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JAPAN INTERNATIONAL  
COOPERATION AGENCY(JICA)

BULGARIAN MINISTRY OF TRANSPORT  
BULGARIAN STATE RAILWAYS  
REPUBLIC OF BULGARIA



**THE MASTER PLAN STUDY  
FOR  
LONG TERM  
MANAGEMENT OF  
BULGARIAN RAILWAYS**

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MARCH 1998

JAPAN RAILWAY TECHNICAL SERVICE  
DAIWA INSTITUTE OF RESEARCH LTD  
YACHIYO ENGINEERING CO., LTD

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**FINAL REPORT**

**SUMMARY**

**MARCH 1998**

**JAPAN RAILWAY TECHNICAL SERVICE  
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**1 U S Dollar=1,700 Leva=110 Yen  
(September 1997)**

## **PREFACE**

In response to a request from the Government of Republic of Bulgaria, the Government of Japan decided to conduct a master plan study on The Master Plan Study on Long Term Management of Bulgarian Railways and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Bulgaria a study team headed by Mr. Hotsumi Harada, Senior Adviser, Japan Railway Technical Service (JARTS), three times between October, 1996 and March 1998.

The team held discussions with the officials concerned of the Government of Bulgaria, and conducted field surveys at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of Republic of Bulgaria for their close cooperation extended to the team.

March 1998

A handwritten signature in black ink, appearing to read 'Kimio Fujita', with a stylized flourish at the end.

**Kimio Fujita**

**President**

**Japan International Cooperation Agency**





## Letter of Transmittal

March 1998

Mr. Kimio FUJITA  
President  
Japan International Cooperation Agency

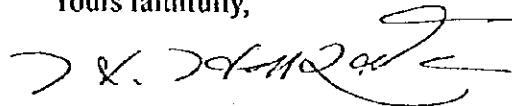
It is my great pleasure to submit herewith our Report on the Master Plan Study for Long Term Management of Bulgarian Railways. The report is the outcome of the Study carried out by Japan Railway Technical Service, Daiwa Institute of Research Ltd. and Yachiyo Engineering Co.,Ltd. based on the contract with Japan International Cooperation Agency (JICA).

The Study Team conducted field surveys in Bulgaria three times during the period between October 1996 and January 1998. The Team held thorough consultations with the Bulgarian governmental agencies concerned regarding the results of the field surveys and studies in Japan, and formulated a master plan including staged long-term programs on the long-term management of Bulgarian Railways. In close cooperation with the Bulgarian side, the Team studied the feasibility of the long-term plan from a wide spectrum of management, organizational, financial, technical and environmental aspects, and worked out this report.

On behalf of the Study Team, I would like to inform you with my heartfelt thanks that Bulgarian governmental agencies concerned and counterpart personnel extended to us the generous cooperation, assistance and warm hospitality during our stay in Bulgaria.

Our thanks are also extended to Japan International Cooperation Agency, the Ministry of Foreign Affairs, the Ministry of Transport, and the Japanese Embassy in Bulgaria and JICA Office in Austria for their valuable advice and support.

Yours faithfully,



Hotsumi HARADA

Leader

The Study Team of the Master Plan Study  
for Long Term Management of Bulgarian Railways



# **THE MASTER PLAN STUDY FOR THE LONG TERM MANAGEMENT OF BULGARIAN RAILWAYS**

## **Objectives of the Study:**

1. Formulation of a long term management plan up to 2020, of the Bulgarian Railways to comply with the State imperative to shift to a market economy.
2. Formulation of management improvement/development plan of the Bulgarian Railways.
3. Formulation of a phased investment plan preparing for integrating the Railways' network with that of Europe.
4. Transfer of planning know-how and relevant technologies to the Bulgarian counterpart personnel during the Study.

## **Outline of the Study:**

### **1. Socio-Economic Framework**

The planned period (up to 2020) is divided into three Phases.

The First Phase- Social/economic situations will stay unstabilized.

The Second phase- Economic recovery is expected, based on the calmed social conditions.

The Third Phase – Economic growth is expected based on the stabilized social situations.

### **2. Compliance with the EU transport policies**

The Bulgarian Government is strongly pressing forward to acquiring the full membership in EU. The railways' internationalization, their organizational restructuring and the improvement in their financial position, in the member countries, are the mainstay of the EU transport policies. Bulgaria must comply its policies with them. Presupposing that Bulgaria will be incorporated in EU in 2007, the Study proposed the due steps of integrating BDZ' network with those of European countries.

### **2. Financial Situations**

BDZ' financial position is serious, so much so that the normal level of maintenance of the assets might be threatened. To overcome it, the Study proposed various measures which include the reduction of staff member, fare/tariff raises, abolition/reduction of services in certain light traffic density lines, and so on.

BDZ' financial structure is characterized by its dependence on freight transport. The improvement of the financial balance in the passenger service is of vital importance. The full compensation of the PSO and other assistance by the Government is imminent, especially considering the growing difficulty of being cross-subsidized by freight, whose financial position will be aggravated after the Open Access, where the tariff raises would become hardly possible due to the competition getting ever harder.

### 3. Phased improvement

- First Phase (1998~2000)

Full completion of RRP and FRP going on.

Transport Policies : Promote the Freight Freeway transport supported by bi-/multi-lateral agreement as a transition to the regular Open Access system.

Restructuring : Accounting Separation should be prepared for the vertical separation.

Pricing : Aggressive raise in freight tariffs.

Maintenance & Investment: Focusing on the recovery of the delay observed in RRP.

- Second Phase (2001~2005)

Transport Policies : Expand the Open Access system.

Restructuring : Accounting separation as well as organizational separation should be performed, the latter aiming to establish the three management in the integrated railway; infrastructure, freight and passenger, each being highly autonomous and market-oriented.

Pricing : Successive raises in passenger fares coordinated with the increase in GDP per capita.

Maintenance & Investment : Stress should be placed on reinstatement of normal maintenance levels. Some investments must be made, however, for the development of seamless combined transport.

- Third Phase (2006~2020)

Transport Policies : Perform the regular Open Access system and integrated the BDZ' network with those of EU.

Restructuring : Institutional separation should be performed; where each of the three management will become an independent companies, if not privatized.

Pricing : Tariff raises should be made cautiously, considering the competition getting harder.

Investment : Some new investments should be made; for example, for the increase of passenger trains' speed.

- Possibility of Earlier Implementation

When the social/political conditions and economic growth, as well as the improvement of BDZ financial balance, evolve more favorably than planned, it is recommended to accelerate the implementation of the standard plan on a step by step basis.

### 5. Measures to be taken in all Phases

Personnel : Achieve the 23,000 staff level in total by 2020, through minimizing the replacement of the natural attrition.

Marketing/Sales : Restructure the Freight Dept. so that the Seamless Combined Transport be promoted, shifting from bulky cargo diversified goods.

Light Traffic                    Ensure substitution measures (buses, etc)  
Density Lines                :    Transfer the lines to related companies & /or Local Authorities.

## **6. Financial Projection**

Profits at Pre-Tax level, between 2002 and 2011 are expected, pre-supporting that the Government will shoulder all the infrastructure costs, and that the Access Charge will be estimated by SRAC method.

## **7. Train Operation**

Analysis was conducted as to the actual train operations and to the operational facilities/rolling stock. Proposals were made as to their improvements, line-/section-wise, facility-wise, with stress on the necessity of the passenger trains' speed increase and of the R&D.

## **RECOMMENDATION TO BDZ:**

BDZ would perform the Accounting Separation as soon as possible, for proceeding to the Institutional Separation. It is recommended to accelerate the standard plan on a step by step basis if the environment permits. For the revenue increase, the aggressive tariff raise for the freight and the positive fare raise, the strengthening of Seamless Combined transport, and the speed-up of intercity passenger service, etc. are recommended.

For the cost reduction, the continuance of staff reduction, the improvement of incentive programs, and the reduction of light density traffic lines are recommended.

## **APPEAL TO THE GOVERNMENT:**

The Government should, in the legislation, to clearly stipulate: - the financial responsibility of the Government from the moment of Open Access as to the maintenance and development costs of infrastructure, - the long term plan of reinstatement of deferred maintenance and strategic investment, - imposition of Access Charge on the licensees.

The Government should clarify and implement the notion of Road User Charge.

The Government should pay all efforts to make the BDZ's passenger service financially independent. For this objective, fully compensate the passenger PSO, take initiative in reducing light density traffic lines, and shelve a part of the debt of the Passenger Unit/Company to the Government prior to the Institutional Separation.



## SUMMARY

### FOR EXECUTIVES

#### OBJECTIVE OF THE STUDY

- 1) Analysis of the future alternative objectives and policies of the Ministry of Transport (MOT) and Bulgarian Railways(BDZ).
- 2) Preparation of a long term plan for improvement of management efficiency and development of Bulgarian railways together with economic/financial analysis based on the mechanism of market economy.
- 3) Preparation of a time phased plan including investment for integrating Bulgarian railways into the European railway system.
- 4) Technology transfer to the Bulgarian counterpart personnel in the course of the Study.

#### TARGET YEAR OF THE STUDY

The target year of the master plan shall be from 1998 up to 2020 based on the Scope of Work.

- For Bulgaria to get qualified for a full membership of EC, and for BDZ to survive the coming critical decades, adaptation of Bulgarian transport policies to those of EU, supported by the growing Bulgarian market economy, is inevitable. So is the BDZ restructuring. In fact, "Open Access" implies no other than the Vertical Separation of an integrated railway. "Access Charge" could be a real European market price, only when the BDZ' Institutional Separation is realised. All of these notions line up in the same queue. BDZ must ultimately be divided and incorporated in the Pan European transport network. Many other integrated national railways of Europe have opted the same way. BR, DB, SJ are the examples.

#### CHAPTER I SOCIO-ECONOMIC FRAMEWORKS

##### ● GDP projection

Considering the geographical advantages of this countries in Europe, the industrial expertise and the generally high educational level of this nation, the average annual growth rates of Bulgaria GDP were, according to phases, assumed as follows:

- 1<sup>st</sup> Phase : 1998~2000 : 0% -- National economy will still stay stagnant
- 2<sup>nd</sup> Phase : 2001~2005 : 3% -- Recovery is expected, stimulated by adjacent countries, such as Russia, Czecho/Poland/Hungary, etc.
- 3<sup>rd</sup> Phase : 2006~2020 : 5% -- Growth of labor intensive/assembly type industries is expected, stimulated by international capitals flowing in.

● BDZ' traffic will change with the above-mentioned economical growths

Freight : From rail-mode bulky cargo to multi-mode Seamless Combined Transport Goods

Passenger : From regional traffic to intercity traffic, due to the urbanisation and the GDP per capita, with the total decrease in population.

## CHAPTER II ADAPTATION OF BULGARIAN TRANSPORT POLICIES TO THE EU'S

● EU Directive 91-440

Under the new Cabinet's explicit policy, it is imperative for the transport policies to be adapted to those of EU. The EU Directive 91-440 tells: One ; Construct an efficient international transport system throughout Europe, deploying all the modes.

Two; Revitalise the railway mode, for it would be more energy saving and less hazardous to environments. In their implementation, EU stresses that the transport policies of each member country should be based on the following principle:

### (1) Internationalisation through Open Access System

To make the traffic international and inter-modal, introduce market forces into the rail-mode and admit the open access to the rail-infrastructure to all the licensees, imposing them an equal ACCESS CHARGE.

### (2) Railway Restructuring

To divide the now integrated railway management into Infrastructure's and Operation's (VERTICAL SEPARATION) and as to the latter, into freight and passenger management (HORIZONTAL SEPARATION). There the former national railway, would be no more than one of the licensed operators using the same infrastructure.

### (3) Sound Finance of Railway

To assure the equal conditions of competition among the modes, and among the licensed operator, State should shoulder all the railway infrastructure costs, as it does for the road, sea-/air-ports. The former integrated railway, as a licensed operator, has only to shoulder the Access Charge, and the operating costs. State should also compensate all the railway PSO costs, especially for the passenger service which could



no longer be cross-subsidised by the freight service.

- Bulgaria : In application of the above-mentioned EU policies, the following measures should be taken by the Government and BDZ

(1) Internationalisation through Open Access System

BDZ will promote the Freight Freeway traffic, by agreements with international carriers and forwarders. This is the *de facto* beginning of the Open Access system, recommended by EU, and it paves the way to the Vertical Separation. While, in this period, Government will elaborate the notions in the relevant legislation, such as Access Charge, the Demarcation of the Assets between the Infrastructure and Operation.

(2) Railway Restructuring

BDZ should undergo, first, the **ACCOUNTING SEPARATION** of the three management i.e. of Infrastructure, Freight and Passenger as soon as possible preferably with the MIS getting ready. Then, the **ORGANISATIONAL SEPARATION**, where each of these three has high autonomy within an integrated railway. These two pave the way to the final **INSTITUTIONAL SEPARATION** where these three will belong to the three different entities, and the “**HORIZONTAL SEPARATION**” will be completed. Thus the infrastructure managed by the State, and the passenger service, supported by the State or local governments, as may be necessary, the former integrated railway will be separated into smaller, autonomous units, and by this alone, could it achieve a financial balance.

(3) Government Financial Commitments

The Government's financial commitment to shoulder all the railway infrastructure costs is vital to initiate the Open Access process which will begin with the **VERTICAL SEPARATION** (the said infrastructure costs include the costs of developing, constructing new infrastructure, just as in cases of road, sea-/air-ports).

The commitment is also vital to complete the said process by the **HORIZONTAL SEPARATION** i.e. the **INSTITUTIONAL SEPARATION**. Because that part of the passenger service for which the freight service has been cross-subsidising, will have to be counted on the Government, so far as it considers it necessary to maintain.

To fully compensate the passenger PSO is a matter of course even now. More than that Government will have to make investments to keep its competitiveness, if considered necessary. The Government should formulate a long term plan for the railway investment/compensation, considering the financial affordability, at the moment of legislating the Open Access, and renew it periodically. It must be clearly understood that the Open Access policy will cost expensive for the Government. But, without it,

the transport cost of the society would be still more expensive, when the external costs are considered. This is the core notion of EU policies.

### CHAPTER III FINANCIAL SITUATION

- The Open Access expects the licensees to compete in productivity. Any loser will find himself expelled from the track. BDZ must perform all the possible rationalisation to get out of the current low productivity. The BDZ financial statements clearly reveal the stakes at issue. Amongst all, the problem of passenger service cross-subsidised by freight service.

