5.4 MANAGEMENT OF LIGHT DENSITY LINE

5.4.1 Criteria of Line Liquidation

The line liquidation for PKP has been decided by conducting the financial analysis and economic analysis by each DOKP. The transport volumes which were the base of the profit were 100,000 passengers/year/line for passenger transport and 100,000 ton/year/line for freight transport as the criteria until 1989. Since the traffic volumes have been decreasing year by year, there are many lines whose volume is lower than the value of criteria. As a result, this criteria became not to be applied all lines uniformly. At present, in PKP, the criteria of traffic volume is under study so that passenger transport is 50,000 passengers/year/line and freight transport 50,000 ton/year/line. However, in these criteria, the travel distance for passenger and the transport distance for freight are not considered. As a result, another criteria should be established, because the quantitative estimate is difficult with these criteria of the traffic volume.

In place of these criteria, the criteria of line liquidation mentioned below was set up for this study referring to the classification of the light density line carried out before and after Japanese National Railway Privatization in 1987.

(1) Criteria of Line Liquidation for Passenger Transport

The criteria of line liquidation for passenger transport is composed of the lines with 1) under 2,000 passengers/km/day of passenger transport density (numerical value dividing the passenger-kilometers per day per line by the operating kilometer) and under 30 km of operating kilometer and 2) under 1,000 passengers/km/day of passenger transport density and under 100 km of operating kilometer. The reason of this criteria is as follows:

In the light density lines, it is not economical and waste of the resource to operate the railway transport system with large operating expenses. It is generally known that the bus service is more economical than the railway service in case of the line of less than a certain transport density. In order to get the critical transport density, "Comparison of operating expenses between railway and bus services" was made by using the operation

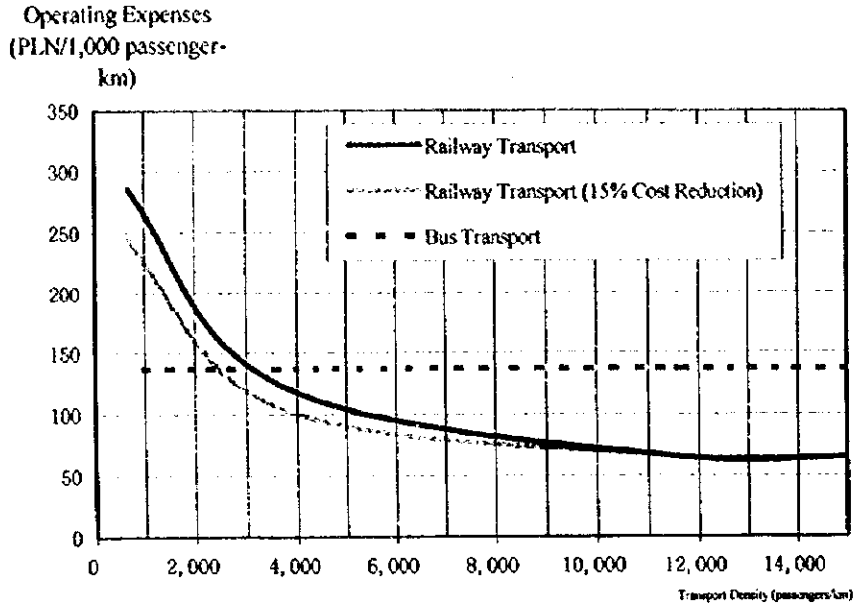


Fig.5.4.1 Comparison of operating expenses between railway and bus services

data of PKP and PKS (one of national bus companies) as shown in Fig. 5.4.1. It is easily
understood in this figure that the railway service at 2,500 - 3,000 passengers/km/day of passenger transport density is more advantageous from the viewpoint of operating expenses.

Therefore, the passenger transport density for the criteria of line liquidation 1) was assumed to be under 2,000 passengers/km/day by taking allowable margin of error. The operating kilometer (30 km) was decided with the consideration of the area of commuting to company/school by car within one hour.

The passenger transport density for the criteria of line liquidation 2) was assumed to under 1,000 passengers/km/day in order for bus operating expenses to be less than a half of the railway operating expenses. The operating kilometer (100 km) was determined considering the general operating distance for long-distance bus services.

(2) Criteria of Line Liquidation for Freight Transport

The criteria of line liquidation for freight transport is composed of the line with under 300 ton/km/day of freight transport density (the numerical value dividing the ton-kilometers per day per line by the operating kilometer) and under 100 km of operating

kilometer. The reason for setting up this criteria is as follows:

The criteria of line liquidation for freight transport employed the economical freight transport density for the average freight transport density per freight train in Japan and main European countries (300 ton/km/train) shown in table 5.4.1. The operating kilometer (100 km) was decided with considering about the distance for making two round trips per day and the road situations in Poland from the viewpoint of the freight transport efficiency.

Table 5.4.1. Comparison of railway freight transport in 1992

Country And Railway Company	Freight ton-kms in million ton-km	Freight train-kms in million train-km	Freight tons per train in ton/train
Germany (DB)	55,064	199	277
France (SNCF)	48,193	159	303
UK (BR)	15,508	49	314
USA (First-class line)	1,576,007	628	2,512
Japan (JR Freight Company)	26,241	91	288

Source: "International Railway Statistics 1992" UIC, Statistics of JR Freight Company

(3) Other Items to be considered

Concerning to the line liquidation, the following conditions should be satisfied besides the criteria mentioned above.

1) Preparation of Alternative Transport System

· The alternative transport system such as a bus service should be provided.

2) Alternative Road

There must be any road which can be traveled by a bus service almost in parallel with the railway line to be liquidated, or the road should be developed.

3) Branch Line except Connecting Line

It is not the key link line connecting each trunk line. The dead ended branch line will be mainly liquidated.

4) Restriction caused by Weather Conditions

There should be few days of suspending the road traffic through snowing. In Japan,

the number of days for the suspension of the road must be within 10 days per year.

5) Approval from Local Government
The approval for the line liquidation must be obtained from the local government concerned.

6) Except lines for the National Defense
The line to be liquidated should be unimportant in military terms.

7) Except Line for Sightseeing
The line to be liquidated should be a line not for the railway related business such as the sightseeing resources after the privatization.

5.4.2 Lines to be Liquidated

The lines to be liquidated was identified by referring the criteria of line liquidation set by this study and previous studies by PKP. The passenger transport density per line and the freight transport density per line were calculated through the D-29 Wykaz linii, lacznic i torow laczacych (D29 Line No.), the CIK (Central Information Management Center) data base and Rocznik Statystyczny PKP 1995 (PKP Statistical Yearbook 1995). The average passenger transport density of the lines identified was 218.9 passengers/km which was far lower than the value of the criteria. Similarly, the average freight transport density of the lines identified was 108.3 ton/km which was about 1/3 of the criteria.

Table 5.4.2 Summary of lines to be liquidated

Classification	No. of lines	Line Length in km	Average Passenger Transport Density of Lines Identified in passengers/km/day	Average Freight Transport Density of Lines Identified in ton/km/day
Primary lines to be liquidated	36	1,582.6	133.5	114.8
Secondary lines to be liquidated	118	3,465.3	272.4	104.2
Total	154	5,047.9	218.9	108.3

The primary lines to be liquidated are the lines coincided with the lines to be liquidated which are required for urgent investigation after submitted to the PKP board of directors in July, 1997. The other lines to be liquidated except the primary lines are classified into the

secondary lines to be liquidated. It is to be desired that each line should be liquidated by the end of 2000 and the end of 2005 respectively in accordance with the schedule of the privatization. The detailed results identified are shown in Fig. 5.4.2 and table 5.4.4.

