The infrastructure development - a key issue by reforming the Bulgarian transport sector

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The national strategy for development of the transport infrastructure of Bulgaria has been presented. The main characteristics of the Bulgarian transport system has been given with analysis of the most important socio-economic factors influencing its development. The impact of the economic recession during the transition period after 1989 has been pointed out. A survey of the main issues of the on-going reform in the transport branch has been given.

Some data have been indicated from a general forecast study carried out in the framework of the EU funded TINA project. A strategic plan for development of the infrastructure of all types of transport – road, rail, water and air – has been presented containing data about the main projects. An emphasis has been put on the development of the sections along the European corridors crossing the country which are among the Government's priority in this field.

Before 1989 the road transport had been under the control of a

1 The new socio-economic context
Bulgaria belongs to the East European countries which in 1990 started reforming fundamentally their socio-economic and political systems. While the development was quite successful in the political area - the current political system meets all the requirements of the European standards - the economy restructuring went very slowly until 1997. The consequence was a drastic economic recession which affected significantly the national transport system. (Fig. 1). Nevertheless, a number of important steps have been made in reshaping the whole financial and economic system. Moreover, the actual Government is doing serious efforts to speed-up the country development and to accelerate the achievement of the long-term aim of the Bulgarian foreign policy - which has been set by national consensus - the full membership in the EU. The main priorities in the related economic plan are:

- further stabilization and development of the financial and banking sectors;
- removing the remaining legal and administrative obstacles to market development and foreign investment;
- bringing the privatization in the industrial sector up to planned 72% by 2000 (in 1997 approximately 50% of the GDP was generated by the private sector);
- acceleration of the land reform;
- reform in the health care and the budgetary sphere (education, army etc.).

One of the key issues in this plan is the reform of the transport branch.

2 The main characteristics of the Bulgarian transport system

Road transport
The total length of the national road network is 36,533 km (Fig. 2). The average density is 0.33 km per square kilometer. Approximately 90% of the roads are with asphalt surface. Their distribution in various categories is illustrated on Fig. 3. Prevailing are the two lane roads with overall size 6.00 up to 7.50 m. The major part of the motorway sections that are in an advanced stage of construction with total length of 25 km will be completely constructed and put in operation till the end of 1999. During the recession following the transition to the market economy the lack of finance for the road infrastructure brought to a general deterioration of the roads operating condition. More than 28% of them are in poor state and regardless of the fact that in this group are mainly sections with lower grade, they present a serious problem. The road administration in co-operation with the Bulgarian Government works hardly to stop this negative development.
single national monopoly organization, operating by regional branches and specialized departments for services and deliveries. The international transport was done by another state owned organization – The International Road Transport Company (SOMAT). The reports for 1994 indicate that some 7,000 Bulgarian companies for international transport compete with SOMAT which meanwhile have been successfully privatized.

The national road administration, called Head Road Office is responsible for the planning, design, construction and maintenance of the national road network and carries out investigations and counting of the road traffic.

**Railway transport**

The railway network of Bulgaria consists of about 4,300 km railroad lines (Fig. 4), 4,055 of them are with normal gauge (1,435 mm), the rest - with narrow-gauge (960 mm). About 960 km (22%) of the whole network are double tracked and 2,640 km (about 61.4%) are electrified. The system includes about 400 stations and 300 stops.

The major part of the railroad network is designed for a speed of 80 – 100 km per hour and only 150 km of the line is designed for a speed of 130 km per hour. The maximum speed of passing through the stations is limited by the points to 100 km per hour.

There is no limit weight of a train. The overall weight of a train at a speed of 80 km per hour is established for each line (between 560 and 1,900 tons) and has been reduced during the last years by 10 – 20% due to the comparatively poor condition of the traction rolling stock.

The traction rolling stock on the main railway lines exceeds the necessities, but most of the locomotives are since many years in operation, only 20% of them are under 10 years old. From technical point of view even they are obsolete. The railways don’t have enough locomotives for shunting services and diesel railcars. Although there is surplus of wagons, part of the special equipment is missing. As a whole the rolling
stock is in bad condition and with low capacity, which impedes the high-speed operation. The passenger cars are also very old and the comfort they offer can not meet the requirements for competitive service. The signalling systems meet most of the European safety standards. The telecommunication network consists of cooper cable transmission line (an optic cable line with 250 km length is under construction) and four digital PABX (reconstruction of another 20 is funded by PHARE). Radio train-dispatcher system is in operation on 80% of the main lines. New information systems are already contracted and financed by the World Bank.