BDZ's financial situation is serious, so much so that even the normal level of assets maintenance is threatened. Deficits have been recorded at final level, almost every year since 1992 down to 1996, when the final deficit was 8.4 billion Levs (the total revenue was 58.6 billion Levs in the same year).

#### ● BDZ' Rationalisation

To improve this situation, BDZ's utmost efforts to rationalise the management are urged; tariff/fare raises, staff reduction, abolition/reduction of services in light density traffic lines, compensation/subsidy increase, etc. Each of these measures will, however, be confronted by status-quo powers. Ultimately, nowhere else than in an autonomous entrepreneur's mind could the final solution be sought for. This is the reason why the integrated railway should undergo the Institutional Separation. An integrated railway is too large in scale and activities to be well managed.

#### ● Cross-subsidy

In 1996, the profit from the freight service of 7.9 billion Levs had to cover the Infrastructure cost of 5.3 billion and to partially cover the total passenger deficit of 5.5 billion. It would not be long before the freight service could thus keep cross-subsidising the other two, under ever increasing competitions, especially after the Open Access. The passenger service must, therefore, be standing financially on its own feet. The said nationalisation should be focused on passenger costs. Recovery of shares in intercity passenger traffic must be done, etc. But ultimately, the legislative as well as financial measures of the Government are the prerequisites: Fully compensate passenger PSO and liberate BDZ from keeping certain deficitary lines.

## CHAPTER IV PHASED IMPROVEMENTS

- The real application of EU doctrines in Bulgarian policies and the real restructuring of BDZ are planned to be phased. The Railway pricing, maintenance/investment, etc. must be well accorded to the European levels, and synchronised to support the BDZ' Restructuring.

Major assumptions taken are as follows:

Bulgaria in EU in 2007 : This assumption is based on the discussion made in the Steering Committee of 24<sup>th</sup> of September, 1997.

The steps the Government and Railway must make prior to the EU membership are:

- **Open Access Legislation** : The Open Access legislation will be made by the end of 1999 as was pledged by MOT in the above-mentioned Steering Committee.
- **Restructuring** : The Accounting Separation will be made as soon as possible, preferable with the MIS being ready, presumably 2000. The Organisational Separation will follow in the 2<sup>nd</sup> Phase, well before 2007. The Institutional Separation will be performed in 2007.
- **Marketing/Sales System** : The organisation will be restructured as soon as FIS gets ready for practical use, presumably in 2000.
- **Access Charge** : Railway Access Charge will be determined tentatively when the Open Access legislation is put into force. It will be modified before 2007 based on BDZ own Freeway experiences, as well as on the data obtained after the Accounting/Organisational Separations.
- **Government Investment** : Government should restore the normal level of investment/maintenance which has long been suppressed since 1980's BDZ' competitive capability is degraded. Considering the Government affordability, the Plan proposed that it should be made in the 3<sup>rd</sup> Phase. The freight terminals for strengthening the Seamless Combined Transport and the ground facilities for speeding up the intercity passenger trains are the major issues.
- **Pricing Policy** : BDZ cannot get into Open Access process blindly. At least, a perspective into BDZ' financial stability will have to be set up. It must be foreseen, not counting on vulnerable sales promotion schemes, but counting on tariff/fare raises which are surer. The pricing policy is : BDZ could be aggressive in freight tariff raise and cautious in passenger fare raise in the 1<sup>st</sup>/2<sup>nd</sup> Phase. While, in the 3<sup>rd</sup> Phase, conversely, cautious, in tariff, positive in fare raises. The reason is : as time passes, in freight case, competition will be harder and the tariff hikes will become more and more difficult, while, in passenger case, GDP per capita will grow up and

fare raise will become easier.

**\* Note : “ Road User Charges”**

The Plan describes the “Road User Charges”. When the new laws stipulate the railway Access Charges, they should also clarify its attitude to this new notion. The equalisation of conditions of modal competition is vitally important. It is considered necessary, when the railway Access Charge is imposed on railway operators, Road User Charges should be also imposed on road mode operators, to keep an equilibrium between the two modes. Preparation should be made during the First Phase for implementing this new charges and put them into practice in the Second Phase. In determining the both charges, the external costs of each mode should be clearly taken into account.

Phased Measures	1 <sup>st</sup> Phase (Depression) 1998~2000	2 <sup>nd</sup> Phase (Recovery) 2001~2005	3 <sup>rd</sup> Phase (Development) 2006~2020
Transport Policy	“Freeway” agreements promoted on bi-/multi-lateral basis	Freeway agreements Expanded Open Access legislation	Open Access System is established both legal and practical Basis.
Railway Restructuring	Accounting Separation Prepared	Accounting & Organisational Separations performed Marketing/Sales organisation restructured	Institutional Separation performed
Pricing Policy	15% raise of freight tariff in 1998	10% raises of passenger fare in 2003, 2004 and in 2005	Cautious raises in tariff and Aggressive raises in fare
Maintenance of Assets	Completion of RRP	Reinstatement of normal maintenance level	
Investment	No new investment	No new investment except for Seamless Combined Transport	Government’s investment on railway infrastructure to keep competitiveness of railways

● Possibility of Earlier Implementation

It is recommended to accelerate the implementation of the standard plan on a step by step basis, when the social/political conditions and economic growth, as well as the improvement of BDZ financial balance, evolve favourably than planned.

**CHAPTER V MEASURES TO BE TAKEN THROUGHOUT THE PHASES**

- • The phasing as above mentioned is primarily to prepare for the Bulgarian membership in EU. Some measures are to be carried out without such consideration and to follow other phasing according to their own logic: Human Resources, Freight Marketing System, Light Density Traffic Lines are the examples.

● **Human Resources:**

Personnel is the most vital asset of an industry. The BDZ productivity ranks at the worst group in the world railways now. The staff number is apparently superfluous. Reducing it from the current 51 to the targeted 23 thousands in 2020 will be achievable without drastic discharging of employees but by recruiting the minimum possible to fill the natural attrition. When this target is achieved, the Bulgarian Railways would be ranking at an average productivity level of the world. The Plan recommends to simplify the current pay-grades system, so that it might provide more incentives.

Appropriate educating/training programs is also stressed.

● **Freight Marketing System**

The current freight marketing system requires renovation. The Plan proposed an example of new marketing organisation. There, marketing sections will be organised according to the types of the customers. Each of them will be given an autonomy in tariffing, costing, operation, etc., so that it could make earlier commitments to its customers. The traffic is changing from bulky cargo of heavy industries (where most clients state-owned, big industries), to container type goods of assembly industries (where most clients are private, more or less, small industries and import/export related). The type of transport is also changing from the transport on railway track alone, to the Seamless Combined Transport relying on plural modes. The clients needs are getting more and more diversified. Freight marketing/sales system must be carefully watching these needs, follow them up, keep and attract them by quick actions.

● **Light Density Traffic Lines**

The current cost recovery ratio of these lines is around 25%. This tells everything. The deficits arising therefrom will get more and more serious, because the passenger traffic may grow in intercity transport, supported by the general urbanisation, despite the general decrease in total population, but traffic will certainly further decrease in these lines. Where some substitution means (such as buses) are available, the lines should be abolished. Where they are unavailable, and where these lines are considered the Government to be maintained, the costs arising therefrom should be fully compensated by the Government. This is the core of the notion.

## **CHAPTER VI FINANCIAL EVALUATION OF THE MASTER PLAN**

● **Major assumptions**

Revenue : - Traffic volume : Estimated as Traffic Demand Forecast (VOL. II CHAPTER 3)

- Passenger compensation :

Up to 2000, assumed at 25 billion Levs (1997 result)

After 2001, assumed as would increase pro rata GDP

Expense : - Personnel cost : Assumed at proposed staff number/pay level

- Infrastructure cost :

Up to 2000, assumed at the sum planned by the Study Team

After 2001, assumed as would be shouldered by the Government

Government Investment : The annual average of the infrastructure cost shouldered by

Government is estimated at 58 billion Levs throughout 2<sup>nd</sup> Phase.

It will be doubled to 109~1170 billion in 3<sup>rd</sup> Phase.

The total in 16 years from 2005 up to 2020 is expected to amount to 6.7 trillion Levs

Results : Pre-Tax profit

1997	1998	1999	2000	2001	2002	2003	2004
-400	-5800	-23300	-23400	-23000	-15100	-4200	12700

2005	2006	2007	2008	2009	2010	2011	2012
25400	30900	37300	3410	34200	31700	25900	-6000

2013	2014	2015	2016	2017	2018	2019	2020
-41400	-88100	-147700	-107300	-79800	-46000	-56100	-672

### ● Evaluation

The total of the three activities, in Second/Third Phases, shows profits in 2004~2011, at Pre-Tax level, while deficits after 2012. The deficits derive, for one, from the increase of depreciation/interest payment for the improvements/investments of the assets. For another, from the traffic decrease due to the completion of highway net work. If the said improvements are not made, the financial results would be ameliorated but the railway competitiveness would be threatened.

## CHAPTER VII PLANNING OF RAILWAY TRANSPORTATION

### ● For the new age of BDZ

BDZ is in the middle way of struggling for constructing the superiority of railway itself to attract road and international transport.

The way of improving railway for next century is clear from many actual facts of world railways. But the path of each step should be supported by precise acknowledgement of actual facilities and all improving actions should be set on the most reasonable and

effective way.

● **Freight train km and the construction of seamless combined transport system**

After changing the structure of COMECON system, the railway freight ton km and train km has been decreased approximately to 50 % in 10 years and the railway freight traffic maintains almost same level in these years.

The construction of CT (Seamless combined transportation system) is essential to Bulgaria where concentrate many international transportation routes.

● **Passenger train km and speed up project**

The passenger km in 1993 decreased to the 62 % level in 10 years and passenger train km is being adjusted nowadays.

The data in the actual transportation market is showing approximately 1% increase of passengers in case of 1% train speed up. The relation between the passenger share and travel time shortening is analyzed by using BDZ data and the similar results are induced by multiple regression analysis.

The steps of speed-up projects until 2020 year might be classified as follows;

First step will be "shortening travel time by recovering the track condition", second step will be "improving the limitation of passing speed on switch from 100 km/h to 130 km/h" and third step will be "operation of 160 km/h pendulum train with light weight construction".

● **Track capacity and the necessity of double tracking of No.8 line**

The macro data shows that the quantity of track capacity itself will be enough, except the single-track section of No.8 line.

The track capacity problem in the future strategy should be considered from the view point of improving quality of trains for the competitiveness to attract the new demand to the BDZ train service.

● **In the past, BDZ had offered comparatively good quality of train operation in terms of safety and on-time performance. However, reduced maintenance costs for the last decade are most likely to affect the regular train operation in future. Therefore, the Team recommends that the priority should be given to the reinstatement of deferred maintenance including strengthening or renewal of facilities. At the same time, BDZ' research and development-oriented mind should be kept for future high speed attempts.**

## **RECOMMENDATIONS TO BDZ**

BDZ would perform the Accounting Separation as soon as possible, and shift to the Organisational Separation, for finalising the dispute on the Access Charge and proceeding to the Institutional Separation.

It is also recommended to accelerate the standard plan on a step by step basis, when the social/political conditions, economic growth and the improvement of BDZ financial balance, evolve more favourably than planned.

As for the revenue improvements, the aggressive tariff raise in earlier years for the freight, and the positive fare raise in later years for the passenger are recommended respectively. It is also recommended to strengthen Seamless Combined Transport, and to speed-up intercity passenger traffic while F/S for a pilot project is advised for high speed attempt of passenger.

As for the cost reduction, it is recommended to continue staff reduction, improve incentive programs, and make utmost efforts to reduce light density traffic lines.

## **APPEAL TO THE GOVERNMENT**

The Government is already drafting the legislation for adapting the Bulgarian transport policies to those of EU, the Open Access, to begin with. BDZ will undergo structural changes to implement these policies, the Separation of Infrastructure and Operation to begin with. The timing of Bulgarian membership in EU is provisionally assumed to be in 2007, based on the discussion in Steering Committee.

The Government should, in the said legislation, to clearly stipulate: - the financial responsibility of the Government from the moment of Open Access as to the maintenance and development costs of the railway infrastructure, - the long term plan of reinstatement of deferred maintenance and strategic investment, - imposition of Access Charge on the licensees.

The Government should clarify and implement the notion of the Road User Charge.

The Government should pay all the efforts to make the BDZ's passenger service financially independent. For this purpose, fully compensate the passenger PSO, take initiative in reducing light density traffic lines and shelve a part of the debt of the Passenger Unit/Company to the Government prior to the Institutional Separation.