The average passenger transport density of the primary lines to be liquidated is less than a half of that of the secondary lines to be liquidated. It is easily understood that it requires taking the urgent countermeasures for improving the management of PKP. Meanwhile, the average freight transport density is about 110 ton/kilometer for both categories of the lines to be liquidated, which has no difference between primary and secondary lines. Anyway, it is clear that they are unprofitable and their countermeasures are expected to be taken.

Each of the total line length to be liquidated in Polnocna, Dolnoslaska, Zachodnia and Pomorska DOKPs among all DOKPs is about 1,000 km, and the total line length accounts for 82.5 % of all DOKPs. On the contrary, that of Wachodnia, Poludniowa and Slaska DOKPs is less than 200 km. It is said that the railway networks are not originally dense in these areas, but they are appropriate to the transport demand.

As for the impact on the volume of passenger and freight transport by the line liquidation, 9,183 thousand passengers/year and 2,680 thousand freight tons/year will be lost. These transport losses, however, merely represents 2.0 % of PKP's passengers traffic and 1.2 % of PKP's freight traffic, respectively. Expected revenue loss would be small.

Table 5.4.3 Impact on the Volume of Annual Railway Transport

Classification	Passenger Transport		Freight Transport	
	No. of Passengers in thousand	Passenger-kms in million	Freight Tons In thousand	Freight Ton-kms in million
Primary lines to be liquidated	-2,205	-55	-842	-55
Secondary lines to be liquidated	-6,978	-179	-1,838	-81
Total	-9,183	-234	-2,680	-136

5.4.3 Procedure for Liquidation of Light Density Line

The liquidation of the light density line has been investigated on the process of the privatization of the Japanese National Railway in JAPAN. It is no exaggeration to say that the success of the line liquidation has become the secret of success in the privatization. The liquidation of the light density line is the issues which PKP aiming for the privatization has to tackle with. The procedure which is required for the liquidation is as follows:
The most important matter is the formation of the agreement with the local government representing the general agreement of the inhabitants. The investigation will be required through the "Professional Committee on the Line Liquidation" to make a framework of forming the agreement.

(1) Identification of Light Density Line

Above all, it is required to clarify the light density line. It is required to correctly grasp the present situation by conducting a survey on the traffic volume of passenger transport of the line, if necessary. Concerning to the volume of the freight transport, it will be researched through the transport slip. It is necessary to consider the sightseeing line profitable to the railway related business after the privatization in case of the identification of the lines.

(2) Expense Calculation Caused by Line Liquidation and Making of Construction Plan

The extent, costs and work schedule of the construction written in the specifications of the project including the materials on the land improvement, should be prepared in order to utilize the right-of-way for farmland, road, etc. after the line liquidation. The expenses concerning in the line liquidation will be defrayed out of the National Treasury according to the "The Agreement between Polish State Treasury and State Company PKP" in January, 1997.

(3) Inventory and Appraisal of Assets

It should be required to make an inventory and an appraisal of the assets for sales and transfer. At the same time, it should be required to clarify the relation of rights. Since the right of the railway assets is indistinct in Poland, it will be required to make the special legislation for liquidation or transfer of the light density lines.

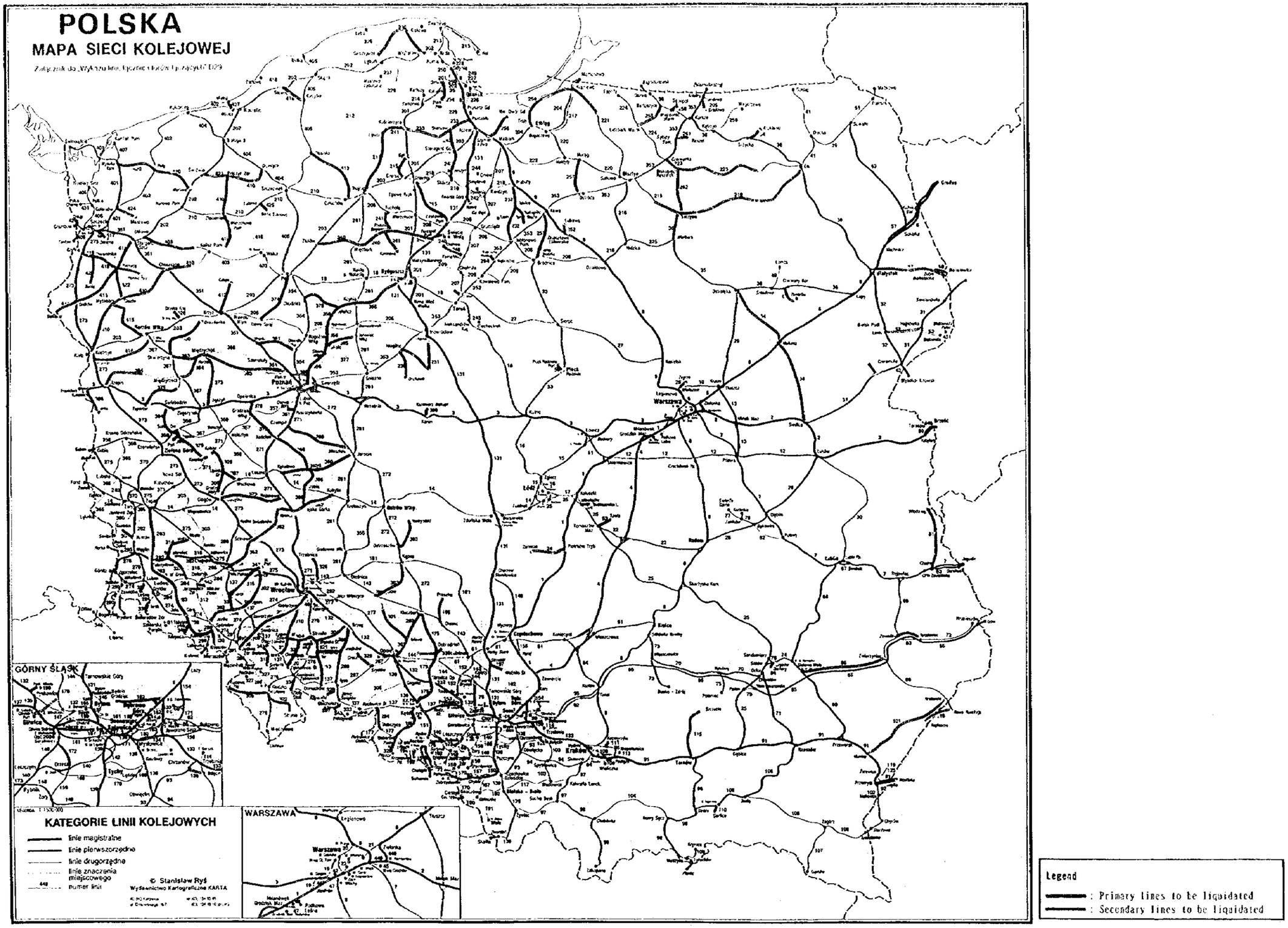


Fig.5.4.2 Lines to be liquidated

Table 5.4.4 (1) Lines to be liquidated (Primary Lines)