The Bulgarian State Railways (BDZ) occupy a specific segment in the national transport system. They provide freight and passenger services at average distances of respectively 250 km and 75 km.

The railways are orientated to the domestic transport, less than 15% of their transport activity in ton x kilometer is on the international routes, and less than 3% - for passenger transport.

About one third of the passenger trains (140 daily) are fast trains for average distances of 310 km. A significant part of the short distance transportation and the suburban railway services are not economically profitable.

**Waterborne transport**

**River transport**

The economic recession after 1989 has strongly affected the Bulgarian river shipping. Among the most negatively influencing factors were the desapereing of the export market in the former Soviet Union and in other East European countries and the imposition of trade sanctions on Yugoslavia.

The whole Bulgarian river transport is organized along the Danube river where the ports Russe, Lom, Vidin and some minor ports are situated.

The Harbor Complex Lom and the Port Vidin play an important role in the transport link from Thessaloniki (Greece) to the Central and Western Europe. The adequate equipment and the terminal of the International Road Transport Company are important advantages of Port Lom. The ferryboat Vidin – Kalafat and the presence of a foreign trade zone give an opportunity for the development of various types of combined transport via Vidin harbor (Ro – Ro Vidin – Passau, Ro – La, as well as forthcoming ferryboat transportation in the direction Vidin – West Europe).

Port Russe comprises an intermodal terminal serving the traffic to Germany and Ukraine. It has a connection to the natio-
nal railway network and ferryboat link with Ro-Ro depot. The complex’s annual capacity amounts on more than 6,500,000 tons. The port may be visited by ships of displacement up to 5,000 tons during 5 – 7 months of the year. The waterway is watched, signaled and maintained by an organization, which is under the control of the Ministry of Transport, the ports are managed by two companies. With small exceptions the Bulgarian river transport ships are still property of the state owned Bulgarian River Shipping Company. The ships are mainly Bulgarian made, and obsolete, having in mind that most of them are more than 20 years old.

**Maritime transport**

In 1995 the Bulgarian seaports (Burgas and Varna) processed freights amounting to 2,057,100 tons. The two main sea ports of Bulgaria – Varna and Burgas process more than 60% of the national foreign trade volume. These ports have large capacities for different types of bulk and liquid freights, container terminals and Ro – Ro facilities. They are connected to the railway and road network. Bulaso – a subsidiary organization of the Ministry of Transport and financed by the State budget, controls the access to the ports by sea.

During the recession period the freight traffic was relatively less reduced, because Bulgaria is a big importer of energy sources – coal and petrol products – which represent a major part of the freights processed in both ports. Bulgarian Sea Shipping Company (till recently the only monopoly carrier) and about 10 private operators represent the merchant fleet of Bulgaria.

**Air transport**

The air transport of the country provides access to the rest of Europe, America, Africa and Asia, both by commercial passenger flights and charter passenger and cargo flights. In 1995 the main four Bulgarian airports (Sofia, Plovdiv, Varna and Burgas) served totally 2,214,178 passengers and 25,966 tons freights. In 1980 the domestic flights amounted to about 40% of the total volume, after the collapse in 1991 they amount only to 12%. Since 1991 an increase is observed only for the international traffic. At present the commercial domestic lines are limited only from and to Sofia, Burgas and Varna. The international flights provide connections with about 50 countries.

The advantages stimulating the dynamic development of the Bulgarian airports are the strategic geographic situation, excellent meteorological conditions, modern navigation equipment, competitive fees for ground service and opportunities for co-operation.

Bulgaria has constructed 10 civil airports, which were till recently in regular operation, four of them have international status. The remaining six are actually at disposal to the agricultural aviation. The activity at present is concentrated in Sofia, Burgas and Varna, the prevailing part of it is on international routes.

The national carrier Balkan Airlines reached in 1993 approximately 40% loading of the cargo flights, while for the passenger flights it was about 55%. Both figures are low. Although some positive signs in the general economic situation emerged in 1998, the company is still suffering from a series of problems, first of all from its old and wearied fleet. The Ministry of Transport is in charge for the control of the air traffic and the civil aviation and supervises the development and the safety of the civil aviation companies.