# TABLE OF CONTENTS (SUMMARY)

## INTRODUCTION

1	BACKGROUND OF THE STUDY-----	I
2	OBJECTIVE OF THE STUDY AND TARGET YEAR-----	II
3	STUDY SCHEDULE-----	II
4	STUDY ORGANISATION-----	IV
	RAILWAY NETWORK OF BDZ-----	IX
	CURRENT STATUS OF BDZ'S LINES-----	X
	REPUBLIC OF BULGARIA & BULGARIAN RAILWAYS-----	XI

## GENERAL DESCRIPTION & POLICY GUIDELINES

### CHAPTER 1 SOCIO-ECONOMIC FRAMEWORKS

1.1	ECONOMIC AND POLITICAL TREND-----	1-1
1.2	IMPLICATIONS ON THE TRANSPORT AND RAILWAY MANAGEMENT-----	1-2
1.3	SEVERAL IMPROVEMENT PLANS-----	1-4

### CHAPTER 2 EUROPEAN TRANSPORT TREND

2.1	EU TRANSPORT POLICIES -----	2-1
2.2	BULGARIAN INTEGRATION PROCESS-----	2-3

### CHAPTER 3 FINANCIAL ANALYSIS

3.1	FINANCIAL PERFORMANCE-----	3-1
3.2	CROSS SUBSIDY-----	3-2

### CHAPTER 4 PHASED IMPROVEMENT PLAN-----

4.1	IMMEDIATE MEASURES(1998 TO 2000)-----	4-3
4.2	MEDIUME TERM MEASURES (2001 TO 2005)-----	4-10
4.3	LONG TERM MEASURES (2006 TO 2020)-----	4-17
4.4	POSSIBILITY OF EARLIER IMPLEMENTATION-----	4-23

### CHAPTER 5 MEASURES TO BE CONTINUED THROUGHOUT THE PERIOD

5.1	HUMAN RESOURCE POLICY-----	5-1
5.2	MARKETING-----	5-2
5.3	LOW TRAFFIC DENSITY LINES-----	5-3

<b>CHAPTER 6 FINANCIAL FORECAST</b> .....	6-1
6.1 SHORT AND MEDIUM TERM FORECAST.....	6-5
6.2 LONG TERM FORECAST.....	6-6
6.3 GOVERNMENT COMMITMENT.....	6-7

## **CHAPTER 7 PLANNING OF RAILWAY TRANSPORTATION**

### **(ACTUAL SITUATION OF RAILWAY TRANSPORTATION)**

7.1 THE TRAFFIC VOLUME IN PAST 10 YEARS AND THE TRAIN OPERATION.....	7-1
7.2 TRANSPORTATION SYSTEM.....	7-2
7.3 TRACK FACILITIES OF RAILWAY LINES.....	7-7
7.4 TRAIN TIME TABLE AND TRAIN DIAGRAM.....	7-10

### **(FUTURE PLAN OF RAILWAY TRANSPORTATION SYSTEM)**

7.5 DEMAND FORECAST AND TRAIN KM.....	7-11
7.6 FUTURE TRAIN SYSTEM.....	7-14
7.7 TRACK FACILITIES AND TRAIN OPERATION PLAN.....	7-18
7.8 MAINTENANCE AND DEVELOPMENT OF FACILITIES AND ROLLING STOCK .....	7-21

<b>RECOMMENDATION TO BDZ</b> .....	i
<b>APPEAL TO THE GOVERNMENT</b> .....	iii

# INTRODUCTION

## 1 BACKGROUND OF THE STUDY

The Republic of Bulgaria started in 1991 restructuring of the total economy from planned economy into free market system.

Having lost the former COMECON markets, on which Bulgarian economy had been largely dependent, the economic activities experienced a sharp fall, and the confusion arising from this structural change worsened the situation.

The Government's economic restructuring program enforced since 1991, aims at launching the economic activities onto a track for a stabilised growth with a middle/long term perspective. The program covers important matters such as the restructuring and privatising of so far national industries, the improvement of social infrastructure for facilitating the growth of private sectors, environmental protection/improvement, etc.

The improvement of transport sector is indispensable for the growth of the private sectors. It includes the rehabilitation of deteriorated infrastructure, improvement of facilities which can cope with growth in international trades, the improvement of efficiency in transport businesses so far run inefficiently under governmental control, the introduction of competition in transport market and the strengthening of governmental support for the free market system of transport.

The Bulgarian State Railways (hereinafter referred to as "BDZ") is now carrying out the "Railway Restructuring Project". It was initiated on financial support of international financial institutions. According to the "Action Plan" of the said Project, important modifications have been made in BDZ management systems and sales organisation. Improvement and rehabilitation works of BDZ fixed facilities and fleet are now under way. The Project covers up to the year 1998.

The Government of Japan and Bulgaria observed that the accomplishment of this Railway Restructuring Project will not be sufficient for improving the management efficiency and development of Bulgarian railways on a long term basis. They recognised that it would be necessary to set up a long-term plan which will ensure financial sustainability of BDZ after 1998.

The both Governments agreed, in this concern, that the Government of Japan would render technical assistance to BDZ in formulating this long term plan. The Scope of Work of the assistance was agreed between the preliminary mission of the Japanese Government and the Bulgarian Ministry of Transport/BDZ on March 13, 1996.

Japan International Cooperation Agency (JICA) selected a Japanese consultant consortium to implement the Master Plan Study for Long Term Management of Bulgarian Railways.

## **2 OBJECTIVE OF THE STUDY AND TARGET YEAR**

### **(1) Objective of the Study**

- 1) Analysis of the future alternative objectives and policies of the Ministry of Transport (hereinafter referred to as "MOT") and BDZ.
- 2) Preparation of a long term plan for improvement of management efficiency and development of Bulgarian railways together with economic/financial analysis based on the mechanism of market economy.
- 3) Preparation of a time phased plan including investment for integrating Bulgarian railways into the European railway system.
- 4) Technology transfer to the Bulgarian counterpart personnel in the course of the Study.

### **(2) Target Year of the Study**

The target year of the master plan shall be from 1998 up to 2020 based on the Scope of Work.

## **3 STUDY SCHEDULE**

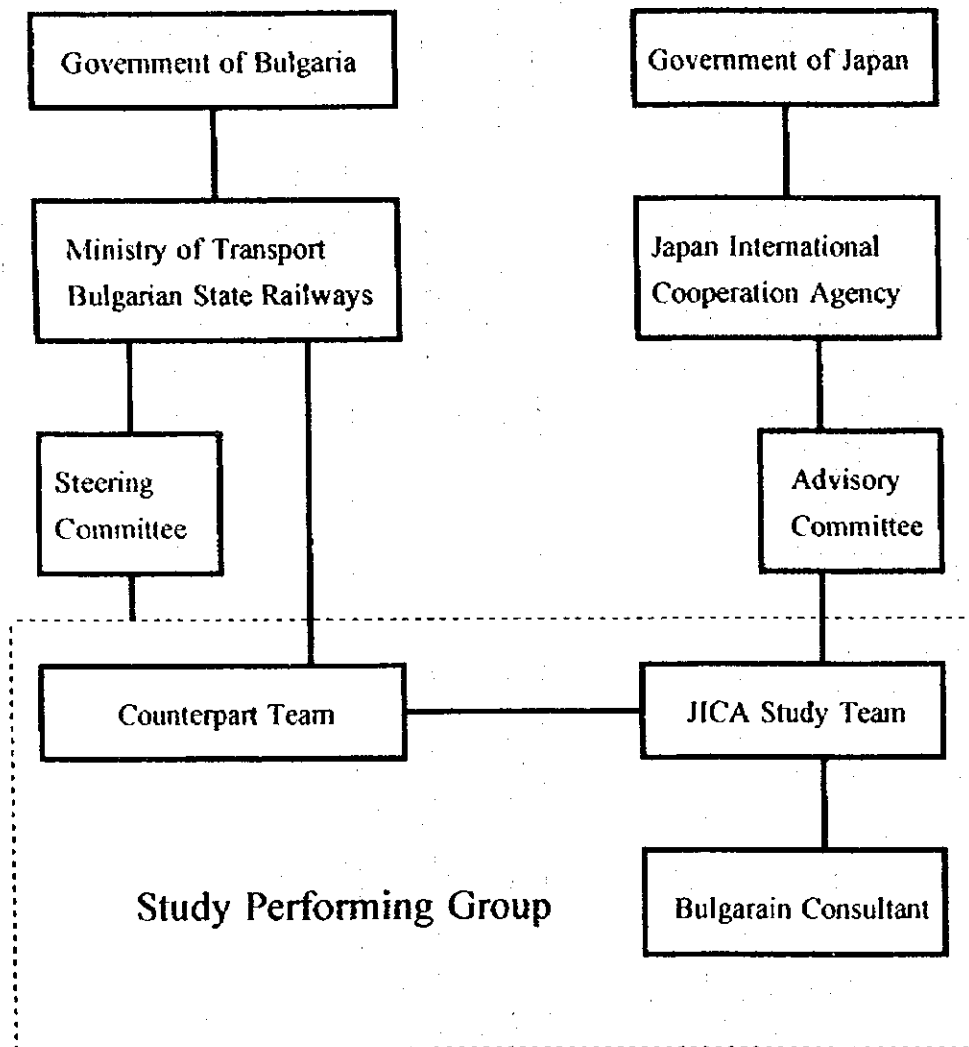
The schedule of the study is given in the Fig. 1.



## 4 STUDY ORGANISATION

### (1) Organisation

Study organisation involving the parties directly concerned with performing the Study is shown in the Fig. 2.



**Fig. 2 STUDY ORGANISATION**

## **(2) Members list**

### **1) JICA Advisory Committee**

Mr. Minoru MUROGA	Former Member of the Board, Japanese National Railways
Mr. Ryosuke ITAZAKI	Ministry of Transport, Government of Japan
Mr. Michio HIROSE	Ministry of Transport, Government of Japan
Mr. Shigemasa SATO	Ministry of Transport, Government of Japan
Mr. Nagaharu MITSUTA	Fujitsu Research Institute
Mr. Nobuhiro KOYAMA	Institute for International Cooperation, JICA

### **2) JICA Office**

Mr. Koichi KITO	Social Development Study Dept., JICA
Mr. Shoichi TSUGANE	Social Development Study Dept., JICA

### **3) JICA Study Team**

Mr. Hotsumi HARADA	Study Team Leader
Mr. Mutsuo SHINOMIYA	Acting Leader/Management & Finance Analyst
Mr. Shinji UEHARA	Organisation Planning Analyst
Mr. Peter Sanders MUSSON	Human Resources & Productivity Analyst
Mr. Toshiaki SAKATSUME	Macro-economy Analyst
Mr. Kenji TANAKA	Transport Planning Analyst
Mr. Christopher David HOLT	Transport Economy/Pricing Analyst
Mr. Yasuzo TAKENO	Law & Regulation Analyst
Mr. Yoshihiro OZAWA	Marketing/Combined Seamless Transport Analyst
Mr. Tetsuo HORIE	Traffic Demand Analyst
Mr. Chuji SUDA	Train Operation Planning Analyst
Mr. Hitoshi ISHIHARA	Track & Station Planning Analyst
Mr. Toshiro TACHI	Electrification/Signalling/Telecommunications/ Rolling Stock Planning Analyst
Mr. Akitoshi IIO	Environment Analyst
Mr. Mikio YOKOYAMA	Coordinator
Mrs. Zoya OCHIAI	Interpretress

#### 4) Steering Committee

Mr. Yordan MIRCHEV	Director General of BDZ
Mr. Ivan IVANOV	Chairman of Governing Council of BDZ
Mr. Simeon EVTIMOV	Deputy Director General of BDZ
Mr. Vladimir DUNCHEV	Deputy Director General of BDZ
Mrs. Gergana IVANOVA	Deputy Director General of BDZ
Mr. Ilia PASTUSHANSKI	Deputy Director General of BDZ
Mr. Ivan KURTOV	Deputy Director General of BDZ
Mr. Dimitar ZOEV	Head of Transport Policy Dept. of BDZ
Mr. Stefan ELENKOV	Expert of MOT
Mrs. Vessela GOSPODINOVA	Head of Unit European Integration of MOT
Mr. Velichko RAIKOV	Chief of Sector, International Relations Dept. of MOT
Mr. Kamen PAVLOV	Head of International Relations, Strategy and European Integration Dept. of BDZ
Mr. Peter PANOV	Head of Passenger Transport Dept. of BDZ
Mr. Vasko ANANIEV	Head of Financial and Planning Dept. of BDZ
Mrs. Aspassia VATRALOVA	Head of Freight Operations Dept. of BDZ
Mr. Georgi NIKOLOV	Director of Railway Research Institute (RRI)
Mr. Krassimir ANGUELOV	Senior Expert in International Relations, Strategy and European Integration Dept. of BDZ
Mr. Angel DANCHEV	Head of Freight Dept. of BDZ
Mr. Dimitar STOYANOV	Deputy Head of Technical University - Sofia
Mr. Peter BASHIKAROV	Parliament of Republic of Bulgaria
Mr. Dimitar STAMOV	MOF
Mrs. Nina DINITROVA	MOF
Mr. Kostadin TAUSHANOV	MRDPW
Mr. Atanas BATAKLIEV	MTT
Mr. Tzvetan GORANOV	MTT