No	D29 Line No	Start Station	End Station	Line Length (km)									Transport Density	
				Total DOKP	CDOKP	WDOKP	PdDOKP	SIDOKP	PnDOKP	DDOKP	ZDOKP	PDOKP	Passenger (pas*km/day)	Freight (ton*km/day)
1	24	Piotrkow Trybunalski	Zarzecze (Granica PKP)	31 9	31 9	0 0	0 0	0 0	0 0	0 0	0 0	0 0	7 3	44 4
2	28	Wieliszew	Zegrze	3 7	3 7	0 0	0 0	0 0	0 0	0 0	0 0	0 0	128 7	0 0
3	34	Ostrolęka	Siedlce	119 7	119 7	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	252 3
4	52	Lewki	Hajnowka	30 0	30 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	167 2	0 0
5	126	Chrzanow	Bolęcin	9 5	0 0	0 0	9 5	0 0	0 0	0 0	0 0	0 0	0 0	0 0
6	178	Zabrze Mikulczyce	Tworog Bojnek	22 1	0 0	0 0	0 0	22 1	0 0	0 0	0 0	0 0	0 0	35 9
7	194	Pietrowice Wielkie	Kietrz	8 6	0 0	0 0	0 0	8 6	0 0	0 0	0 0	0 0	0 0	83 8
8	230	Wejherowo	Garczegorze	62 9	0 0	0 0	0 0	0 0	62 9	0 0	0 0	0 0	0 0	0 0
9	231	Matwy	Mogilno	52 0	0 0	0 0	0 0	0 0	52 0	0 0	0 0	0 0	79 6	175 1
10	233	Pszczolki	Koscierzyna	51 3	0 0	0 0	0 0	0 0	51 3	0 0	0 0	0 0	236 3	288 2
11	240	Swiecie nad Wisla	Zlotow	110 4	0 0	0 0	0 0	0 0	110 4	0 0	0 0	0 0	56 1	0 8
12	241	Tuchola	Koronowo	43 4	0 0	0 0	0 0	0 0	43 4	0 0	0 0	0 0	0 0	14 8
13	242	Twarda Gora	Nowe	5 9	0 0	0 0	0 0	0 0	5 9	0 0	0 0	0 0	0 0	0 0
14	243	Skorcz	Skarszew	41 5	0 0	0 0	0 0	0 0	41 5	0 0	0 0	0 0	233 4	294 0
15	248	Kornatowo	Chelmno	16 8	0 0	0 0	0 0	0 0	16 8	0 0	0 0	0 0	0 0	0 0
16	255	Lidzbark Warm	Bartoszyce	25 4	0 0	0 0	0 0	0 0	25 4	0 0	0 0	0 0	0 0	0 0
17	256	Szymankowo	Nowy Dwor Gdanski	24 6	0 0	0 0	0 0	0 0	24 6	0 0	0 0	0 0	0 0	178 1
18	257	Ostroda	Morag	30 6	0 0	0 0	0 0	0 0	30 6	0 0	0 0	0 0	0 0	2 2
19	262	Szczytno	Biskupiec Reszelski	44 0	0 0	0 0	0 0	0 0	44 0	0 0	0 0	0 0	0 0	0 0
20	264	Wabrzezno	Wabrzezno Miasto	2 6	0 0	0 0	0 0	0 0	2 6	0 0	0 0	0 0	93 9	0 0
21	283	Jelenia Gora Glowna	Zagan	104 8	0 0	0 0	0 0	0 0	0 0	89 3	15 5	0 0	501 2	264 1
22	302	Malczyce	Marciszow	75 0	0 0	0 0	0 0	0 0	0 0	75 0	0 0	0 0	35 2	204 9
23	310	Kobierzyce	Pilawa Gorna	40 8	0 0	0 0	0 0	0 0	0 0	40 8	0 0	0 0	12 5	39 7
24	329	Szydlow	Gracze	15 1	0 0	0 0	0 0	0 0	0 0	15 1	0 0	0 0	42 4	180 5
25	336	Mirsk	Swieradow Nadl	10 8	0 0	0 0	0 0	0 0	0 0	10 8	0 0	0 0	0 0	16 7
26	362	Kobylin	Legnica LG5	113 6	0 0	0 0	0 0	0 0	0 0	55 0	58 6	0 0	206 8	23 0
27	363	Rokietnica	Skwierzyna	93 9	0 0	0 0	0 0	0 0	0 0	0 0	93 9	0 0	62 9	4 1
28	364	Wierzbno	Miedzyrzecz	23 0	0 0	0 0	0 0	0 0	0 0	0 0	23 0	0 0	24 5	22 5
29	364	Trzemeszno Lubuskie	Rzepin	41 0	0 0	0 0	0 0	0 0	0 0	0 0	41 0	0 0	24 5	22 5
30	369	Mieszkow	Czempin	54 0	0 0	0 0	0 0	0 0	0 0	0 0	54 0	0 0	87 7	297 5
31	388	Konin	Kazimierz Biskupi	14 6	0 0	0 0	0 0	0 0	0 0	0 0	14 6	0 0	0 0	0 0
32	410	Gremiaca	Miroslawiec	88 9	0 0	0 0	0 0	0 0	0 0	0 0	0 0	88 9	83 4	47 1
33	410	Drawno	Kostrzyn	124 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	124 0	83 4	47 1
34	418	Korzybie	Sawno	16 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	16 0	0 0	0 0
35	421	Polczyn Zdroj	Swidwin	25 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	25 0	81 6	82 2
36	427	Mscice	Mielno Koszalinskie	5 2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	5 2	115 4	0 0
		Total		1,582 6	185 3	0 0	9 5	30 7	511 4	286 0	300 6	259 1	133 5	114 8
				100 0%	11 7%	0 0%	0 6%	1 9%	32 3%	18 1%	19 0%	16 4%		

Note : * shows a part of the line

Table 5.4.4 (2) Lines to be liquidated (Secondary Lines)