**Combined transport**

The combined transport is not developed enough in Bulgaria. The country has eight railway terminals. The existing systems for combined transport operate as an addition to the established organization without intermodal property, or other intermodal links. An example is the forwarding agency Despred (the biggest Bulgarian company for forwarding of freights), which offers container services, mainly based on contracts with shippers. The railways possess containers of different sizes and manage the terminals at the railway stations in the country. Trucks, on agreement with the railways, carry the delivery from and to the customers. Despred operates with some container terminals and offers transport of containers, owned by its customers or hired by them. Services to the Far East are offered both by land and sea, and in North – East direction – by sea.

Bulgarian Sea Marine by its subsidiary company Bulcon operates several container ships from the container terminals in Varna and Burgas. The railways use the ferryboat link to the Ukraine for wagons and - if possible – for trucks. Bulgaria has several Ro – Ro ports on the Black Sea and river ports for transshipment of trucks from and on ships and barges.

3 The reform of the transport sector

The strategic goal in this field is to improve the national transport system in order to:

- enlarge the available capacities and therefore create conditions for free movement of passengers and goods all over the country;
- improve the quality of the transport services;
- achieve an effective integration in the Trans-European transport network.

The achievement of this goal needs:

- reform of the legal framework accordingly to the new socio-economic context;
- finalizing the process of restructuring and privatization of the transport branch;
- analysis of the current economic situation, identification of the main trends and elaboration of short-, middle- and long-term forecasts for the traffic development;
- elaboration of a national strategy for development of the national transport system.
The legal framework
A number of important steps have been made in the last years directed towards creation of a legal basis for the development of a market oriented national transport system and its harmonization with the EU legislation. In 1998 according to the Government’s Legislative Program three laws have been adopted:

- law for the Automobile Transportation;
- law for the Road Traffic;
- law for Amendment and Addition to The Law for Civil Aviation.

For 1999 in this program are envisaged some other laws from the transport field, namely:

- law for Sea Spaces, Internal Waterways and Ports;
- law for the Railway Transport;
- law for Amendment and Addition to the Commercial Navigation Codex.

A series of regulations for application of this laws are under development, so that by the end of 1999 the legal framework will be already shaped.

The structural reform and privatization
The policy of the Ministry of Transport in the field of privatization is to preserve the dominant participation of the state only for a small part of the enterprises, having in mind the specific functions performed by them and their obligations to the state, according to the Constitution of Republic of Bulgaria and the international agreements. Selling auxiliary enterprises and activities and giving of concessions will lead to the withdrawal of the state from direct management.

On the beginning of this process of restructuring in the Ministry of Transport’s system there were 336 transport companies with 100% state ownership. Afterwards 8 new transport companies have been established, 37 have been transferred to the Ministry of Regional Development and Public Works; 45 are not any longer state property, being transferred as municipal property and 8 have been declared bankrupted. As per today, the number of the transport companies is 212, 102 of them are with 100% state ownership, in that number 9 are declared bankrupted; 10 are with more than 51% and 100 are with less than 51% state ownership.

Railway transport
In compliance with the Law for the Bulgarian State Railways and the Directive 440 of the European Council is envisaged only the railway infrastructure (railway lines, electric network, stations, etc.) to remain exclusive state ownership. The carriage of passengers and freights may be given on concessions after respective alterations in the Law for the Bulgarian State Railways. Subjects of privatization are the railway industry and the other subsidiaries of the National Company BDZ, as well as the commercial activity in the railway transport. By their sale the Ministry expects to attract direct foreign investments.

The re-structuring of the railways is under way, actions are taken for the privatization of auxiliary plants, enterprises and activities, for personnel optimization and accounting separation of the operations from the infrastructure. A further entire separation of the infrastructure from the operation is envisaged, establishing of separate enterprises for freight and passenger services, as well as step by step rendering of specific lines under concession to private carriers.

Road transport
An accelerated privatization is envisaged of 100% of all commercial companies dealing with freight and taxi transportation and other activities (forwarding, training and qualification of personnel, etc.). The Ministry of Transport have undertaken actions for free of charge transfer of ownership of entire passenger transport companies and bus stations to municipalities and up to now 45 companies have been already transferred.