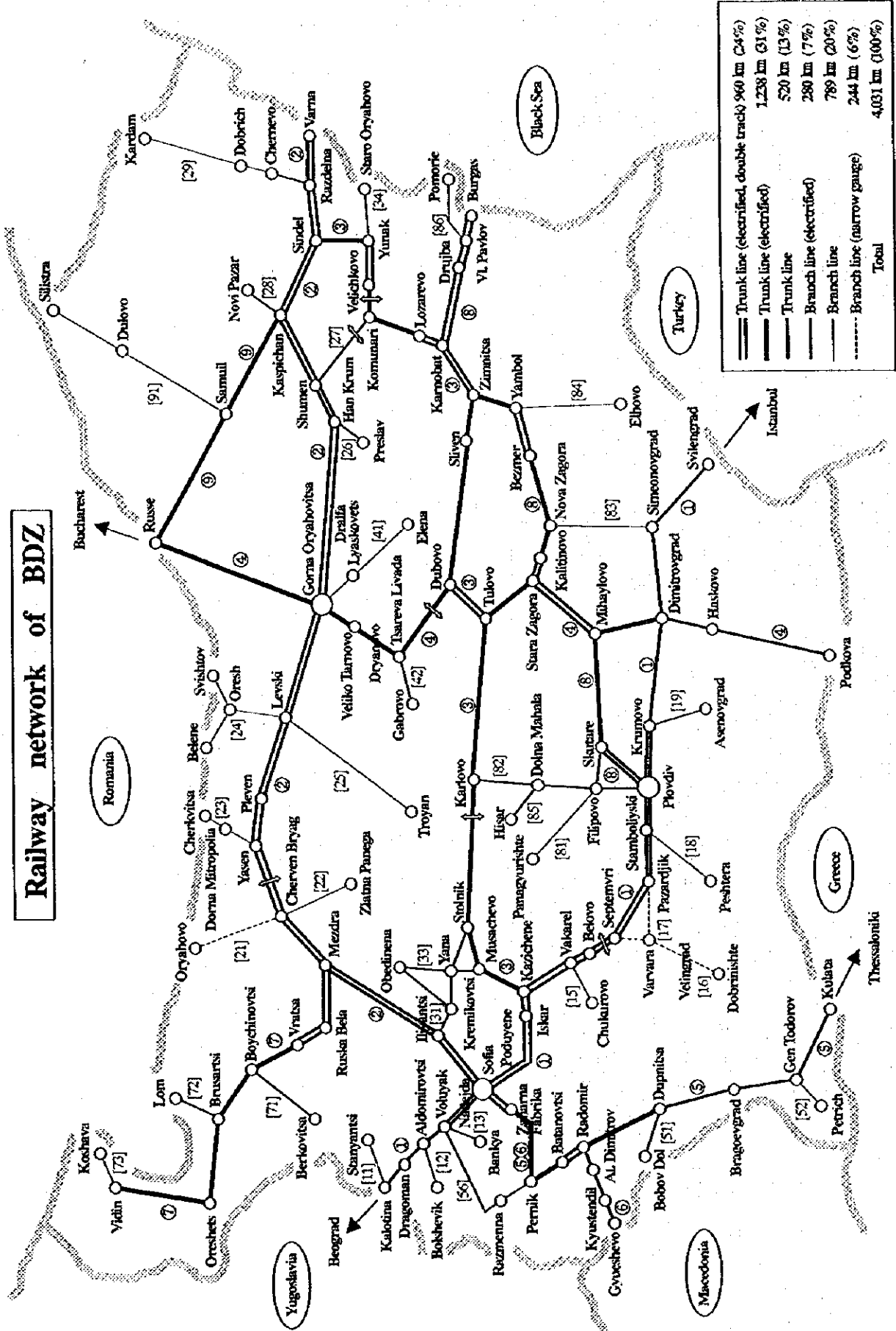


## 5) Counterpart personnel

Area of Work	BDZ Experts	
Project Leader	Yordan Mirchev	Director General
Team Leader	Simeon Evtimov	Deputy Director General
	Vladimir Dunchev	Deputy Director General
Management Analysis	Simeon Evtimov	Deputy Director General
	Georgi Nikolov	Director of Railway Research Institute (RRI)
Financial Control	Gergana Ivanova	Deputy Director General
	Vasko Ananiev	Chief of Financial & Planning Dept.
	Irina Karagiozova	Financial Expert
Train Operation Planning	Vladimir Dunchev	Deputy Director General
	Georgi Nikolov	Director of Railway Research Institute (RRI)
	Peter Mironov	Freight Organization, RRI
	Danail Yanchev	Head of Movement Dept.
	Anton Burov	Int Relations, Strategy & European Integration
	Georgi Nenov	Traction Dept.
Permanent Way	Ilija Pastuhanski	Deputy Director General
	Stephan Paunchev	PIU Expert
	Simcon Kotopanov	RRI
	Tatyana Gutoranova	Permanent Way Dept.
	Peter Dyakov	Permanent Way Dept.
Electrification	Ilija Pastuhanski	Deputy Director General
	Zdravko Bakalov	Electrification Section, RRI
	Nikolay Anev	Catenary & Power Supply Dept.
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	Veneta Peeva	Electrotechnical Dept.
	Vesselka Kamburova	Int. Relations, Strategy & European Integration
Telecommunications	Valentin Doychev	Electrotechnical Dept.
	Nicola Kovachev	Electrotechnical Dept.
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	Plamen Sergiev	Electrotechnical Dept., Telecom.
	Dimitar Zahariev	Director, Main Computer Center
	Natalia Androva	Information System, RRI
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	Yordan Kostadinov	Deputy Director of RRI
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	Stephan Hristov	Traction Dept.
	Andrey Nakev	Rolling Stock Dept.
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	Vera Kochinova	Human Resources
	Plamen Kolev	Human Resources
	Aleksander Savov	Human Resources
	Anna Baklova	Human Resources, RRI

Area of Work	BDZ Experts	
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	Angel Danchev	Head of Freight Dept.
	Aspasia Vatrlova	Freight Dept.
	Krassimir Anguelov	Int. Relations, Strategy & European Integration
	Lyubka Ineva	Int. Relations, Strategy & European Integration
	Rumyana Koleva	Passenger Organization Section, RRI
	Neli Raikova	Passenger Organization Section, RRI
	Penka Dilova	Passenger Organization Section, RRI
Traffic Demand Analysis - Passenger & Goods	Violeta Uzunova	Int. Relations, Strategy & European Integration
	Krassimir Anguelov	Int. Relations, Strategy & European Integration
	Vladimir Inkov	Int. Relations, Strategy & European Integration
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	Vasko Ananiev	Head of Financial and Economic Planning Dept.
	Krassimira Illeva	Financial and Economic Planning Dept.
	Ekaterina Stoyanova	Economic Planning Dept.
	Elena Georgieva	Economic Section, RRI
	Galina Dimitrova	Economic Section, RRI
	Lyubka Ineva	Int. Relations, Strategy & European Integration
Transport Policy, European Integration, Black Sea & Balkan	Dimitar Petkov	Chief of Passenger Marketing Sector
	Simeon Evtimov	Deputy Director General
Legal Analysis	Kamen Pavlov	Head of Int. Relations, Strategy & European Integration
	Peter Petrov	Legal Advisor
Privatisation, Auxiliary Activities	Kamen Pavlov	Head of Strategic Development Dept.
	Simeon Evtimov	Deputy Director General
Environmental Analysis	Simeon Evtimov	Deputy Director General
	Kamen Pavlov	Head of Int. Relations, Strategy & European Integration
Marketing & Combined Transport	Anka Francova	Int. Relations, Strategy & European Integration
	Hristo Monov	Freight Dept.
	Vladimir Inkov	Int. Relations, Strategy & European Integration
	Nadya Gancheva	Container Services
	Peter Tsanev	RRI
Macro-economy, Finance & National Income Allocation	Mariela Hristova	Int. Relations, Strategy & European Integration
	Pencho Dakovski	Head of Economics Section, RRI

# Railway network of BDZ



Trunk line (electrified, double track)	940 km (24%)
Trunk line (electrified)	1,238 km (31%)
Trunk line	520 km (13%)
Branch line (electrified)	280 km (7%)
Branch line	789 km (20%)
Branch line (narrow gauge)	244 km (6%)
<b>Total</b>	<b>4,031 km (100%)</b>

**CURRENT STATUS OF BDZ' LINES**

Main lines

Source: BDZ 1996/1

Line	Section	Kilometer	Number of Stations	Track (km)		Electrification (km)	Financial Balance		
				Single	Double		Revenue (M.leva)	Expense (M.leva)	Cost recovery ratio
1	Dimitrovgrad-Sofia - Plovdiv-Svilengrad	363	53	191	172	172	2,000.70	2,593.60	77
	(Sofia - Plovdiv)	(156)	(23)		(156)	(156)			(111)
2	Sofia-Mezdra-Varana	532	76		532	532	3,692.70	3,462.70	107
	(Sofia - G. Oryahovitsa)	(287)	(44)		(287)	(287)			(128)
	(G. Oryahovitsa - Varna)	(245)	(32)		(245)	(245)			(83)
3	Iliantsi-Karlovo-Tulovo-Yana	504	73	406	98	504	4,144.10	2,917.40	142
	(Iliantsi - Tulovo)	(238)	(35)	(238)		(238)			(173)
	(Tulovo - Yana)	(266)	(38)	(168)	(98)	(266)			(121)
4	Ruse - G. Oryahovitsa - Dubovo - Tulovo - Dimitrovgrad - Podkova	419	49	397	22	296	1,352.50	1,832.40	74
	(Ruse - G. Oryahovitsa)	(110)	(13)	(110)		(110)			(142)
	(G. Oryahovitsa - Dubovo)	(106)	(14)	(106)		(106)			(98)
	(Tulovo - Dimitrovgrad)	(84)	(14)	(61)	(22)	(80)			(39)
5	Sofia-Pernik-Radmir-Dupnitsa-Kulata	194	26	191	3	75	487.8	847.7	58
6	Voluyak-Pernik-Radmir-Gyueshevo	151	19	143	8	62	383.8	763.4	50
	(Voluyak - Razmenna)	(32)	(4)	(32)		(32)			(124)
7	Mezdra-Vidin	179	21	162	17	179	457.4	693.1	66
8	Plovdiv-Stara Zagora-Nova Zagora-Burgas	234	30	127	108	234	2,082.80	1,697.80	123
9	Ruse-Samuil-Kaspichan	142	16	142	0	142	320.6	586.6	55
計		2718	363	1758	960	2198	14,922.40	15,394.70	97

( ) : Detail

**Blanch lines**

Blanch lines	1313	128	1269	0	280	620.5	2,569.10	24
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**BDZ' whole lines**

Total network	4031	491	3027	960	2478	15,542.90	17,963.80	87
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Narrow gauge lines (Line 16, 17, 21)	(244)		(244)	0	0			
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## Republic of Bulgaria & Bulgarian Railways

### 1. Current Status of Bulgaria

Items	Status	Items	Status
Population	8.4 Million	Area	111 Thousand km <sup>2</sup>
GDP	12,937 Million US\$	GDP per Capita	1,544US\$
Unemployment Rate	10.0%	Economic Growth/5 Year-avg.	-3.1%('92 - '96)
Inflation /5 Year-average	181.6% ('92 - '96)	Currency Exchange (1997)	1,700 Leva / \$

### 2. Current Status of Bulgarian Railways

Items	Current Situation	Remarks	
Year of Inauguration	1866		
Railway Route Length	Route lengths in operation 4,031 km Standard gauge track 3,788 km (94%) Narrow gauge(760mm) 243 km (6%) Doubled track 960 km (24%) Electrification 2,478 km (62%)	1995	
Employees	56,600 Staff	1997	
Traffic Volume (annual)	Passenger 59 mil. passengers Freight 33 mil. tons	4,693mil. pass.-km 8,595mil. ton-km	1995
Traffic Share of Railway	Passenger 23.2% (passenger-km) Freight 9.6% (ton-km)	Roadway 56.0% Roadway 4.3%	
Financial Balance	(Final Statement) — 8.4 billion levs	1996	
Train Operation	Train-km (annual) 43.3million-km Maximum Speed 120 km/h (passenger car) 80 km/h (freight car) Average Speed 74.7 km/h (Sofia - Varna, 512 km) (Example)	1995	



# **GENERAL DESCRIPTION AND POLICY GUIDELINES**

## **CHAPTER 1 SOCIO-ECONOMIC FRAMEWORKS**

### **1.1 ECONOMIC AND POLITICAL TREND**

#### **1.1.1 Economic Recession and Political Unrest**

The Bulgarian economy has faced serious challenges since it adopted the market economy system and opened its door to the foreign countries. Particularly the export sector has been hit most seriously in the initial stage as the country's exporters lost the traditional markets such as the former Soviet Union and the former Yugoslavia. Like all the former centrally planned economies in this region, the country had very heavily relied upon intra COMECON trades and virtually closed the door to the other countries, the traded products and the production techniques had become more and more obsolete compared with the ones in the Western countries.

This export recession soon started to adversely affect the other economic sectors. The loss of exporting markets has resulted in the huge reduction in employment opportunities, and the double digit unemployment rate. On the other hand, the loss of foreign exchange revenue has resulted in the substantial decrease in the capital formation activities which also contributed to the deteriorating employment situation. Thus it is now seen that the economy's recession is truly across the economic sectors.

The economic recession also has brought about turmoil in the political and social aspects. Since the beginning of 1990s, the nation has experienced political and social unrest several times. These affairs in turn have contributed to the yet deeper economic difficulties as the people increasingly lost confidence on the nation as a whole. The latest turmoil was clearly created by the economic crisis of rapid devaluation of the national currency, resulted in the hyper inflation and rising unemployment rate from the second half of 1996.

#### **1.1.2 Forecast Pattern of Economic Recovery and Development**

The latest turmoil has been overcome by the general election in April 1997, which gave a land slide victory to the former opposition party "UDF". The new coalition

government was formed among the anti-socialist parties, and implemented several stabilization measures. The measures included price liberalization, acceleration in the privatization process and the introduction of the currency board. The currency board is a necessary measure in order to subside inflationary pressure prevailing in the country and enable the country to achieve sustained economic development in the long run, while the possibility of short term economic repercussion is not ruled out. Although the introduction of the currency board system has enabled the country to receive loans from international financial institutions, it appears difficult to receive economic momentum in the short run. **Thus the team foresees flat economic growth until the year 2000.**

However, the team believes that the nation still maintains a significant potentiality in achieving economic development in the long run. The strength of the nation is considered to lie in the geographical superiority, past industrial experience and well educated population. The team believes that a part of these potentialities will play a vital role in stimulating the economy around the turn of the century when some of the neighboring nations start economic recovery including Russia and others. However, the full potentiality will not be materialized in the initial stage and **only an annual average of 3% is expected in terms of economic growth between 2000 and 2005.**

In the next stage, the economic and industrial structure will fully change as a substantial inflow of foreign direct investment is expected. The team believes that the foreign investors will become more and more attracted by the country's potentialities and fiscal incentives provided to them. The type of the forthcoming industrialization is expected to be the one of rather labour intensive and export oriented. Thus the unemployment situation and industrial exports will start to be saved from this point on. Although the absolute number of labour force are expected to start to decrease, **an annual average economic growth of 5% is considered attainable from 2005 to the end the forecast horizon.**

## **1.2 IMPLICATIONS ON THE TRANSPORT AND RAILWAY MANAGEMENT**

This economic recession has very severely hit all the transport modes including the railway transport. Both the passenger and freight sectors have been adversely affected by the nose-diving economy. The railway business was quite heavily hit by the rapidly shrinking demand as it had dominated the land transport throughout the period of centrally planned economy. On the other hand, the streamlining of the business structure



of the railway transport has lagged far behind the demand trend. The situation has urged the business into a substantial deficit in the beginning of 1990s. Eventually the state government was asked to start subsidizing the railway business.

Another blow was given to the company by the hyper inflation and the weak currency. Because the company followed a principle of semi indexed wage policy, the general price rises have continuously caused substantial increases in the most important cost item of the company. On the other hand, as the company has increasingly relied upon imports of spare parts and capital goods, devaluation of the national currency also has created a substantial cost increase pressure. However the tariff/fare rises have been able to recover the cost rises only partly for some reasons, including the limited autonomy in passenger fare setting, affordability of the customers and consideration toward competition. The lagged restructuring measures have also contributed to the financial crisis. These factors resulted in the **awful financial deterioration** in the beginning of 1990s.

The most important threat to the company by the financial crisis is the **deterioration in the assets and service quality** by the financial constraint. The railway management has long refrained from fresh investment starting from as early as 1980s. Now in the 1990s, even maintenance and replacement activities of important assets have become difficult. Under the market economy system the situation is very dangerous as the deterioration in asset quality will lead to weaker competitiveness. The company has faced not only the worsening service quality but also the worsening safety levels now.

