructure, transport costs and trade,***

*Bougheas, Demetraides and Morgenroth,*  
*Journal of International Economics, 47(1999), 169-189*

***Transport of the Slovak Republic,***

*Ministry of Transport, Posts and Communications,*  
March, 2000

***State Road Fund for Road Economy, 1998***

***Railways of the Slovak Republic, ŽSR, 1997***

***Highways Investment Planning Study,***

*Task 1, Road Financing,*  
*Parkman Consultants for SRA,*  
April, 1998

***Joint Action Plan on Transport and the Environment,***

*Ministry of the Environment and Ministry of Transport, Posts and Telecommunications*  
*(CD), 1999*

***Tunel Branisko,***

*Slovak Road Administration, 1999*

**Internet sites**

***Ministry of Transport, Posts and Communications***

Government of the Slovak Republic

([www.telecom.gov.sk](http://www.telecom.gov.sk))

***Division of Informatics and Economics***

Transport Research Institute

Žilina University

Žilina, Slovakia

(<http://www.telecom.gov.sk/vud/idicen/info.htm>)

***Vienna International Airport***

(<http://www.viennaairport.com>)

***Slovak Shipping and Ports***

(<http://spap.sk>)

***Slovak Railways***

(<http://www.zsr.sk>)

***Slovak Roads Administration***

***ČESMAD***

Slovak Road Transport Association

(<http://www.cesmad.sk>)

***European Commission of Ministers of Transport (ECMT)***

(<http://www.oecd.org/cem>)

***International Union of Public Transport***

(<http://www.uitp.com>)

*Some principles for modern road financing*

A totally new approach to road financing is needed now that decisions have been made to abolish the Road Fund and to decentralize government. This provides a good opportunity to implement a broad plan to restructure the funding of road maintenance and investment.

The road financing reforms should be based on the following principles:

- Road users should pay for use of roads through an explicit two part tariff: the annual vehicle license fee charges for access to the road network (supplemented by a heavy vehicle license fee), and a road maintenance surcharge added to the price of fuel as a charge for use of the road network.
- Application of the above road tariff *should not* abstract revenues from the consolidated budget. The Congress needs to be persuaded to convert an allocation of the present fuel tax into an equivalent fuel levy for road maintenance, but no more. Revenues for development and expansion of the network should come from additional payments by road users. That is part of the objective, that road users should pay for the service provided, know that they are paying and what they are paying for, so they can demand value-for-money in the administration of their funds.
- The proceeds from the agreed road tariff would be administered directly by a new agency which would be managed by a Board, including representatives of government (both MOF and MOT), road users and the business community, with its chairman preferably *not* being chosen by the government. This would create a form of surrogate market discipline. The directors would represent the people who are paying for the roads and would have a strong vested interest in seeing that they are not over-charged and that the money is well spent. At the same time, this arrangement would offer adequate oversight by the government.
- The Board would have a small secretariat, and there should be independent technical and financial auditing by the Auditor General's Office, or by private sector auditors appointed by the Auditor General. Some of the Fund's revenues would be allocated to a restructured SRA which would be responsible for planning and contracting development of the national road network, some to the regions who will take over much of responsibility for maintenance of the road network, some to the municipalities who need funding to expand and maintain their roads, and a possible balance to a new Motorways Agency. In this way, the agency would support maintenance of all roads (including cost-sharing with local governments and communities).

The Road Fund was criticized as being inconsistent with effective expenditure control, distorting the allocation of public sector resources, and being incompatible with efficient management of government resources. A new agency can be designed to meet the objectives of securing adequate funding and giving users appropriate economic signals to

guide their behavior, while at the same time satisfying the requirements of fiscal control and responsibility.

The agency would be designed as a means of delivering efficient road maintenance services, and possibly new construction. The central issue is the extent to which allocation of revenue to the agency would be under political control. From a conventional democratic perspective, the more political control the better, but from a perspective of more direct democracy, some autonomy of road users in the allocation of their own funds is more appropriate. Slovakia as a society has rejected the Road Fund as previously designed but as yet has not determined its preferred alternative. The basis of the case for keeping some independence in the administration of road user charges is that evidence from other countries is that users are willing to pay for more for road maintenance, if they can be assured that the charges they pay are really used for this purpose. Their concerns can only really be satisfied through their having some say in the management of the resources they contribute.