Air transport
The strategy is all airline companies to go private step by step. The National Privatization Agency opened a tender for the national air company Balkan Airlines Ltd. There are no obstacles for full privatization of the small airline companies. A considerable part of the companies from the agricultural aviation are already private, some others are declared in procedure for privatization. Some assets of the civil airports, which are not directly connected with the prime activity, may be sold out.

Waterborne transport
A step by step privatization is envisaged of activities and companies not connected directly with the main activity of the shipping companies and the harbors. The companies with specific activity in the water transport system will be sold on condition that the new owner will continue to carry out all activities connected with maintenance of the canals and harbors, as well as with preservation of water purity and with issuing of certification documents for vessels’ fitness.

4 The forecasts for further traffic development
There are a number of studies on traffic prognosis carried out in the last years by both Bulgarian and foreign experts (Bonifica, Doxiadis Associates, 1996; GIBB, 1997; Japan International Cooperation Agency, 1998; TINA, 1998). A special attention has to be paid to the data from the project TINA which are based on a common scenario for the traffic of the countries from Central and Eastern Europe till 2015 (TINA, 1998). The developed model takes into account a series of relevant factors: the demographic development of the population in the regions, economic growth by branches and sectors, specific local conditions, European integration, national transport policy, infrastructure changes etc. In the field of the freight traffic the movement of 11 main types of
goods and freights is watched, in passenger traffic are encompassed three types of journeys — on holidays, social and business, on short and medium distances. There is one more “specific” scenario envisaging the normalization and inclusion of former Yugoslavia, dependent on the development of the political events there. A methodology for investigation and forecasting is used approved in Western Europe and adapted to the realities in Eastern Europe. Some of the main results are presented on Fig. 5.

![Fig. 5: Forecast for traffic development by types of transport](image)

5 National strategy for development of the transport infrastructure

An important prerequisite for the successful carrying out of the reform in the transport branch is the elaboration of a national strategy for development of the transport system for the period from the year 2000 till the moment of joining the EU, in the context of the new EU’s programs. The key issue in this strategy is the program for investment in the transport infrastructure (Ministry of Transport, 1999).

The National Program for Development of the Transport Infrastructure includes the following main projects:

- European Crete Transport Corridor No 8: Durres - Kaflan/Kafassan - Skopje - Gjueshevo - Sofia - Plovdiv - Bourgas - Varna;
- European Crete Transport Corridor No 4: Dresden - Prague - Bratislava - Gyor - Budapest - Arad - Craiova - Sofia - Thessaloniki/Plovdiv - Istanbul;
- European Crete Transport Corridor No 10;
- European Crete Transport Corridor No 9: Helsinki - St. Petersburg - Pskov - Kiev - Ljubljaevka - Chisinau - Bucharest - Russe - Dimitrovgrad - Alexandroupolis;
- European Crete Transport Corridor No 7: Inland waterway Rhine - Main - Danube;
- Sofia National Airport;
- Rehabilitation and modernization of the national road network;
- Restructuring, rehabilitation and modernization of the railway transport.

Investment projects along Transport Corridor No 8

As compared to the other two countries (FYROM and Albania) through which the corridor passes, Bulgaria has developed on its territory comparatively more complete infrastructure along the corridor’s route. However as a main task remains the construction of a direct railway link between Sofia and Skopje which implies the construction of a new 2.5 km railway connection through a border tunnel and the construction of the railway border station Gjueshevo, as well as the reconstruction of the railway section Radomir - Kjustendi - Gjueshevo. The costs for the first stage of this construction amount to about $10 M. Partial funding to the amount of 90% of TECU is provided through PHARE grants. These funds are used for launching the construction of a common border station at Gjueshevo.