No	D29 Line No	Start Station	End Station	Line Length (km)									Transport Density	
				Total DOKP	CDOKP	WDOKP	PdDOKP	SIDOKP	PnDOKP	DDOKP	ZDOKP	PDOKP	Passenger (pas/km/day)	Freight (ton/km/day)
1	35 *	Wielbark	Szczytno	21 0	0 0	0 0	0 0	0 0	21 0	0 0	0 0	0 0	179 4	108 9
2	37	Bialystok	Zubki (Gr Panstwa)	52 6	52 6	0 0	0 0	0 0	0 0	0 0	0 0	0 0	145 9	23 3
3	44	Mikolajow	Budziszewice	3 1	3 1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
4	50	Czerwony Bor	Zambrow	14 3	14 3	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	156 2
5	53	Tomaszow Maz	Spala	8 0	8 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
6	54	Gizycko	Kruklanki	11 5	11 5	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
7	56	Plock Radziwie	Plock Radziwie Port	0 8	0 8	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
8	58	(Gr Panstwa)	Zubki Bialostockie	7 6	7 6	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
9	59	(Gr Panstwa)	Chryzanow	27 2	27 2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
10	66	Zwierzyniec	Stalowa Wola Pld	67 5	0 0	67 5	0 0	0 0	0 0	0 0	0 0	0 0	201 4	58 1
11	80	P Odg Furmany	Oleandry	3 6	0 0	3 6	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
12	81	Chelm Osob	Wlodawa	45 5	0 0	45 5	0 0	0 0	0 0	0 0	0 0	0 0	242 4	137 3
13	83	Zawada	P Odg Jaroslawiec	20 4	0 0	20 4	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
14	84	Grebow	Olendry	2 4	0 0	2 4	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
15	92	Przemysl Glowny	Medyka (Gr Panstwa)	14 0	0 0	0 0	14 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
16	101	Munina	Hrebenne	82 6	0 0	0 0	82 6	0 0	0 0	0 0	0 0	0 0	125 4	207 1
17	110	Gorlice Zagorzany	Gorlice	4 2	0 0	0 0	4 2	0 0	0 0	0 0	0 0	0 0	397 0	90 1
18	111	Krakow Nowa Huta	Kocmyrzow	10 8	0 0	0 0	10 8	0 0	0 0	0 0	0 0	0 0	0 0	0 0
19	112	Krakow Plaszow	Krakow Wisla	2 1	0 0	0 0	2 1	0 0	0 0	0 0	0 0	0 0	0 0	171 8
20	115	Tarnow	Szczucin k/Tarnowa	48 3	0 0	0 0	48 3	0 0	0 0	0 0	0 0	0 0	280 1	246 0
21	116	(Gr Panstwa)	Kaplisze	24 3	0 0	0 0	24 3	0 0	0 0	0 0	0 0	0 0	0 0	0 0
22	166	Ruda Wschod	Gliwice Sosnica	10 8	0 0	0 0	0 0	10 8	0 0	0 0	0 0	0 0	0 0	148 8
23	172	Gieraltowice	Orzesze	10 9	0 0	0 0	0 0	10 9	0 0	0 0	0 0	0 0	94 9	0 0
24	174	Kedzierzyn Kozle	K K Port	5 1	0 0	0 0	0 0	5 1	0 0	0 0	0 0	0 0	111 3	121 1
25	175	P Odg Klodnice	Kluczbork	89 2	0 0	0 0	0 0	4 2	0 0	85 0	0 0	0 0	171 8	0 0
26	176	P Odg Markowice	Olza	20 7	0 0	0 0	0 0	20 7	0 0	0 0	0 0	0 0	28 4	38 1
27	183	Dabrowa G Zabkowice	Bedzin Grodziec	15 8	0 0	0 0	0 0	15 8	0 0	0 0	0 0	0 0	0 0	232 0
28	193	Raciborz Studzienna	Krzanowice PLD	8 7	0 0	0 0	0 0	8 7	0 0	0 0	0 0	0 0	237 0	0 0
29	195	Kedzierzyn Kozle Zach	Baborow	38 7	0 0	0 0	0 0	1 6	0 0	37 1	0 0	0 0	58 0	99 7
30	196	Olesno	Praszka	22 3	0 0	0 0	0 0	22 3	0 0	0 0	0 0	0 0	0 0	0 0
31	197	Strzebin	Wozniki Slaskie	13 6	0 0	0 0	0 0	13 6	0 0	0 0	0 0	0 0	0 0	0 0
32	198	Pyskowice	Pyskowice Miasto	2 8	0 0	0 0	0 0	2 8	0 0	0 0	0 0	0 0	0 0	0 0
33	205	Wielewo(Gr Panstwa)	Gradowo	11 3	0 0	0 0	0 0	0 0	11 3	0 0	0 0	0 0	0 0	0 0
34	211	Chojnice	Koscierzyna	68 1	0 0	0 0	0 0	0 0	68 1	0 0	0 0	0 0	380 5	39 4
35	215 *	Laskowice Pomorskie	Szlachta	45 0	0 0	0 0	0 0	0 0	45 0	0 0	0 0	0 0	211 5	85 8
36	215 *	Czersk	Bak	22 0	0 0	0 0	0 0	0 0	22 0	0 0	0 0	0 0	211 5	85 8
37	219 *	Marcinkowa	Elk	141 0	80 9	0 0	0 0	0 0	60 1	0 0	0 0	0 0	897 8	93 2
38	221 *	Orneta	Braniewo	42 0	0 0	0 0	0 0	0 0	42 0	0 0	0 0	0 0	154 6	88 5
39	223 *	Czerwonka	Orzysz	87 0	0 0	0 0	0 0	0 0	87 0	0 0	0 0	0 0	100 0	37 0
40	232	Jablonowo Pomorskie	Prabuty	29 3	0 0	0 0	0 0	0 0	29 3	0 0	0 0	0 0	0 0	0 0
41	234	Kokoszki	Stara Pila	8 3	0 0	0 0	0 0	0 0	8 3	0 0	0 0	0 0	0 0	242 5