However, if the social and economic frameworks applies and a set of appropriate measures are taken, the railway business will be able to exploit some business opportunities. The trend in the neighboring countries and Europe will create opportunities of developing **international transport**, both in the freight and the passenger sectors. The expected pattern of industrialization in the future will form a tendency of the population concentrating in and around the major cities (urbanization). The trend, coupled with the rising affordability of the people, may enable the company to focus on the **inter-city passenger transport**. On the freight side of the railway transport, the importance will shift away from the bulk transport to more **diversified combined seamless transport**.

### 1.3 SEVERAL IMPROVEMENT PLANS

In order to exploit the aforementioned business opportunities, the company has to achieve various improvements. It is not only the company itself to work for the goal, but also the state government has to coordinate with the company to this end. In the short run the company has to build a concrete ground for the future development. For this purpose, several improvement plans have been worked out and proposed to the company and the government.

The first and the most important one among them is the **Railway Rehabilitation Plan (RRP)** which was financed by the international financial institutions such as the World Bank, EBRD etc. The project is quite comprehensive and the proposed measures included investment project to replace some obsolete assets, financial rehabilitation, organizational reform, personnel strategy and others. The most important requirement of all was the enactment of the **BDZ Law** which stipulated the independence of the railway company and the management to be run on a commercial basis. According to the law, annual **Contract Plan** has been agreed between BDZ and the government to determine the annual amount of compensation and subsidy granted to the company. Because of the enactment of the BDZ Law, the international financial institutions have agreed to extend loans to the railway company for the projected investment.

Another important and the latest improvement project was the **Financial Recovery Plan (FRP)**. The plan mostly focuses upon the financial side of the management as the plan was ordered to be worked out in the wake of the crisis in the national financial system. The company was ordered to achieve financial improvement by the end of 1998 without depending on any further increase in external debts. The plan's proposals were almost in line with the RRP, and including the tariff/fare rises, staff and facility reductions etc.

Although a general tendency of delay is observed in implementing the recommended measures by the studies, the team assumes that all the recommended measures will have been implemented within this century as a starting point of the recommendations. On this basis the team has built a phased management improvement plan. The team's proposals aim at a financial improvement measures in the short run, a formation of the market oriented organization, financial improvement measures and investment priorities in order to strengthen the competitiveness of the company in the long run.

The team believes that some of the measures will be implemented by the railway entity alone, while some require to receive a coordinated actions by the state government. Here, however, consideration has to be paid to the general strategy of the national government that at least the newly formed coalition has clearly aimed at becoming a full member of EU, and all the transport policies will have to comply with the guidelines set by the committee.



## **CHAPTER 2 EUROPEAN TRANSPORT TREND**

### **2.1 EU TRANSPORT POLICIES**

#### **2.1.1 Background**

In building the development plan for the Bulgarian Railways, it is vital to make a comprehensive survey on the EU transport policies and direction as the country is required to comply with the guidelines set by the committee. This is necessary for the country not only because this is the mandatory requirement to become a full member of EU, but also because the policy direction has been built on the transport problems in the member countries which will also take place in Bulgaria when internationalization and economic development start in the country.

It is recognized among all the member states of EU that uneven competition between the road and rail transport in favor of the former mode has created several social and environmental problems, including road congestion, energy consumption and air pollution and traffic accidents. Particularly, the road congestion, coupled with the border crossing procedures, has created transport inefficiency throughout EU's territory. The situation is contrary to the spirit of the organization which aims at creating economic efficiency in Europe. In order to avoid such inefficiency and to create efficient transport system, EU has established an idea of promoting railway transport.

The organization has placed a particular importance on the long haul freight transport for the strategic market to be promoted by various measures. Eventually the organization has recognized the importance of the seamless combined transport for the future transport development.

#### **2.1.2 Improvement Measures**

In order to exploit the targeted market, EU has proposed several measures in the Council Directives 91/440, 95/18, 95/19 and other regulations. All the proposed measures are well inter related each other to promote and develop the targeted market. Broadly speaking the measures aim at achieving three fields, namely internationalization, organizational and management improvement and financial improvement.

### **(1) Internationalization**

A freer international transport has to be secured to promote efficiency in the territory. Mutual connection or integration of the national railway systems in the individual member states is necessary to this end. Thus **open access** (right to use the railway infra structure) has to be secured by the member countries and the applicant states.

Secondly, **unified and coordinated train operation system** has to be established by the member and applicant states. The requirement includes licensing system, charging system and train path allocation system.

### **(2) Organizational and Management Improvement**

To carry out the railway transport more efficiently, enabling the entities to offer cheaper fare/tariff to the customers, the organization and management style has to change. This is particularly true to the countries where the railway transport is provided by the national monopoly organizations.

In order to improve efficiency of the railway transport, the railway operation has to be carried out on **commercial basis** by the **organizations which are secured independent status**. On the other hand, **state responsibility** has to be established to maintain and develop the railway infra structure in order to equalize the competitive ground for both the road and rail transport.

National monopoly should be abolished and the infra structure usage will have to be open to the domestic and foreign competitors to promote **competition**. For this purpose, at least the account has to be **separated between infra structure and train operators**.

### **(3) Financial Improvement**

Final requirement is to **improve financial viability** by reducing external debts. The restored financial viability will strengthen the railway competitiveness by allowing the railway concerns to invest for the future development.

## **2.2 BULGARIAN INTEGRATION PROCESS**

Although it is very important for Bulgaria to integrate the national railway system with the neighboring and European nations, it is not quite feasible that the nation complies with all of these requirements immediately and simultaneously. Rather it is better advised that the nation and the railway system will employ a phased integration and development plan to proceed the process without major repercussions. The detailed phased integration and development plan will be discussed in detail later in this chapter, but a brief idea of the team's proposal may be better understood by the illustration (Table 2-2-1).

The measures proposed by the team to be implemented in each stage include all the aspects of EU Council Directives and regulations, namely internationalization, organizational and management improvement and financial improvement.

In terms of internationalization of the Bulgarian Railways with the neighboring and European countries, it is advised the nation adopts a gradual liberalization of the national system. In the transition period until the full open access is implemented, the nation is advised to improve the existing railway infra structure by increasing the maintenance costs in order to facilitate an expanded open access and freeway in the Central and Eastern European Countries.

In order to implement open access and freeway, it is important to establish an accurate charging system for the traditional and non traditional operators. To this end, the organization is better separated between infra structure manager and train operators. The team advises, though, that the organizational separation (into autonomous divisions of infra structure, passenger operation and freight operation) is more feasible for the company in this stage, before the final (or institutional) separation to be introduced in the final stage.

On the other hand, the introduction of the railway infra structure access charge will have to be done simultaneously with the road user charge for creating equal ground for the competing land transport modes.

Financial improvement efforts will have to continue throughout the life of the management improvement plan. Every possible measure has to be sought for in order to

restore financial viability. Also the government is required to establish a concrete financial policy toward the national railway system to revitalize the activities and to strengthen the competitiveness of the railway transport. However, because of the expected financial constraint even in this period, both parties are better advised to adopt a gradual rather than a revolutionary approach in this respect.

On the investment front, the company and the government are required to prioritize the investment projects. In the transition period until 2005, the most important criteria in this regard is to reactivate the maintenance activities in order to satisfy the safety requirement. Also, some strategic project is better implemented in this period which has the vital importance for the future development of railway transport. The team suggests development of terminal for seamless combined transport.

In the final stage of the management improvement plan, the government and the company will be allowed to invest in some forward looking and strategic transport fields.



Table 2.2-1 Proposal of Integration and Development Process into European System (Reproduction of Table 4.3.2-1 in the Volume II)

	2000	2005	2020
	<b>First Phase</b>	<b>Second Phase</b>	<b>Third Phase</b>
<b>EU Rail Integration system</b>	Partially in EU →	Freeway in CEEC ↑	Pan-Europe → Integration system ↑
<b>Balkan Freeway</b>	→	↑	
<b>Bulgarian Railway</b>	Conventional Agreement Base →	Freeway →	Integration into EU Rail system
<b>Economic and Transport Situation</b>			
<b>Economic Growth (GDP)</b>	0 % Growth →	3 % Growth ↗	5 % Growth ↗
<b>Transport Demand</b>	Bottom ▨	Low Intensity ▨	High Intensity ▨
<b>Motorization</b>	Low	Start increasing	High
<b>Railway Institutional Improvement</b>			
<b>Integration of national system</b>	Partial Open Access →	Expanded Open Access →	Complete Adoption of Council Directives
	Improved Existing systems for Use of Railway →		Unified/Coordinated Train System by OSS ( Licensing, Charging, Train Pass Allocation )
<b>Organisation / Management</b>		Separation of Account and organisation →	Institutional Separation
<b>Financial</b>		Financial Mechanism	
<b>Transportation System Development</b>			
<b>Pan-European Transport Corridor</b>		Combined Transport	C-4 C-8 C-9
<b>Express Way</b>			Sofia-Bourgas and Varna
<b>Transport Pricing</b>		Road User charge	



## CHAPTER 3 CURRENT FINANCIAL SITUATION

### 3.1 FINANCIAL PERFORMANCE

The company's financial deterioration has been so serious that it has not been able to satisfy the minimum level of maintenance and replacement of important assets. The resulted deterioration in the asset quality is now, though potentially, threatening the railway competitiveness because of the worsening quality in the service and even in safety. Although the current economic situation does not allow the worsening competitiveness to materialize, the future economic development and the liberalization measures are possible to bring the potential threat into reality. The economic development will accelerate the more frequent use of the road transport, while the planned development of the national road network and the introduction of open access are able to create much keener competition both from the road transport and within the railway transport.

The published profit and loss account has revealed that the company recorded a loss in 1992, and the deficit has continued since then. Although profit was registered in 1993 at the operational level, deficits have been the norm both at pre tax and final levels.

A substantial increase in the deficit took place in the year 1995 when pre tax deficit soared from 575 million Leva to 2,287 million Leva, and final deficit from 553 million Leva to 2704 million Leva. However, this sharp increase in the deficit is almost solely attributable to the change in the accounting Method. As the depreciation charging method changed from the purchased cost basis to the 1992 market price basis, the depreciation increased from 238 million Leva by 1,803 million Leva.

On the other hand, profits were reported both at operating and pre tax levels in the first half of 1997. Although a loss continued at the final level, substantial improvement in the profitability was recorded from the corresponding period and the whole of 1996. However, this improvement owes much again to the depreciation charge. A round of tariff/ fare rises to compensate for the eroded profitability caused by the then prevailing hyper inflation enabled the company to increase the net sales and total revenue during the period, while depreciation was charged against the repurchased value of the assets, though was revalued to the 1992 market value, and did not reflect the inflated market price.

Thus the ratio between revenue and depreciation lowered significantly between the first

halves of 1996 and 1997.

Many reports have proposed the company to take every possible measure in order to improve the deteriorated financial situation, including tariff/fare rises in real terms, compensation/subsidy increases by the government, business restructuring and staff reductions. The above observation does not suggest that the company and the government have paid no efforts to improve financial viability. Instead it is understood that they have paid much attention to achieve these measures.

However, there have existed several obstacles to fully achieve the proposals. The price adjustment, particularly the passenger fare adjustment, had been required to receive authorization by the state government, while the financial constraint of the government has made it impossible to provide the company with the required amount as compensation and subsidy. The wage settlement was agreed with the unions on the basis of indexation to the general price rises. Line closure was also difficult to implement as most of the lines were constructed under the national legislation.

All the parties concerned may have recognized the importance of restoration of financial viability of the railway company, but differ on the action plan on each subject. Such disagreement and legal restrictions have created obstacles for the company and the government to implement the measures as scheduled. The result is the lagged improvement in the financial health of the company.

### **3.2 CROSS SUBSIDY**

One of the most serious financial problems of the company is the great divergence in the profitability among the sectors. The company has tried to build a separate accounting system for passenger operation, freight operation and infra structure. The business results of the activities revealed that the freight operation is profitable, while the passenger operation has always recorded huge losses and infra structure is a cost centre. Thus the financial structure of the company is summarized that the profitable freight sector has been sharing the heavy cost burden of the infra structure and cross subsidizing the loss ridden passenger sector. The profitability of the whole railway activity depends whether the freight profit is big enough to compensate for the losses of the infra structure and the passenger operation.

Broadly speaking, freight profit has not been big enough to shoulder the all loss burdens of the other activities. In 1996, the freight profit of 7.9 billion Leva failed to cover fully the infra structure loss of 5.5 billion Leva and passenger loss of 5.3 billion Leva at the pre tax level. In the first half of 1997, the structure was almost the same, leaving the profitability of the railway activity in the red. The consolidated profits at the operational and pre tax levels were contributed by the non railway activity.

It is understood that the financial problem of the passenger operation is so serious that the activity can not become profitable even until 2020 solely by demand increase. If we compare the net sales and pre tax figures, the latter exceeded the former for both 1996 and the first half of 1997.

The team believes the structure reflects the past transport policy that over charged freight customers subsidized the passengers. In the past, this policy mix was made possible as the freight customers are mostly the state owned enterprises, while the passengers received subsidies for social consideration.

If the existing framework of the company and transport policy will continue, this financial structure may be allowed to survive. However, this will definitely not the case in the future. The introduction of open access and the development of the national road network will change the transport framework, while the proposed separation between infra structure and train operation will change the institutional framework.

Particularly the forthcoming keener competition with the other train operators and the road transport is expected to erode the profitability of the freight operation, though in the long run. The possibility is quite high as the freight customers have traditionally been over charged to subsidize the socially important passengers, and the competitors may be able to offer cheaper tariffs, or may find it cheaper to establish internal transport unit.

When this takes place and no major improvement in the financial structure has been implemented, all the three railway activities will find it difficult to survive. Otherwise, huge amount of passenger compensation and subsidy will have to be granted to the railway company. In order to avoid this dangerous scenario, it is vital for the passenger activity, especially, to improve its financial viability.



## **CHAPTER 4 PHASED IMPROVEMENT PLAN**

This improvement plan is constructed so that the Bulgarian Railways will be able to survive in the market economy system and to contribute to the development and prosperity of the national economy. To this end, both efficiency and quality of service have to be raised to the levels prevailing in the neighboring countries and Europe.