Other priority projects along the route of Corridor No 8 are as follows:

- Reconstruction and rehabilitation of the access road to the border crossing point Gjueshevo in the road branch section Radomir - Gjueshevo (88 km). Estimated investment - $100 M.
- Completion of the construction of the double electrified railway line in the direction Plovdiv - Stara Zagora - Varna.
- Construction of the motorway Trakiya in the road section Plovdiv - Bourgas (193 km). Estimated investment - $380 M. The concession documentation has been prepared with the co-operation of the consulting company GOPA - Consultants, Germany. The concession tender procedure is planned for launching in November 1998.
- Construction of the motorway Cherno more (Bourgas - Varna; 93 km). Estimated investment - $380 M. The concession documentation has also been prepared with the participation of the consulting company GOPA - Consultants, Germany. The concession tender procedure is planned for launching by the end of the year.
- Reconstruction, modernization and development of the port of Bourgas. A master plan study for development is prepared in co-operation with consultants from the port of Barcelona. The major investment objects are as follows:
  - Terminal 1 - for general and liquid cargo
  - Terminal 2 - for coal and ores, machinery and equipment
  - Terminal 3 - for Ro-Ro and ferryboat shipment
  - Terminal 4 - for containers

Initial financial sources for the development of the port of Bourgas amounting to $120 M. has been provided from the...
Japanese Overseas Economic Co-operation Fund. These funds will be used for the construction of new breakwater and the bulk cargo terminal.

- Reconstruction, modernization and development of the port of Varna. A master plan study for the development is prepared in co-operation with consultants from Posford, U.K. The major investment objects are as follows:
  - Container terminal $ 32 M;
  - Grain terminal $ 15.6 M.

- Construction of combined transport terminal in Sofia. The feasibility studies shall be completed by the end of 1998. The consultant working on this task is Sealand, USA. The financing is provided by USTDA and Sealand's own sources. Launching of the operation of a specialized shuttle-train for container transportation between Sofia and Thessaloniki (Greece) is planned until the end of this year. Estimated investment - $50 M.

**Investment projects along Transport Corridor No 4**
The main investment projects related to this corridor on Bulgarian territory are as follows:

- Construction of a new combined (road and railway) bridge over the Danube river in the Western part of the common border between Bulgaria and Romania. The studies for the location and the expedience for the construction of the new bridge are worked out by the British consultants GIBB. Estimated investment - $ 190 M.
- Reconstruction, modernization and electrification of the railway section Doumpniza - Koulata (136 km). The project and tender documentation are completed. The tender procedure for assigning a works contract is currently under way. Signing of the contract with the construction company is expected by the end of 1998. Estimated investment - $ 30 M., provided by the PHARE Program and by own funds.
- Modernization and electrification of the railway section Plovdiv - Dimitrovgrad - Svilengrad. Estimated investment - $ 358 M.

**Investment projects along Transport Corridor No 10**
The main investment projects related to this corridor on Bulgarian territory are as follows:

- Modernization of the road section from Sofia to the border crossing point with ex-Yugoslavia. Estimated investment - $ 50 M.
- Reconstruction of the Sofia ring road (north and south sections) according to the motorway standards. Estimated investment - $ 110 M.

**Investment projects along Transport Corridor No 9**
The major investment activities along the corridor on Bulgarian territory include:

- Expansion and modernization of border crossing, transport and other infrastructure of the Rousse - Giurgeu crossing, including the repair of the presently existing bridge over the river Danube. The activity is under accomplishment by a number of sub-projects financed by the Bulgarian national budget and by PHARE funds.
- Reconstruction and modernization of the international road I-5 (E 85) North - South, including construction of a road tunnel under the Balkan mountains in the region of Shipka peak. Estimated investment - $ 490 M, including $92 M for the construction of the tunnel.
- Modernization and development of road and railway infrastructure in the direction Rousse - Veliko Tarnovo - Stara Zagora - Dimitrovgrad, including electrification of the non-electrified railway sections.
- Development of the border crossing infrastructure at the Greek border by means of utilization of the EU cross border co-operation program PHARE-INTERREG. The necessary co-financing will be provided through an European Investment Bank's (EIB) loan and funds from the Cross-Border Co-operation Program and the Road Fund.
- Promotion of combined haulage and improvement of the terminal for combined transport in Dimitrovgrad. Estimated investment - $ 30 M.

**Investment projects along Transport Corridor No 7**
The main projects are:

- Development of the port of Lom. In 1998, in co-operation with the consulting company Hamburg Port Consulting, Germany, were elaborated master plan and feasibility study for the development of the port. The consultants' studies showed good rate of return on the investment for the port. The preparation of the financial scheme for the realization, the tender and concession documentation are foreseen which would enable the opening of the tender procedures in the beginning of 1999. Estimated investment - $ 50 M.