42	235	Kokoszki	Osowa	8.6	0.0	0.0	0.0	0.0	8.6	0.0	0.0	0.0	0.0	0.0
43	239	Moglino	Ochowo	20.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0
44	246	Torun Wsch	Unislaw	32.6	0.0	0.0	0.0	0.0	32.6	0.0	0.0	0.0	0.0	256.2
45	251	Tama Brodzka	Hawa	39.8	0.0	0.0	0.0	0.0	39.8	0.0	0.0	0.0	333.7	190.7
46	252	Zajaczowo Lubawski	Lubawa	6.6	0.0	0.0	0.0	0.0	6.6	0.0	0.0	0.0	0.0	0.0
47	254	Tropy	Braniewo	48.0	0.0	0.0	0.0	0.0	48.0	0.0	0.0	0.0	833.6	230.4
48	258	Wiatrowiec Warminski	Sepopol	4.8	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0
49	261	Satopy Samulewo	Reszel	9.1	0.0	0.0	0.0	0.0	9.1	0.0	0.0	0.0	0.0	0.0
50	285	Wroclaw Glowny	Jedlina Zdroj	82.5	0.0	0.0	0.0	0.0	0.0	82.5	0.0	0.0	291.7	31.5
51	288	Nysa	Brzeg	47.6	0.0	0.0	0.0	0.0	0.0	47.6	0.0	0.0	395.7	184.8
52	293	Jelowa	Klucz bork	26.0	0.0	0.0	0.0	0.0	0.0	26.0	0.0	0.0	101.3	157.0
53	294	Glubczyce	Raciaszkie Slaskie	15.9	0.0	0.0	0.0	0.0	0.0	15.9	0.0	0.0	229.4	0.0
54	296	P.Odg. Wielkie Piekary	Miltkowice Mtk	12.7	0.0	0.0	0.0	0.0	0.0	12.7	0.0	0.0	0.0	0.0
55	297	Nowy Swietow	Glucholazy Zdroj	8.9	0.0	0.0	0.0	0.0	0.0	8.9	0.0	0.0	506.3	132.3
56	301 *	Opole Glowne	Jastrzebie Slaskie	53.0	0.0	0.0	0.0	0.0	0.0	53.0	0.0	0.0	51.3	51.8
57	304	Brzeg	Lagiewniki Dzierzoniowskie	51.0	0.0	0.0	0.0	0.0	0.0	51.0	0.0	0.0	0.0	0.0
58	305	Grodziec Maly	Kolsko	43.1	0.0	0.0	0.0	0.0	0.0	15.0	28.1	0.0	0.0	0.0
59	307	Namyslow	Kepno	41.5	0.0	0.0	0.0	0.0	0.0	41.5	0.0	0.0	0.0	0.0
60	308	Kamienna Gora	Jelenia Gora	38.9	0.0	0.0	0.0	0.0	0.0	38.9	0.0	0.0	239.8	96.7
61	309	P.Odg. Klodzko Nowe	Kudowa Zdroj	40.4	0.0	0.0	0.0	0.0	0.0	40.4	0.0	0.0	255.7	89.6
62	313	Otmuchow	Przeworno	21.1	0.0	0.0	0.0	0.0	0.0	21.1	0.0	0.0	0.0	0.0
63	314	Boleslawiec	Modla	32.3	0.0	0.0	0.0	0.0	0.0	32.3	0.0	0.0	0.0	10.1
64	315	Malczyce	Jawor	29.6	0.0	0.0	0.0	0.0	0.0	29.6	0.0	0.0	0.0	0.0
65	318	Srebrna Gora	Bielawa Zach	15.9	0.0	0.0	0.0	0.0	0.0	15.9	0.0	0.0	0.0	0.0
66	320	Kondratowice	Zabkowice St. Male	26.9	0.0	0.0	0.0	0.0	0.0	26.9	0.0	0.0	0.0	0.0
67	321	Grodkow	Gluboka	27.1	0.0	0.0	0.0	0.0	0.0	27.1	0.0	0.0	0.0	0.0
68	322	Klodzko Nowe	Stronie Slaskie	27.1	0.0	0.0	0.0	0.0	0.0	27.1	0.0	0.0	169.4	187.4
69	323	Nowa Wies Grodziska	Boleslawiec Wschod	24.5	0.0	0.0	0.0	0.0	0.0	24.5	0.0	0.0	0.0	112.3
70	324	P.Odg. Reczyn	(Gr. Panstwa)	0.7	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
71	325	Raborow	Pilszcz	23.1	0.0	0.0	0.0	0.0	0.0	23.1	0.0	0.0	0.0	0.0
72	326	Wroclaw Psie Pole	Trzebnica	19.8	0.0	0.0	0.0	0.0	0.0	19.8	0.0	0.0	3.8	0.0
73	328	Nysa	Kalkow Laka	14.6	0.0	0.0	0.0	0.0	0.0	14.6	0.0	0.0	0.0	0.0
74	330	Kamienna Gora	Chelmsko Slaskie	14.9	0.0	0.0	0.0	0.0	0.0	14.9	0.0	0.0	0.0	0.0
75	331	Jawor	Rozloka	14.8	0.0	0.0	0.0	0.0	0.0	14.8	0.0	0.0	0.0	68.8
76	334	Kamieniec Zab.	Zloty Stok	12.0	0.0	0.0	0.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0
77	335	Henrykow	Cieplowody	10.1	0.0	0.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0
78	337	Luban Slaski	Lesna	10.9	0.0	0.0	0.0	0.0	0.0	10.9	0.0	0.0	137.1	0.0
79	338	Fosowskie	Dobrzien	11.1	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0	0.0	0.0
80	339	Ruszow	Gozdnica	8.9	0.0	0.0	0.0	0.0	0.0	8.9	0.0	0.0	0.0	204.1
81	340	Mysiakowice	Karpacz	7.3	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0	0.0	21.6
82	341	Bielawa Zach.	Dzierzoniow Slaski	6.4	0.0	0.0	0.0	0.0	0.0	6.4	0.0	0.0	0.0	0.0
83	342	Jerzmanice Zdroj	Wilkow Zlotor	6.5	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.0
84	347	Malczyce	Malczyce Port	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
85	356	Poznan Wsch.	Bydgoszcz Gl.	127.1	0.0	0.0	0.0	0.0	48.7	0.0	78.4	0.0	360.8	106.3
86	360	Jarocin	Kakolewo	60.6	0.0	0.0	0.0	0.0	0.0	0.0	60.6	0.0	236.3	258.1
87	361	Puszczykowko	Osowa Gora	5.4	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0	129.2	0.0
88	366	Miejska Gorka	Koscian	75.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0	0.0	0.0	104.7
89	372	Bojanowo	P.Odg. Odrzycko	50.9	0.0	0.0	0.0	0.0	0.0	10.8	40.1	0.0	0.0	135.3
90	373	Miedzychod	Zbaszyn	42.9	0.0	0.0	0.0	0.0	0.0	0.0	42.9	0.0	0.0	0.0
91	374	Bzowo Goraj	Pila	43.3	0.0	0.0	0.0	0.0	0.0	0.0	27.0	16.3	0.0	206.8
92	375 *	Nietoperek	Toporow	33.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	0.0	0.0	57.5
93	376	Koscian	Opalenica	41.3	0.0	0.0	0.0	0.0	0.0	0.0	41.3	0.0	0.0	0.0
94	378	Golancz	Chodziez	36.1	0.0	0.0	0.0	0.0	0.0	0.0	36.1	0.0	0.0	0.0
95	379	Konotop	Sufechow	33.7	0.0	0.0	0.0	0.0	0.0	0.0	33.7	0.0	0.0	0.0
96	381	Oborniki Wielkopol	Wronki	32.2	0.0	0.0	0.0	0.0	0.0	0.0	32.2	0.0	0.0	0.0
97	383	Ostrzeszew	Namyslaki	29.0	0.0	0.0	0.0	0.0	0.0	0.0	29.0	0.0	0.0	0.0
98	384	Sufechow	Swiebodzin	27.3	0.0	0.0	0.0	0.0	0.0	0.0	27.3	0.0	0.0	0.0
99	385	Janowiec Wlk.	Skoki	26.1	0.0	0.0	0.0	0.0	0.0	0.0	26.1	0.0	0.0	46.8
100	386	Kunowice	Cybinka	23.9	0.0	0.0	0.0	0.0	0.0	0.0	23.9	0.0	0.0	118.4
101	387	Wschowa	Lipinka Glogowska	19.2	0.0	0.0	0.0	0.0	0.0	0.0	19.2	0.0	0.0	0.0
102	393	Cigacice	Cigacice Port	2.9	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	1.9
103	403 *	Prostynia	Ulikowo	48.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.0	123.2	218.9
104	411	Stargard Szczecinski	Siekierki (Gr. Panstwa)	94.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.0	167.5	9.6
105	412	Wałcz	Krzyz	61.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.0	0.0	0.0
106	413	Czluchow	Slosinko	55.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.8	0.0	16.4
107	414	Gorzow Wlk. Zieleniec	Chyrzyno	53.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.4	0.0	13.7
108	415	Gorzow WLKP.	Mysliborz	49.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49.6	0.0	0.0
109	417	Oleszna	Szczecin Dabie	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	0.0	0.0
110	419	Pyrzyce	Gryfino	32.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.1	57.0	0.0
111	420	Worowo	Wysoka Kamienska	61.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.5	0.0	15.9
112	422	Pyrzyce	Glazow	23.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5	131.8	34.5
113	423	Chwarstnica	Banie	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2	0.0	0.0
114	424	Goleniow	Maszewo	16.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.9	0.0	0.0
115	425	Lubowo	Borne Sulinowo	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	0.0	0.0
116	426	Strzelce Kraj. Wsch.	Strzelce Kraj.	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0
117	429	Stobno Szcz.	Dobra Szcz.	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0
118	430	Stare Bielice	Skwierzyna	51.5	0.0	0.0	0.0	0.0	0.0	0.0	47.5	4.0	54.8	0.0
		Total		3,465.3	206.0	139.4	186.3	116.5	632.3	933.9	709.7	561.2	272.4	104.2
				100.0%	5.9%	4.0%	5.4%	3.4%	17.7%	27.0%	20.5%	16.2%		