In order to raise efficiency, it is vital to build a highly competitive transport market structure. The competition should comprise several aspects, including the one within a transport mode (railway transport), cross mode competition (railway and road), and international.

The first and the last requirements will be satisfied if the nation liberalizes the usage of the railway infra structure to the non BDZ operators, both domestic and international ones (open access). A charging system to the train operators will also have to be developed. The internationalization also requires the network integration with the neighboring nations and European countries.

Cross mode competition is expected to become keener when the national economy starts to develop and the national road network, particularly the motor way network, develops. Here a cautious policy has to be adopted in order not to create unfair competition environment between the modes. If the road infra structure is to be maintained and developed by the national government, the railway infra structure has to be maintained and developed by the national government. A new charging system also will have to be introduced to the road users, if the access charge is introduced to the railway system.

In order to create fair competition between the railway and road transports, another factor has to be taken into consideration. It is very important to note that the equality between the two modes will only be restored after taking into account the higher external costs of the road transport. The government is advised to avoid the higher, though hidden, transport and social costs caused by the unfair competition in favor of the road transport.

In order to carry out the railway transport in the most efficient manner, functions have to be separated and will have to be run independently. At least the separation has to be implemented between the infra structure and train operation. The team also advises the

separation between the operations which targets highly different market segments. Thus the train operation is advised to be separated into freight and passenger units both of which are run independently on the commercial basis. The more precise agreement has to be agreed between the company and the government on the passenger compensation if the passenger operation is to be run in such a manner.

All the aforementioned measures will not be implemented solely by the railway company, rather coordinated planning and actions between the company and the government are necessary. However, the company also is required to prepare for the keener competition both within the railway and from the road transports.

The team agrees with the findings of all the management research projects on the company. Over capacity has been found in human resource, railway network and obsolete assets. The capacity level has to be adjusted to the prevailing and forecast level of railway demand in order to achieve higher productivity and efficiency.

On the other hand, the improvement in safety and quality of transport service will require much higher level of investment. This will be partly satisfied by the deeper financial commitment by the government, but the company also will have to improve its own financial capability through various measures. Aside from the commitment by the government and restructuring measures, the company is better advised to employ more aggressive pricing policies, particularly to restore financial viability of the passenger service.

The company and the government will have to prioritize the targeted markets in investing into the future of the railway transport. The team advises, in this regard to develop seamless combined transport for the freight operation and inter-city transport for the passenger business. The former has a vital importance for the development of the railway freight transport in the future, and a precise development plan has to be worked out as early as possible. The latter will be made possible with improving train speed in some of the main lines.

It is desirable if all the proposed measures are implemented immediately and simultaneously. However, legal, social and financial obstacles are expected to prevent such desired implementation of the improvement proposals. On some aspects, such an early implementation may create unnecessary disturbance in some of the parties



concerned. Also, consensus may have already formed on the importance of some measures, but is not feasible to be implemented in the early stage due to financial constraint. Thus the study team has built a **phased improvement plan of the railway management**(Table 4-1).

The period until 2020 is broadly divided into three phases mostly according to the economic development. The first phase is the period of continued economic stagnation until the year 2000, followed by the second phase of initial economic recovery between 2001 and 2005. The final phase is defined as the take off period which is continued from the year 2006 to the end of the research period. Measures will be proposed which are supposed to become possible in each phase.

**Table 4-1 Phased management Improvement Plan**

	Immediate	Medium Term	Long Term
RRP, FRP	Full Implementation		
National Transport Policy	Bi- and Multi-lateral Agreement for cross border transport Establishing Principles	Expanded Open Access Integration with CEEC Access Charge (Road User Charge) One Stop Shop	Full Open Access Network Integration
Organizational Reform	Preparation for Accounting Separation	Accounting and Organizational Separation	Institutional Separation
Pricing Policy	Freight Tariff Rise	Passenger Fare Rise	Cautious Policy
Maintenance and Investment	RRP Investment	Intensive Maintenance Seamless Combined Transport	Future Oriented Investment

#### **4.1 IMMEDIATE MEASURES (1998 TO 2000)**

Because of the prevailing financial constraint and still not sufficient understanding of the market economy system, not many measures will be possible to be implemented in

the immediate future. Rather, it is vital to construct a solid ground in any sense for the forthcoming development and challenges.

#### **4.1.1 Full Implementation of RRP and FRP**

The importance of **Full Implementation of RRP and FRP** has to be stressed for this period as it is supposed to lay the basis for the future development. Although the deadline for the plans have been set at 1998, there may be some delays on some of the proposed measures in the plans. However, it is very important to accomplish virtually all the important measures as early as possible.

Among the **RRP** measures, the investment projects have to be accomplished in the initial stage. This is particularly important as the investment project has stressed to restore the railway safety by replacing and upgrading some of the assets. Although a bulk of the fund for the project will be financed by the international financial institutions, some part has been agreed to be shared by the company and the government. The domestic contributors are required to pay as much as possible effort to enable the project to be implemented as early as possible.

On the other hand, the company is urged to restore financial viability also as early as possible because there are some cost increasing factors, including depreciation and interest charges resulted from the **RRP** investment project. Particularly utmost effort has to be paid to accomplish the measures to restructure the business, including the railway industry, less intensive lines and human resources.

#### **4.1.2 National Transport Policy**

For any developing nation it is vital to build a national development plan, and the same is true to the development of the transport system. Otherwise, there could arise a chaotic situation caused by uneven competition among the transport modes. The team understands that the new government has tried hard to work out such a long term development plan of the national transport system. However it appears that some of the important measures have not been discussed into detail, and a comprehensive plan including these aspects has to be established. The short term and medium term development plans, and the plan for each mode will have to be developed in accordance with the grand design.

### **(1) Transport Network**

As one of the most important advantage of the country is its geographical location, which will rather easily create international traffic once the economic take off process starts in the neighboring nations. Thus the country is better advised to develop the national transport network to coordinate with the neighboring and European countries. In this sense the European corridor plan may give them some possible direction of the network development in the future.

However, as it is impossible to develop all the routes going through Bulgaria, the government has to prioritize the investment project. The authorities are required to define the most promising and the profitable routes. The team believes that the both the East-West and the North-South corridors have vital importance to the nation's development.

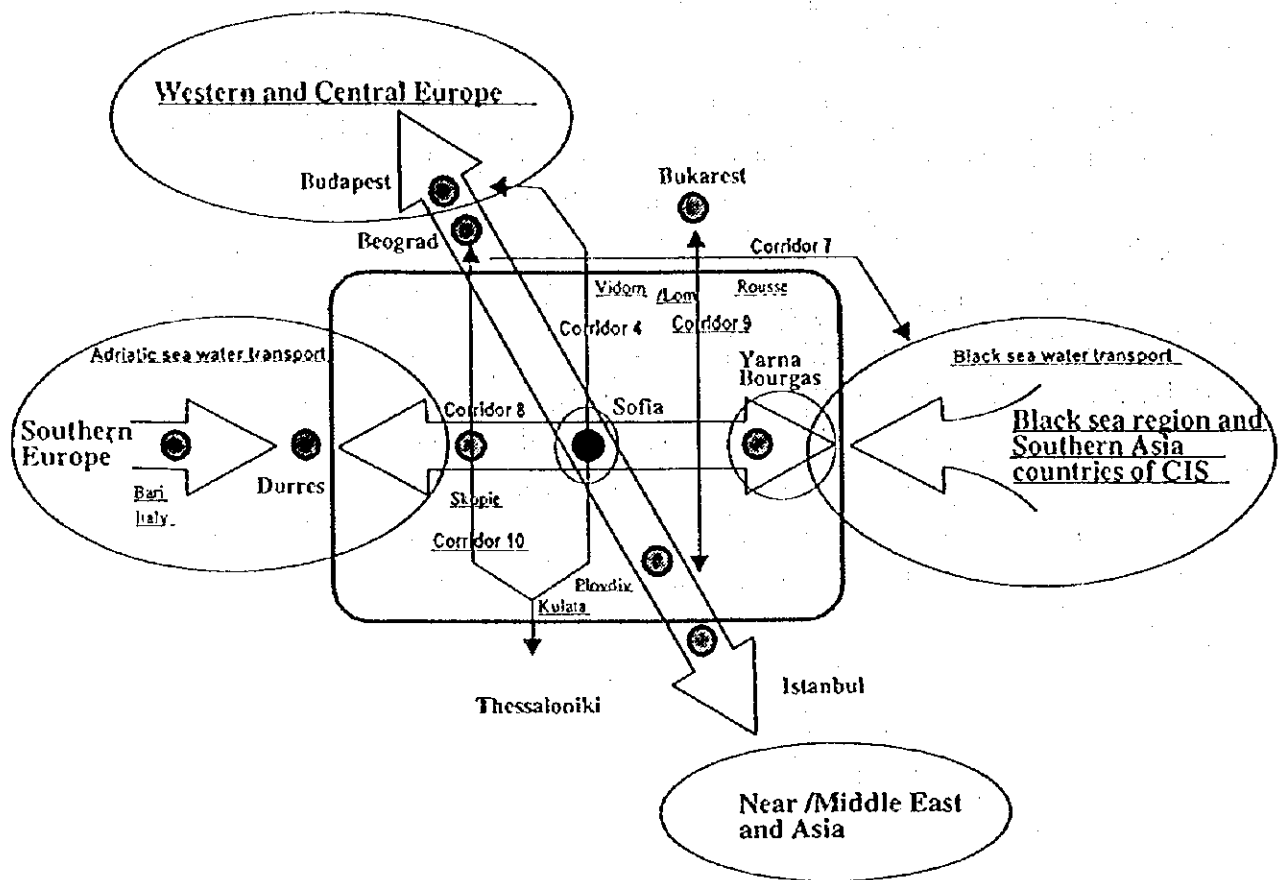


Figure 4.1.2-1 International Corridor Development (Reproduction of Figure 2.3.2-1 in Volume 2)

## (2) Competition Policy

Aside from the policy on the national transport network, the government is required to build a policy framework on transport competition by modes and within the same mode. At this moment the authorities have been trying to work out hard in order to build a legal framework. The government has already drafted out several transport related laws, including the draft railway law, which they are planning to finalize the enactment process within this century. Among these draft laws, the railway law has stipulated the introduction of open access into the country.

This government effort deserves high appreciation as the laws comply with EU directives and regulations and will play important role in promoting competition in the country. However, it is also vital to establish a principle to create equal competitive ground for different modes. This is particularly important for road and railway transports as they are directly competing on the same or similar routes.

The team believes that the implementation of the competition measures will not become possible within the immediate future. Rather it takes time for the company and the government to prepare for the implementation of these measures. However it is important to establish **detailed principles of the policy frameworks to be adopted in the future**. The principles should include promotion of internal competition (within the railway operation), promotion of competition between the railway and road transports, and creating equal competitive grounds for every competitor.

### 1) Competition within the Railway Transport

The planned introduction of **open access** will create competition within the railway transport system. In this sense the government has rightly drafted out the railway law. However, further studies are necessary to really implement the law by determining the **access charges and separation between infra structure and operation**. The EU Directive stipulates a minimum requirement of accounting separation, but the team has concluded that **institutional separation** has to be set as the ultimate goal in the proposal.

## 2) Competition with the Road Transport

It is expected that the competition with the road transport will become keener in the future as the economy will start to pick up, and national road network will be developed. The team is of the view that the railway transport will have to give way to the road transport starting from 2010s.

However, the government is better advised to create equal ground for the road and railway transports for fair competition. If the railway customers are charged through access charges, the road users will have to be charged accordingly (**road user charge**).

In setting the charge levels for the usage of land transport infra structures, the government will have to take into account the hidden costs or **external costs between the different modes**. It is commonly understood that the railway transport is much less costly once such factors are taken into consideration, and should be treated favorably compared with the road transport if the charging systems are established for both the road and the railway transports.

In creating equal ground for competing modes, the government is proposed to share the cost burden of **maintaining and investing the railway infra structure** as is the case for the road infra structure. The team believes that here lies another necessity for the currently unified railway company to separate into infra structure and railway operators.

### (3) Accounting Separation

Again the team stresses that the aforementioned proposals to the government do not form a part of the list of immediate implementation. Rather, the team has proposed to build a concrete ideas immediately which will be implemented in the later stage.

However, the government and the railway company is proposed to prepare for the future implementation of the proposed measures. For the company itself, it is proposed to build a solid management accounting system (**accounting separation**) as early as possible. This is required not only for the purpose of becoming a full member of EU, but also for preparing some of the measures to be implemented in the later stages.

Once the grand design is set in the direction of institutional separation and introduction

of open access, accounting separation will serve the key function of creating basis of asset allocation to each unit, government compensation and subsidy, and revealing profitability of each unit. Management accounting will also serve to set a basis of access charge for infra structure.

As the accounting separation has such important functions, the railway company is advised to accelerate in establishing the accounting system as early as possible. Also the result will have to be agreed with the related government authorities.

#### **(4) Pricing Policy**

It is vital for the company to comply with the measures proposed to the company and the government in order to improve its financial situation. One of the important measures to this end is the pricing policy. It should be born in mind that the past major obstacle in the passenger fare setting, price control, was lifted, and the company is now free in adjusting the passenger fares.

As almost all the study papers suggested to the company, the company should take more aggressive measures in setting the tariffs and fares. Particularly important is to raise passenger fare in excess of general price rises in order to adjust the railway pricing system more balanced between the passenger and the freight transports. This adjustment will also serve to mitigate the cross subsidy financial structure from the freight side to passenger side.

However, such aggressive measure may be difficult to be pursued in the immediate future, as substantial fare rises may threaten the competitiveness of the railway passenger service. Also the shortfall of the government compensation from the state government has to be corrected as the international financial institutions have advised. Such consideration has led the team to conclude that the cross subsidy system will have to continue in the short term, and the financial crisis drawing nearer is better be solved through the still enhanced profitability of the freight sector. Thus the team proposes to raise **freight tariff by as much as 15% in the immediate future**, in the year 1998. On the other hand, it is important still for the **passenger fare to continue to rise gradually and cautiously** in order not to give way to the competing modes substantially.

## **4.2 MEDIUM TERM MEASURES (2001 TO 2005)**

In this period, as the financial constraint is expected to continue, basically the company is advised to take cautious approach particularly on the financial side. However the economic recovery, though weak, may bring some opportunities to the railway business. The government and the company should develop some measures to exploit the business opportunities in the earlier stage. The team expects some mitigation in the financial situation will enable the company to take such measures.