While it could be argued, and often is (see the report on *Reform of Extrabudgetary Funds, April, 2000* prepared by Csaba Laszlo) that the conventional democratic process is the best way for society to allocate its resources, when the funds contributed specifically for one purpose (road maintenance) are diverted to another, that is more a denigration of the democratic process rather than a demonstration of its success. Most of the other arguments against agencies managing their own revenues are negative ones about financial control, but these can all be met through the design of the funding, operation, audit and control mechanisms. There are now many positive examples to show that this is feasible.

The present revenues for road maintenance and development come from two sources, and this situation is unlikely to change, other than for the possible substitution of tolls for vignettes:

- license fees charged for access to the road network (misleadingly called a *Road Tax* in Slovakia) which could in future be more varied to reflect axle weights and thus take account of the physical and wider environmental damage (noise, pollution, etc.) caused by lorries, as it is set out in the *acquis*;
- a fuel levy – in addition to the fuel excise duties - that takes account of the use of the road network, such use being closely linked to the need for road maintenance expenditure and the benefits received from it. Vignettes and tolls are specific charges for use of part of the network.

The first source of user charges would be designed to meet the cost of improvement and expansion of the road network, while the second would be allocated to maintenance.

The issue of debt authority only arises in relation to new construction. China and Mexico are two of the more prominent users of securitization of toll revenues to obtain loans for financing a more rapid construction of new capacity than would be possible from direct allocation of user charge revenues. Securitization also makes it possible for future users

of a road to be charged for its construction, rather than making existing users pay all the cost, even when they do not need all the capacity provided. If funding for expansion of the existing road network comes mostly from fixed charges, these can also be securitized for the same purpose. Objectors to allowing road agencies to raise debt argue that there is always an implicit government guarantee of any debt, since no government would allow its road agency to default or go bankrupt. But there are growing instances of governments not guaranteeing loans to public sector agencies (in East Asia, several toll road companies have been allowed to go into default, as have the financiers who supported them), so this argument is losing force.

A simple and consistent procedure is needed to divide revenues between the different road authorities. The procedures should be transparent, fair, related to need, and, where feasible, related to each authorities ability to generate funds from other sources. There are two basic approaches. The administering agency can either allocate revenues using formulas or base the allocations on a direct assessment of need.

A *formula-based system* starts by allocating among the main, urban, and rural road authorities and then goes on to subdivide each allocation among the individual road agencies within each group. For example, a certain percentage of revenues would be allocated for urban roads, another percentage to rural roads, with the remainder going to the main road network. For example Latvia allocates 27 percent of the annual vehicle tax and 30 percent of the fuel levy to municipalities. These procedures are to ensure that different types of road agencies each get a fair share of the revenues available, provided the proportions are regularly amended in light of experience.

The next step is to separate each allocation among the road agencies in each group. There are two main ways of doing this: (i) each agency must compete for the available resources; or (ii) the resources are allocated on the basis of network and traffic characteristics. Under the first system the agencies bid for the funds, a panel evaluates the bids, and then decides which road agency should get what. The bids cover both maintenance and investment programs, with investment priorities usually assessed using benefit-cost analysis. Hungary used to use this system, and while it is not a particularly good way of meting out funds (some road agencies end up being fully funded, while others get little or nothing), it does encourage the road agencies to put a lot of effort into planning and justifying their road programs.

Under the *direct assessment system* revenues for investment are usually allocated using benefit-cost analysis, as under the first system. Guidelines indicate how the investment programs are to be prepared, and how benefit-cost ratios are to be computed, and may specify the minimum acceptable benefit-cost ratio. Audits are made to ensure that the calculations have been carried out correctly (for example, Transfund (New Zealand) currently has a cut-off ratio of benefit/cost ratio of 4.0. Staff from Transfund audit a sample of all benefit-cost calculations for all schemes over \$700,000). Revenues for maintenance are allocated on the basis of network and traffic characteristics. The administering agency generally uses formulas based on parameters such as length of the road network, volume of traffic and ability to pay. Korea has this last feature, with an inverse financial ability index as a heavily weighted parameter. It would be important to

include this feature in Slovakia, given the wide regional variations in per capita incomes and the particular needs to develop roads in those regions that have least.

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