Note : * shows a part of the line

Table 5.4.4 (3) Lines to be liquidated (Total)

No	D29 Line No	Start Station	End Station	Line Length (km)									Transport Density	
				Total DOKP	CDOKP	WDOKP	PdDOKP	SDOKP	PnDOKP	DDOKP	ZDOKP	PDOKP	Passenger (pas/km/day)	Freight (ton/km/day)
		Total		5,047.9	391.3	139.4	195.8	147.2	1,123.7	1,219.9	1,010.3	820.3	218.9	108.3
				100.0%	7.8%	2.8%	3.9%	2.9%	22.3%	24.2%	20.0%	16.3%		

(4) Revenue Expenses Forecast by Sailing Residual Assets

It should be required to forecast the revenue and the expense by selling the assets left over after the line liquidation. The revenue earned by selling the assets will be assessed to reduce the amount of the Government subsidies for the line liquidation.

(5) Investigation of Alternative Transport System

It should be required to select the alternative transport system after the line liquidation. In case of Japan, when the lines to be liquidated were settled to be continued as a railway system, almost lines has been managed by the third sector companies which were jointly capitalized by the local government and private companies. In case of being replaced by bus services, they have been operated by private bus companies and the local governments. The details of the alternative transport system are written on the next clause.

(6) Approval of Line Liquidation by Prefectural Governor

Finally, it should be required to get the approval of the line liquidation through the Prefectural Governor as the proof of the formation of the mutual agreement. Also, it should be required to suspend the service of 6 months at minimum before the line liquidation. Concerning to this, the following is prescribed in Article VI, Chapter I of "Railway Transport Law" in July, 1997.

Article VI

Clause I The local line liquidation for all lines or a part of the lines should be conducted by the railway infrastructure company. It, however, should take six months period to liquidate the line after the suspension of the service, and it should consult the Prefectural Governor.

Clause II The Prefectural Governor should response the opinion prescribed on Clause I within three months after receiving the application of the line liquidation.

5.4.4 Alternative Transport System

In this chapter, the alternative transport system in relation with the line liquidation is introduced. Concerning to the passenger service, it is required to secure the public

transport system for the aged, children and the handicapped who are transport weak. For the freight service, it is preferable to provide the alternative system suitable for each transport commodity not to prevent the railway liquidation from developing the mining and manufacturing industries, and the commerce.

(1) Operating Organization

When the alternative transport is considered from the view point of the management, the operating organization is classified as follows:

1) Localization (Public Service Obligation)

There is the system of the localization in the principle of the common policy in the EC. In this localization, the right of the maintenance and the operation of the railway service in the area concerned can be transferred to the local government. That is, the local government decides the railway transport service necessary to her and entrusted its management to the railway company. It is also called the "PSO" (Public Service Obligation). In this case, it is possible to use not only the railway service but also the bus service or to implement the local railway service by setting up the joint public-private sector funding and to competitively make a tender for some railway companies. It is systematically constructed that the railway transport system is managed in each local area in EU countries either way. The local government will be aided some financial support such as government subsidies.

2) Private Company

The railway service will be transferred to the control of the private company and managed as the private railway company. However, there are few cases of undertaking the railway lines except the particular sightseeing lines or the private sidings to factories.

(2) Alternative Transport System for Passenger Transport

The following alternative system is considered as the alternative transport system for the passenger transport.

1) Rail-bus (Lightweight Diesel Car)

A train of two or three rail-buses now being operated between Gdynia and Hel is one of alternative system. When some company takes over one of the PKP lines, the investment of new vehicles will be required before long. Even if old PKP vehicles

are transferred to the successor, the lives of them will soon expired and new vehicles have to be purchased. It is advantageous in the management that the rail-bus is newly introduced as low in the maintenance cost as the bus and it is expected to reduce the maintenance cost. Moreover, it is required something to improve the high floor of the existing rail-bus with inconvenient boarding and alighting.

2) Large Size Bus

It is the most alternative transport system. It will be operated by PKS, the local government or the private company. In case no company operates the large size bus service, PKP should operate it. The road development should be required in parallel with the line liquidation. It is probably difficult with keeping the scheduled operation caused by the road congestion. Also, in some cases, the reorganization of the bus routes around that area and the investment of purchasing bus vehicles will be required. On the contrary, compared with the railway, the bus service is easy to cope with such demand as increasing the number of bus stops and changing the operating schedule. The operating expenses of bus service will be about 1/10 of those of the railway. The environmental aspects should be considered by the introduction of vehicles provided with exhaust gas purifying device or the hybrid engine system (the jointly used system of engine for generation and electric motor for driving).

3) Tram Car

In case there is not enough demand volume to procure the railway lines and it comes shortage of the transportation capacity to operate large size buses, the medium volume transport system such as the tram car will be the alternative system. Compared with the frequent operation of the large size bus, it is preferable from the view of the environmental protection and the punctual operation. And the passenger convenience will be raised by increasing the station for the existing railway. However, the introduction of tram car as an alternative system is limited to the area where the line has already electrified and the average passenger travel distance is comparatively short.

4) Medium Size Bus

In the area where there is not enough demand for the introduction of large size bus, a medium size bus (community bus in Japan) is used as the alternative transport system. Mainly, it provides the children and the aged with the transport system for commuting to school and to hospital. It is possible to operate the medium size bus through on-demand system. Although the bus fare will become higher, there are some cases for

setting the low fare through the subsidies from the local government in Japan.

5) Others

In case the transport systems mentioned above are difficult to be managed, any alternative transport services are not provided. Instead, the subsidy ticket for the taxi fare is granted to the transport weak, viz. mainly the aged, children and the handicapped, and they can use the taxi. In Japan, this kind of subsidy system for the taxi fare is called the welfare taxi system.