- Development of the port of Rousse's complex. The master plan and the feasibility study for the development of the port of Rousse are prepared by GIBB, U.K.

  Major objects in the framework of this project:
  - General modernization of the ports' infrastructure (including Svishtov and Somovit ports) $ 18,2 M;
  - Development of the combined transport terminal $ 19,2 M;
  - Construction of a cereals terminal $ 3 M.

- Construction of a transport link for combined haulage in the direction Rousse - Varna in order to speed up cargo transportation from and to Central Europe along the Danube and using the navigation canal Rhine - Main -
Danube and passing through the Black and Aegean seas by means of the relation river - river port (Rousse) - railway - sea port (Varna) - sea. The investment timetable is to be defined.

**Other transport investment priorities**

**National Airport Sofia**
The master plan, feasibility study and financial scheme for the development of the airport are worked out by the British consultants Halcrow and GIBB in co-operation with Bulgarian engineering organizations. This project includes the following main objectives:

- passenger terminal with capacity 2,5 M passengers per year and ancillary facilities 73,6 MECU
- modernization and extension of the existing runway 21,0 MECU
- cargo terminal and ancillary facilities 14,8 MECU

**Rehabilitation and modernization of the national road network**
130 road sections of the international roads crossing Bulgaria with a total length of 1600 km and funds amounting to $250 M are under rehabilitation and modernization by two consecutively implemented projects: Transit Roads I and II. The first project started in 1992, the second one began in 1997 and is expected to be completed by the end of 1999. The funds are provided by the EIB, the European bank for Reconstruction and Development (EBRD), Bulgarian budget and PHARE Program. In August 1998 a contract agreement with the EIB was signed for the provision of 60 M. ECU for the realization of a new project - Transit Roads III - for rehabilitation of about 900-1000 km main roads in the period 1999-2000. Besides the recreation of the roads the Transit Roads project is aiming to the increasing of the load capacity up to 11.5 tons per axle for the most heavily loaded directions. By the realization of the third part of the rehabilitation program about 85% of the main directions of the road network will be in accordance with the European norms for quality, safety and loading of the road surfaces.

**Rehabilitation of the Bulgarian Railways**
Based on a comprehensive study for the National Railway Company BDZ, conducted by Irish consultants, a general project and a number of sub-projects directly connected with the improvement of the BDZ’s operation have been outlined. After a series of missions organized by the World Bank and the EBRD in Bulgaria, the rehabilitation projects have been updated regarding different priorities as well as taking into consideration the amount of funding granted by the above mentioned banks, by the Export Credit Agency, by the PHARE Program and by local contribution. The sub-projects, aimed at overall restructuring and rehabilitation of the railway transport in Bulgaria run to about 40.

The total amounts of the project amounts to $ 300 M. The major sub-projects are regarding as follows:

- renewal of the permanent way of the main routes;
- equipment and machines for track maintenance and current repair;
- workshop equipment for rail welding;
- information systems (operational system for freight transportation, information system for passenger services accounting information system, improvement of the network for data transmission);
- signalling and telecommunications;
- equipment and machines for track capital repair;
- equipment and spare parts for locomotives and rolling stock;
- rehabilitation of passenger coaches.

In compliance with the above priorities and principles for planning and construction of transport infrastructure projects, the Bulgarian Government has adopted a four-year middle-term Investment program for the period 1998-2001. The program states clearly the commitment of the state budget for the infrastructure development in the country, including the transport sector. The investments for the carrying out of 31 transport projects amount to 615 M. ECU, out of which 137 M ECU are provided from the state budget. In addition to the middle-term Government Investment Program the Ministry of Transport has drafted an Investment Program for development of the country’s transport infrastructure. It also considers non-budgetary sources: The Bulgarian Motorway and Road Network fund, credits from international financing institutions, public-private and private concessions etc. Until 2001 the construction and development of 55 transport infrastructure projects totaling to 1226 M ECU is planned. The analysis of the financial sources for the development of the transport infrastructure in Bulgaria - which is of national, regional and European importance - shows that the structural funds of the European Commission which will become effective in the period 2001-2006 shall play a key role in near future.

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