### **4.2.1 Transport Policy**

In this stage, the team proposes to implement almost all the policy measures recommended in the previous section, including open access, access charge, road user charge and integration with the neighboring and European countries. However, the team advises to take cautious approach in implementing the measures as the users and the related parties may not have been accustomed to the newly introduced system and still prevailing financial constraint throughout the economy is expected to make the full and final implementation virtually impossible.

#### **(1) Expanded Open Access**

The Bulgarian Railway system has already taken some measures of opening its infra structure to non BDZ operators on the basis of bi- and multi-lateral agreements, particularly with the Balkan countries. In this stage, somewhat more liberal approach will be taken to expand the open access system of the railway infra structure.

Adoption of the Freeway concept (opening the existing railway network) appears appropriate in this stage.

#### **(2) Railway Integration with European Countries**

The first step of the railway integration will have to be taken in this stage. However, the development of railway infra structure needs to be invested a huge amount of budget which will still difficult to be obtained in this stage either for the company or for the state government. Therefore it is better advised that the minimum requirement of the infra structure is achieved in this period.



### **(3) One Stop Shop (OSS)**

The Freeway system will become more efficiently operated if international coordination is agreed. OSS is the system of international coordination for train path allocation, charging and billing and also monitoring and controlling performance of freeways. The train operators will become able to carry out the transport business more effectively by utilizing this international coordination system. The system is expected to be formed around the middle of the second phase.

### **(4) Access Charge**

The introduction of open access will necessitate establishment of access charge for the train operators. Thus by the time of the introduction of open access, principles of charging system will have to be developed. The principle will have to include the equal ground with the competing road transport. The team proposes that the system has to be developed in compliance with international standard, and will have to be constructed on the basis of the most efficient infra structure management.

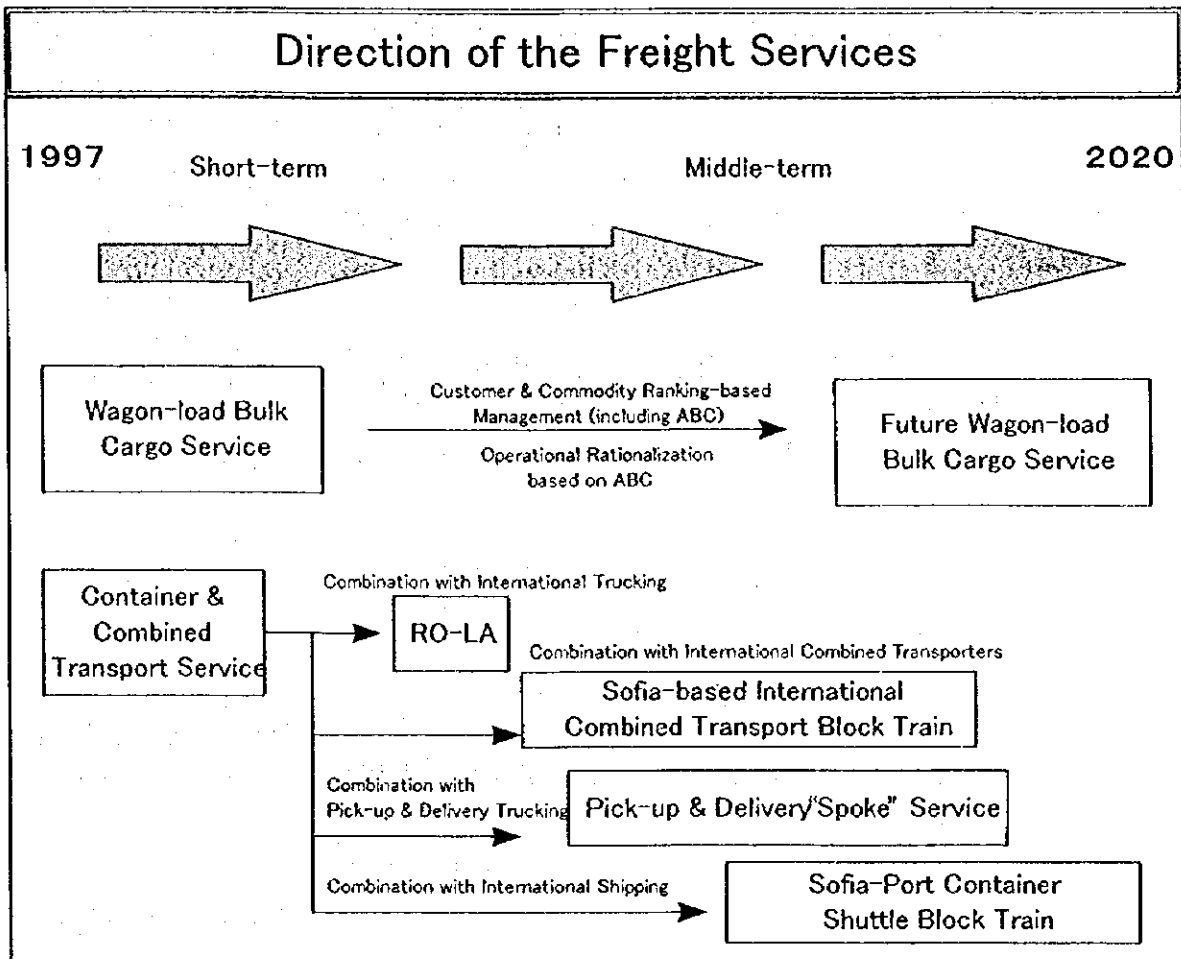
### **(4) Road User Charge**

For the purpose of securing equality between the railway and the road transports, another charging system will have to be introduced simultaneously with the access charge. It is important in this aspect to take into account the external costs of the railway and the road transports. If the comparison between the two modes proves favorable for the railway operation, as are the cases for the other countries, the road user charge should be set higher than the railway access charge.

### **4.2.2 Seamless Combined Transport**

The team believes that the direction of future transport development will gradually be taking shape during the period. As the economy is expected to recover, though at a slower pace, the potential foreign investors may show some interest in the country, and some signs of the forthcoming industrialization will be presented by the movement. The railway company, in conjunction with the state government, should try to exploit the business opportunities.

The team believes that the most promising transport field which is promising for the company is the seamless combined transport. This is not only from the observation from the European countries, but also the possibility will arise from the pattern of forthcoming industrialization which is expected to be led by the assembly type manufacturers. This industrialization will bring a shift of freight transport from bulk transport to more combined among various modes. The company and the government will have to try as hard as possible in promoting this future transport field from early stage. (Refer to Figure 4.2-1 on the next page.)



**Figure 4.2-1 Direction of the Freight Service (Reproduced from Figure 7.3-9 in Volume 2)**

However, the company and the government are still expected to suffer from financial constraint and self finance may still be difficult in developing the necessary facilities for promoting the important transport method even in this stage. The team advises the company to seek for every possible measure in financing the facility construction. It is expected that the somewhat better economic situation may be able to attract some foreign investors in equity participation, and BOT or some other method of financing the project may become possible.

#### 4.2.3 Organizational Reform

The existing organization appears not well corresponding with the needs arising from the market economy. The more market oriented internal system has to be formed in order to maintain the strength of the company and even to exploit the opportunities.

### **(1) Accounting Separation**

The management accounting system which was developed in the first phase will be introduced into the integrated accounting system of the company. The introduction of the **Management Information System (which includes Financial Management System)** is expected to carry out the task more efficiently.

It is advisable that the company prepares for the future organizational development within the period. An establishment of internal charging system between the infra structure and operational divisions will be experimented to prepare for the future introduction of access charge.

### **(2) Organizational Separation**

The internal organization of the company will have to change to the more market oriented one from the existing function oriented structure. Divisions will be formed according to the market segments, namely the **passenger division, freight division and infra structure division.**

Although the company will maintain the status of unified national company carrying out railway transport business, each division will be handed over the rights and responsibilities, including improving profitability etc. To this end, each division has to be granted a high level of autonomy in carrying out their own business.

### **(3) Freight Marketing Policy**

The existing marketing structure of the freight service has not directed toward the market and customer oriented one fully utilizing the information technology. The team proposes, in this regard, to change the marketing organization into the more market oriented equipped with the developed information system. The planned introduction of the **FIS (Freight Information System)** which forms a part of the MIS is expected to enable the company to adopt more scientific approach in the freight marketing. On the other hand, the marketing organization within the freight unit will also have to be developed from the existing cross section structure to the more market oriented one, as is suggested in the Figures 4.2-2 and 4.2-3.

## PRESENT Freight Service Marketing Organization

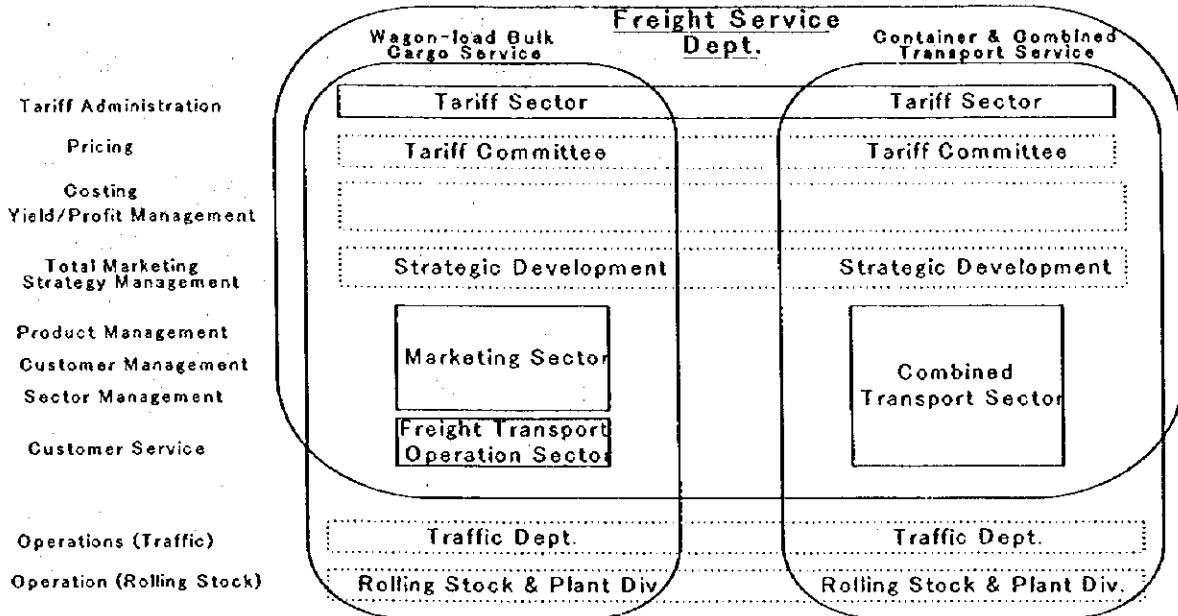


Figure 4.2-2 Present Freight Service Marketing Organization (Reproduced from Figure 7.3-17 in Volume 2)

## FUTURE Freight Service Marketing Organization

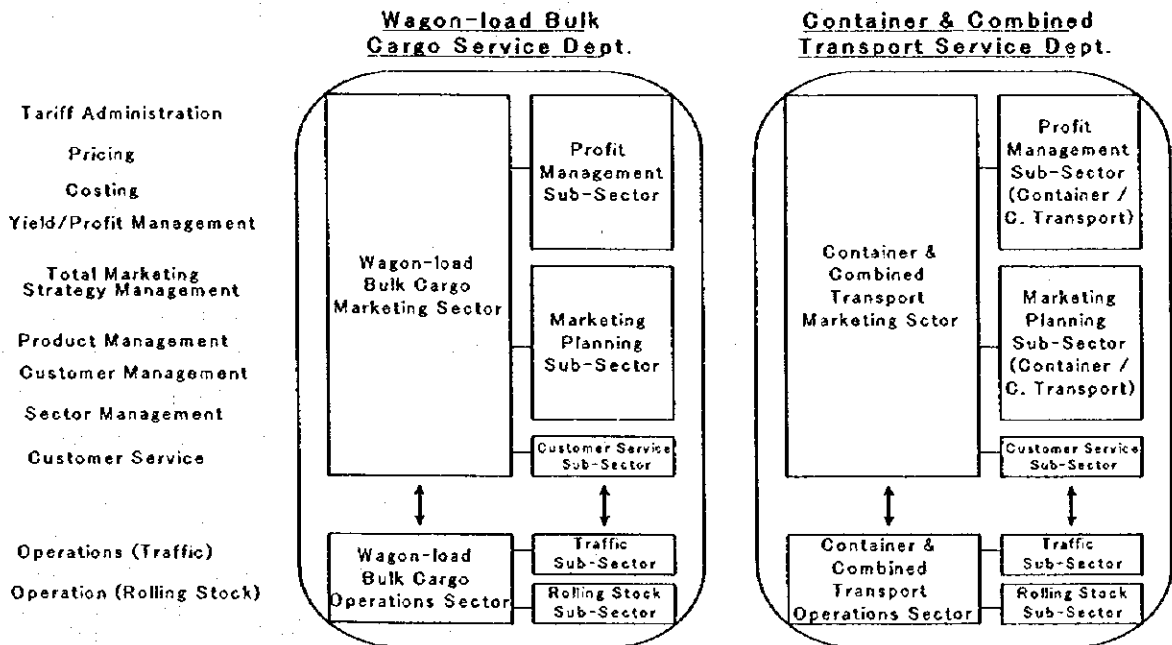


Figure 4.2-3 Future Freight Service Marketing Organization (Reproduced from Figure 7.3-18 in Volume 2)

#### **4.2.4 Pricing Policy**

As this is the period when economic development is expected to start, some change in the customers' behavior may arise. The economic development will accelerate the process of urbanization in the circumstance of the continued decrease in the absolute number of population, while the people's affordability will improve. Thus the passenger division may be able to set the strategic transport target of developing more the inter-city passenger transport.

The company may also become able to change its very cautious passenger fare policy to more service oriented policy. The passenger business will become able to sell better services at somewhat higher prices in this stage because of the expected higher affordability of the people. The team's price policy expert advises **higher passenger fare rises for consecutive 3 years between 2003 and 2005 at a rate of around 10% for each year.**

On the other hand, the freight division is advised to change the tariff policy to the more cautious one to prepare for the forthcoming keener competition both within the railway transport and from the road transport. Thus the way will have to be paved in order to achieve the more balanced profitability between the two railway operators, and minimizing the cross subsidy structure.