Table 5.4.5 Alternative transport system

Item	Rail-bus	Large Size Bus	Tram	Medium Size Bus
Initial Cost	High	Medium	High	Low
Vehicle Cost	US$ 1,250 thousand/train	US$ 125 thousand/car	US$ 850 thousand/train	US$ 25 thousand/car
Operation & Maintenance Costs	Medium to High	Medium	Medium to High	Low
Environmental Protection	Fair	Bad	Excellent	Bad
Transport Capacity	Medium to Large	Medium	Medium	Small
Vehicle Capacity	200 passengers/train	80 passengers/car	100 passenger/train	10 to 20 passengers/car

As mentioned above, the expenses of the railway transport will be profitable, in case the passenger transport density is over 2,500 - 3,000 passengers/km/day. However, the passenger transport density of lines identified to be liquidated in Paragraph 5.4.2 is far lower than this density. The revenues from the railway passenger transport service will not cover the expenses. Therefore, all the light density lines identified to be liquidated should be transferred to the bus services. If these lines are operated as railways by the local government body or by the joint public-private sector funding, the operation of a rail-bus instead of a train of two cars with a locomotive is strongly recommendable. Because the operating expenses of a rail-bus are 30% inexpensive than those of a train with a locomotive (The Economic Analysis of the Project of Applying the Rail-buses in the Regional Transport at PKP, OBET 1996) and a rail-bus has high flexibility in its operation. It is hoped to introduce the easy boarding and alighting such as the low floor system. In case there is not enough passenger volume to meet the transport capacity of a large size bus, it is necessary to take the countermeasures for the traffic weak by introducing the medium size bus.

The tram car and the welfare taxi system are considered to be an alternative means on

special conditions.

(3) Alternative Medium for Freight Transport

On the other hand, the alternative proposal for freight transport is thought to be as follows:

1) Railway Transport by a Private Company

Different from the case of the passenger transport, it is difficult to operate the lines to be liquidated by the local government or the private company. However, it will be possible to be operated as a designated exclusive line of a corporation by a private company. In this case, the freight transport has a long transport distance in general, therefore, the long transport distance cannot be covered within the company line. In order to avoid changing to load the cargo, its operation will be entrusted to PKP and other freight operating companies operation.

2) Truck Transport

The jurisdiction for the freight transport of line which has less demand will be transferred to the private company. The freight transport on the lines that were suspended transport services has never transferred to the truck transport by PKP and there has no problem arisen. Therefore, an alternative truck transport will not be provided by PKP. The truck transport has a small transport capacity per vehicle compared with that of the railway. However, when thinking of the convenience for the door-to-door delivery service, it will be the trend of the times to divert to the truck transport.

In conclusion, the freight transport density per freight train on the line identified to be liquidated in Paragraph 5.4.2 is far lower than that (300 ton/km/train) of Japan and main European countries and this transport density is not enough to be managed for freight transport by rail. Therefore, it should be replaced the freight transport on the line to be liquidated by the truck transport.

5.4.5 Phased Executive Guideline for Line Liquidation

The executive guideline for the line liquidation on each phase of the privatization is shown as follows:

Table 5.4.6 Phased executive guideline for line liquidation

1st and 2nd Phase (1997~2000)	Through studies of passenger and freight transport density and financial situation of each line, the primary lines to be liquidated should be identified. The special law regarding the line liquidation should be legislated to promote the liquidation legally. This law have to contain the criteria of the line liquidation. The tax concessions and the government subsidies given to the line to be liquidated should be planed. The "Professional Committee on the Line Liquidation" should be established to form the agreement with the local government for alternative transport system, etc. In this phase, 1,600 km of the primary lines identified should be liquidated at rate of 500 km per year.
3rd and 4th Phase (2001~2005)	Through re-studies of passenger and freight transport density and financial situations of each line, the secondary lines to be liquidated should be identified. After the examination of the management condition of the operating organization for the alternative system, the subsidies and the alternative transport system should be re-considered. In case the alternative railway line is managed by the joint public-private sector, the operating revenues should particularly be verified. If there are not enough revenues, it should be considered to transfer to bus transport. The "Professional Committee on the Line Liquidation" should be continued to form the agreement with the local government. In this phase, 3,400 km of the secondary lines identified should be liquidated at rate of 700 km per year.
5th Phase (2006~)	The management condition of each operating organization should be continuously supervised. Depending on the circumstances, the subsidies system and the alternative transport system have to be revised.

5.4.6 Costs of Line Liquidation

According to the Agreement between Polish State Treasury and PKP in 1996, railway facilities on the right-of-way of lines to be liquidated have to be removed. The costs of line liquidation consists of costs for liquidation of permanent way, structural objects, electric energy and telecommunication devices. Using unit costs of these liquidation works, the total costs of the line liquidation identified in this study would be 90,862 thousand PLN as shown in Table 5.4.8. Transferees of the right-of-way should bear the expenses of earthwork or re-cultivation for their land use.

Table 5.4.7 Unit Costs of Line Liquidation (in 1996 Price)

Item	Unit Cost in thousand PLN/km
Liquidation of permanent way	10.00
Liquidation of structural objects	6.40
Liquidation of electric energy and telecommunication devices	1.60
Total	18.00

Source : Strategy Office, PKP

Table 5.4.8 Total Costs of Line Liquidation (in 1996 Price)

Classification	No. of Lines	Line Length in km	Costs of Line Liquidation in thousand PLN
Primary lines to be liquidated	36	1,582.6	28,487
Secondary lines to be liquidated	118	3,465.3	62,375
Total	154	5,047.9	90,862

5.4.7 Experience of Japan

In the local railway line liquidation in Japan, the designated local railway lines have been promoted to transfer to bus transport based on the "JNR Reconstruction Promotion Special Measures Law with the Management Reconstruction of the National Railway." The outline is shown as follows:

(1) Circumstances of Countermeasure for Local Railway Line

1) Management Condition of JNR

The transition of the management condition of JNR is shown as follows:

1949- Maintaining the equilibrium between the revenue and the expenditure for 15 years to the end of 1963 from 1949 when it was reorganized to the public corporation.

1964- Falling in a loss (5.4 %). After that, the loss was lasting eternally.

1968- The modal split rate of the railway and the automobile was reversed in all domestic passenger transport.

1970- The freight transport volume reached its peak.
After 1971 it has been decreasing.
1974- The passenger transport volume reached its peak. After 1975 it has been decreasing.
1985- The excess of the operating expenses over operating income became the biggest (56.9 %).

2) Establishment of Systematic Framework

Circumstances of the process of the enactment of the Reconstruction Law are shown as follows:

Sep. 1976 "Small Committee on the issue of JNR local transport" was set up in the transport policy council.

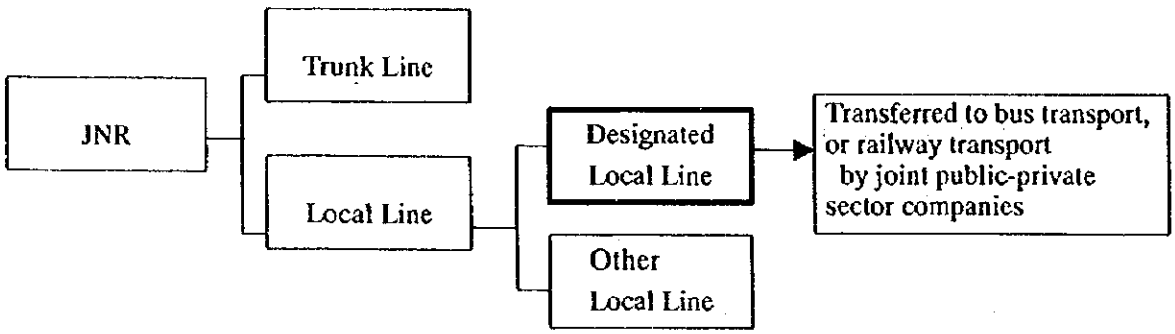
Dec. 1980 Bill on the "JNR Construction Promotion Special Measures Law with the Management Reconstruction of the National Railway" was promulgated and enforced.