#### **4.2.5 Infra Structure Maintenance and Investment**

This is the period when the RRP period is over, and financial viability is to be restored as the heavy financial burden will be shouldered by the company. Particular attention has to be paid to the cash flow situation as the repayment scheme of the loans extended by the international financial institutions will start and increase year by year. Thus it could be difficult to focus upon a major fresh investment project aside from the facilities for the seamless combined transport.

Rather the company, or the infra structure division and the state government will have to focus upon the lagging maintenance and repairing activities during the period. This is a vital factor for the railway competitiveness in order to maintain or even improve the levels of services and safety.

#### **4.2.6 Financing**

However, the team's financial forecast points to the possibility that the financial improvement in this period may not be enough to finance the maintenance and the replacement activity. Thus the team proposes that some external finance should be allowed to the company in order to maintain and improve the quality of assets. The team's simulation suggests that the repayment of the loan will be rather easily done from the improving revenue in the later years of the stage and the next stage.

Another proposal by the team on the financial aspect is to reach an agreement between the government and the company on the repayment of the past debt of the company to the government. As the past debt incurs penalized interests (base rate + 10%), the company's interest burden has grown quite substantially. For the future financial development of the railway business, the company should be allowed to service the debt during the period. The team believes that the company's financial situation will become somewhat better compared with the former phase, which is expected to create some room for the past debt service. It is advised that such past debt service is better completed before the institutional separation takes place.

### **4.3 LONG TERM MEASURES (2006 TO 2020)**

In the final stage of the management improvement plan, the economic development is forecast to start, rather than the mere economic recovery. Industrialization in true sense will start to change the economic and industrial structures. People's affordability will improve further, while transported products will increase.

However, also expected is the much keener competition from the other modes and from the other train operators. The company is advised to prepare for such development of threatening factors much before. Also the government is advised to implement all the transport measures in this period.

#### **4.3.1 Transport Policy**

The team believes that some of the measures will be affected by the timing of the nation's becoming a full member of EU. For the hypothetical assumption, the team has set the timing at around 2007 and some measures will be implemented toward this year.

Another important assumption is set at the timing of the completion of national road network. For the purpose of examining the effect of this factor upon the railway transport, the team has set the timing in the 2010s.

#### **(1) Full Open Access**

The team believes that the final stage is the best earliest timing of the full implementation of open access into the national transport system. The economic development led by export industries will have to necessitate the country to take more liberal measures on international transport for the sake of building the more efficient international transport system. Of course the national strategy of becoming a full member of EU is taken into consideration. The team proposes the exact timing of the introduction at a slightly earlier than the nation's obtaining the membership.

After the implementation of this measure, any train operator, both Bulgarian and non Bulgarian, is able to carry out the train operation business in the country, if the operator is licensed by any one of the EU member states.

#### **(2) Network Policy**

The team proposes that most of the important railway network will be completed in the earlier years of the period, probably around the year 2010. The team's idea is to develop the Pan-European Transport C-4, C-8 and C-9. The earlier development of the network linking the nation with the European countries will definitely serve the country to be integrated with them and support the economic development process.

### **4.3.2 Institutional Reform**

#### **(1) Institutional Separation**

The final phase of the improvement plan will be highlighted by the institutional separation of the unified railway company. It is advised that the former divisions with higher level of autonomy formed in the second stage will be transformed into independent legal entities. Eventually **passenger operation company, freight operation company and infra structure manager will be created around the year 2007.**



The related laws will have to be amended in order to allow the unified national company to be separated into several independent units, and the independent train operators will become totally free from any state intervention.

Each operating entity will have to become fully independent from the state administration. They will have to set their own business plans including the annual plans and development plans. Here clear separation in the financial structure has to be established between the passenger company and freight company. The passenger company will no longer be allowed to count on the financial assistance from the freight operation. Rather it has to seek for the financial measures, while the freight company should be allowed to use the profit and excess fund for promoting its own business.

The structure among them is proposed that the infra structure manager will stay in the hand of the public sector, while the two operators will become independent. The ultimate shape of the structure is expected the operators becoming privately held, but will be held by a holding company during the period of transition. It could be possible that the operators are held fully by the infra structure manager in the initial stage of institutional separation.

## **(2) Arrangement with the State Government**

In case of implementing institutional separation, the company (or the companies) will have to enter various agreements with the government.

### **1) Passenger Compensation**

A detailed compensation policy has to be established and agreed between the passenger operator and the national government. First of all, the criteria of compensation has to be established, and then precise method of calculation has to be agreed upon.

This is a very vital factor for the passenger company to survive in the very competitive environment, as the team's financial forecast points to the possibility that the passenger operation alone will be difficult to reach the break even point until the end of the forecast horizon without the compensation from the state government.

Both parties are required to well recognize that the PSO is provided by the company to the government, and not to the real customers. Thus this payment from the government to the passenger operator should not be regarded as a kind of subsidy.

## **2) Infra Structure Maintenance and Investment**

Once the transport policy is developed in the way that the infra structure of railway system belongs to the state government, basic strategy to maintain and improve the railway network belongs to the government responsibility. Not only because this is the norm widely accepted in the European countries, but also because of the necessity to promote fair competition between the road and railway transports, the state government is advised to shoulder solely the maintenance and investment financial burdens of maintaining and investing in the infra structure. The increasing tax revenue will be combined with the newly created railway open access and road user charges to finance the maintenance and investment costs. However, it is still possible that the state budget will suffer from shortage of tax revenue even in this stage. If this is the case, more realistic approach might be taken that different charging systems will become tentatively in force in order to charge the freight company more than the passenger company.

This financial system has to be implemented immediately after the institutional separation takes place. However, in the initial stage of the phase, as the government may still suffer from shortage of budget allocated for this purpose, somewhat heavier access charge might be imposed on the freight operator in order to mitigate the financial burden on the state budget.

## **(3) Privatization**

If the institutional separation is implemented around the year 2007, privatization of freight company or passenger company or both will become possible toward the end of the forecast horizon. In fact privatization is the ultimate target of the institutional reform under the market economy system as full independence of the operators' management will be secured.

The team advises that the freight company should be privatized first as the business's financial strength is the key factor for a success of any privatization projects. Although the keener competition with the road transport and other railway operators are expected in this stage, the freight company will be able to maintain profitability and financial health. The timing of the privatization of the freight company is advised to fall toward the end of the third stage, as the affordability of the people will become sufficient for the purchase of the company's shares.

On the other hand, the passenger company may lag behind the freight counterpart in terms of privatization as the company's financial situation will only be restored to the break even point even after taking into consideration the sufficient compensation from the government. Although the financial necessity for privatization is higher in the case of passenger company as the company will have to invest more heavily than the freight company, the market will prefer the more profitable freight company first. Thus the company advises that the privatization of the passenger company will be implemented beyond the period covered by this management improvement plan.

### **4.3.3 Pricing Policy**

Now in the final phase that keener competition is already in force and financial viability has been restored somewhat even in the case of passenger company, the two operators are advised to take more cautious approach in setting tariff/fare. Particularly in the case of freight company which has been over charging the customers for long in order to cross subsidize the passenger transport, he will have to face much severer competition. Thus for the freight company a flat price policy or even price reductions might be desirable particularly after the institutional separation, which will delink the financial connection between the two operators.

On the other hand, the team believes that there still is left some room for the passenger company to continue to employ price policy, though at a slower rate of annual increase.

What is more important in the pricing policy in the long run is to recognize the importance of the policy in marketing strategy. At this moment, the pricing policy applies uniform rate in accordance with the distance. However, the future policy has to be more flexible for both freight and passenger businesses, and should differ between the seasons, between the routes, etc.

#### **4.3.4 Maintenance and Investment Projects**

Good quality of train operation in terms of safety and on-time performance is the most significant element for management of railway industry. The team believes that the deferred maintenance for the last decade should be reinstated on a top priority, and that will serve the preparedness of efficient integration of BDZ system into the European railway system. Upon implementation of maintenance/renewal of facilities, the upgrading and strengthening of them should be taken into consideration.

Major maintenance investments include the following.

- Renewal or major overhaul of rolling stock,
- Replacement of turnout points and their interlocking devices, including replacement with those for higher speed as necessary,
- Replacement of ballast,
- Replacement of contact grids, etc.

As for investment projects in the early stage, the seamless combined transport system is to be implemented for the readiness of integration into European railway system.

In the final stage, the economic development will create opportunities and necessities for the company to invest in some strategic projects for the sake of improving competitiveness against the competing railway operators and competing modes.

##### **(1) Line 8 (Double Track)**

In order to increase the line capacity and speed of the Line 8, some single tracked sections will have to be double tracked.

##### **(2) Higher Speed**

In the final phase of the management improvement project, the passenger company is advised to try to achieve higher speed at 160 km/h between Sofia - Plovdiv. The investment project includes the separation of road and railway at some crossings, purchasing pendulum cars, replacement of existing turnout with turnouts for higher speed operation and improvement of electrical facilities.

### **(3) Developing Elevated Crossing**

In order to separate road and railway at crossings on the Lines 1, 2, 3 and 8, the level crossings will have to be changed into elevated crossings.

### **(4) Electrification**

The project aims at the electrification of 143 km between Kurmovo and Svilengrad of Line 1 from the viewpoint of increasing international traffic capacity as well as cutting down the operation costs.

### **(5) Tunneling**

Construction of 2 tunnels between Sofia and Plovdiv is proposed to raise the train speed by avoiding steep curves and gradient in the mountainous regions. However, if the project proves too costly, the implementation may be postponed beyond 2020.

## **4.4 POSSIBILITY OF EARLIER IMPLEMENTATION**

### **4.4.1 Preconditions of the Standard Plan**

The phased management improvement plan roughly consists of four aspects listed below.

- promoting and enhancing fair competition (open access, access charge and road user charge)
- organizational reform (separation and privatization)
- financial improvement (government's financial commitment and restructuring)
- technical improvement (intensive maintenance works and some strategic investment)

Theoretically, all the measures are better implemented immediately and simultaneously for the company and nation as a whole to benefit from the new economic regime. However, several obstacles still exist and are expected to survive against the smooth implementation of the management improvement measures under the assumed conditions.

The team believes that two factors are important for the smooth introduction and implementation of the recommended measures. The factors include regaining political/social stability and economic recovery.

#### (1) Political/Social Stability

Regaining political/social stability forms an important basis for an economy to recover from a deep recession. This stability will help revive confidence among the people and entrepreneur toward the nation and the economy, which will then help revitalize investment and consumption activities.

Political/social stability also is expected to have some direct implication on the long term management improvement plan. As the plan includes building an overall national transport planning, its implementation will only become possible with the coordinated planning and actions between the company and the government. Fair competition policy including financial commitment to the railway infra structure by the government and even the organizational reform need to have concerted actions between them. Thus regaining political/social stability is supposed to become an important part of several preconditions.

#### (2) Economic Recovery

Economic recovery is obviously vital for the management improvement plan to be implemented smoothly as it will create better business performance and enable the company to cope with various management problems more easily. This factor is also expected to serve stabilization in political/economic situation of the country.

Direct implication of the economic recovery for the improvement plan is that it will create greater income among the people and enhance affordability for transportation among the people. Economic improvement will also create greater tax and other government revenue and enable the government to allocate more budget for railway transport maintenance and improvement. The better business environment for the railway company itself will eventually promote more healthier financial climate for the company. The better economic climate will enable the company to accelerate restructuring measures.

### (3) Gradualism

As the standard assumption of the management improvement plan is the gradual improvement of the socio-economic frameworks of the nation toward the year 2005, the team has recommended the company and the government to adopt gradual and step by step approach. Consideration was also paid to non socio-economic factors, allowing some time for preparation for the management accounting system, introduction of the Management Information System and so forth.

#### 4.4.2 Earlier Implementation Conceivable

However, if the socio-economic condition starts to improve immediately at a more rapid pace than the standard assumption, the company and the government might be able to or even be necessitated to implement the recommended measures earlier. Earlier and faster than assumed socio-economic improvement might affect the timing of obtaining the full membership of EU. Even without the EU factor, the substantial improvement will serve to create better environment for the company and the government to take more drastic measures than the standard plan.

The better economic condition will result in a substantial improvement in the business performance of the railway business. However even in this case, management improvement measures are necessary for various reasons including the relationship with EU. Also consideration has to be paid to the future keener competition both within the railway and with the road transport. Furthermore, no matter how substantial the financial improvement may become, the regained financial strength is expected to fall short of the huge financial requirement of infra structure.

Thus even in this case, the railway business will have to rely heavily on the financial commitment by the government. The government, on the other hand, will be able to allocate more budget expenditure for the railway infra structure because of the better than assumed tax and other revenue. But the increase in the government revenue may not be sufficient to fully shoulder the financial requirement for the railway business alone. Thus the government might be required to find other financial sources to finance the huge infra structure maintenance and investment costs.

One possible scenario here is the earlier and simultaneous introduction of the access and

road user charges. On the other hand, access charge has to be introduced together with the implementation of open access system. Open access further requires the earlier implementation of the institutional separation. Thus, the better socio-economic scenario might enable the company and the government to implement almost all the recommended measures earlier than the standard plan. The team believes that this is of course the better scenario of the management improvement of BDZ and help the government obtain EU full membership at earlier than assumed timing.

#### **4.4.3 Restructuring to be Accelerated**

However, even in this case, the company is required to pay utmost effort to restructure and modernize itself. Or even the company may be required to accelerate some of the recommended measures.

First of all, the company has to establish the management accounting system as early as possible in order to accurately reveal the profitability and financial necessity of each business segment. This is supposed to be the urgent requirement if all the important measures are implemented much earlier than the recommendation.

The restructuring measures will also have to be accelerated in order to enable the government to make full financial commitment for the infra structure. It is considered that the government should make financial contribution to the extent of true financial requirement of infra structure. In another word, the government should not compensate for the loss caused by still surviving inefficiency and excess production resources. Although it may be difficult for the company to reach the most efficient infra structure management immediately, the company has to try as much as possible to restructure itself if earlier implementation of the measures is to materialize.