Mar. 1981 "Enforcement Ordinance on the JNR Construction Promotion Special Measures Law with the Management Reconstruction of the National Railway" was promulgated and enforced.

(2) Procedure of Transfer

1) The classification of the designated local railway line

The Japanese National Railway Line was classified as follows:



The trunk line:
Operating line forming the railway network of the trunk line.

The local railway line:
Operating lines except those forming the railway network of the trunk line. The line difficult to keep the balance of revenue and expenditure in spite of having been taken

by the appropriate measures for the improvement of the management (under 8,000 passengers/km of transport density).

The designated local railway lines:
The line (under 4,000 passengers/km of transport density) appropriate to transfer from railway transport to bus transport among the local railway lines. The lines which are made an application for selective approval by JNR as the line not applicable to either of four conditions mentioned below and which are approved by the Minister of Transport.

- The line with over 1,000 passengers of transport volume in one peak hour per direction.
- The alternative road being undeveloped.
- The number of interruptions of road traffic on the alternative road parallel to the local railway line exceeding 10 days per year.
- The line with over 30 km of the average traveling distance for passenger transport and over 1,000 passengers/km of transport density.

Other local lines:
Among the local railway lines, the line being operated more effectively as the railway line and the line difficult to be transferred to bus transport are classified into the other local lines.

2) Selection Criteria

The selection approval for the local railway line was implemented by stages from the primary designated local railway lines to the tertiary designated local railway lines by the selection criteria mentioned below. The lines controlled by JNR was 245 lines with 22,460 km at that time in March, 1980 and 83 lines with 3,157.2 km were selected as the lines to be liquidated.

Designated Local Lines	Criteria of Line Liquidation	No. of Lines & Total Line Length	Period
Primary Lines to be liquidated	・The branch line with under 2,000 passengers/km of transport density and under 30 km of operating kilometer ・The line with under 500 passengers/km of transport density and under 50 km of operating kilometer	40 lines (729.1 km)	1981 to 1988
Secondary Lines to be liquidated	・The line with under 2,000 passengers/km of transport density except the primary lines	31 lines (2,089.2 km)	1986 to 1989
Tertiary Lines to be liquidated	・The line with over 2,000 to under 4,000 passengers/km of transport density	12 lines (338.9 km)	1986 to 1990

3) Alternative Transport

Finally, 45 lines among 83 designated local railway lines have been transferred to bus transport and 38 lines have been managed by the railway transport funded by the joint public-private sector.

Alternative Transport	No. of Line	Total Line Length
Bus Transport	45 lines	1,846.5 km
Joint Public-Private Sector Railways	38 lines	1,310.7 km
Total	83 lines	3,157.2 km

4) Management Situations after Line Transfer

Upon the transfer, the subsidies which set 30 million yen/km in operating kilometer to the utmost limit was granted. At the same time, the subsidies for all amounts of the deficit for the bus management and 50 % of all deficit for the railway management have been granted for 5 years after the transfer.

Most of the bus transferred are managed by the existing bus companies. In the management record, the expenses are greatly decreased compared with that of the former JNR at that time. Therefore, operating deficits are quite minimized in all of the lines transferred and some parts of the lines go into the black. When the lines to be liquidated were continued as railway lines, most of them were transferred to joint public-private sector companies. The positive management efforts are made by increasing the income such as operating special trains for events and decreasing expenses while improving the service such as introducing the new type car and increasing the number of the train operation. However, there are many lines of which transportation volume is decreasing caused by increasing the depopulation area in general and by promoting the motorization. Another reorganization for these lines will be required in near future.

5.5 TARGET STAFFING LEVELS AT PKP

5.5.1. Factors determining Target Staffing Levels

Five primary sets of statistics guide the background for the analysis of labor issues at PKP:

(1) Traffic Split. The ratio of ton-kilometers versus passenger-km is approximately 3:1 at PKP (approximately 69 ton-kilometers to 22 passenger-kilometers). While these

performance drivers are not directly comparable, they do suggest the relative importance of freight versus passenger sectors to PKP in terms of staff allocation, service levels, and profitability. This ratio is expected to remain relatively constant. The projection shows freight's importance may slightly increase by the year 2005. This means staffing levels should be consistent with traffic demand.

(2) Core Railway Growth Areas. The greatest potential for railway profits lies in the ability to continue the growth of combined transport (from less than two percent of ton-kilometers to seven percent by 2005) and unit-train service. Railroads worldwide have seen explosive growth and profitability in this market. This growth will not occur without the active support of PKP management with trained, experienced and dedicated staff resources in sales, marketing, logistics management and integrated shipment.

(3) Revenue. In 1996, approximately 80 percent of PKP income came from freight revenues while the passenger business required substantial subsidy. Staff costs are not consistent with revenue production.

(4) Staff Split. In 1996, passenger sales staff numbered over 18,000 employees while freight sales numbered over 9,000 staff, a 2:1 ratio in favor of passenger. Yet the passenger sector loses money (after subsidy is deducted) and freight is profitable. The employment allocation should be reversed.

(5) Subsidy. Passenger operations receive heavy (yet declining) subsidy while freight is self-reliant. Given the four factors above, the freight business is stifled as a result.

Given these relationships, core railway staffing levels have been analyzed and set of staff targets to foster growth through the year 2,005 and beyond is presented. Targets entail a combination of reductions and redistribution of the labor force where there are shortages across sectors and regions of Poland.

The objective is to identify those parts of the business most likely to yield the largest return on investment and allocate labor accordingly. PKP is faced with the challenge of reversing the current labor distribution which is staffed in favor of the passenger business or face the risk of fiscal deterioration.

5.5.2 Key Labor Challenges

After close consultation with PKP and the Ministry of Transport, five key issues have been identified which are addressed herein. These labor challenges are laid out below:

(1) High staff numbers given current and projected traffic levels.
(2) Regional staff surplus and shortages caused by poor geographic distribution of the labor force due to lack of labor PKP mobility (this tendency is deeply entrenched)..
(3) Inflexible work rules and practices leading to decreased productivity
(4) No relationship between wages and company profitability
(5) Steadily rising wages (45% of the operating budget in 1994 rising to nearly 60% in 1996) which consume an increasing share of scarce operating funds.

5.5.3 Target Staffing Baseline

(1) Target staff numbers based on UIC classification and other railways as bench-marks

The table 5.5.1 below shows the baseline level target staff reductions. Year 2005 labor requirements were calculated using traffic employment units (TUE) for major UIC railway sectors and the total. This bench-marking analysis of 25 European Railways is used herein to establish baseline-staffing levels of approximately bout 160,000 employees by 2005 from the 233,183 staff in 1996. This represents a moderate reduction in staff over eight years of 71,000 employees or 32 percent. Determination of the appropriate staffing balance between operations, infrastructure and rolling stock was based on an assessment of the UIC European benchmarking task conducted by Mercer Management Consulting in June 1996. While Mercer chose a very aggressive staff target program of 115,000 (from the then current 234,00), a more moderate set of staff reductions closer to PKP's internal estimates given the current social situation in Poland is recommended as shown below:

Table 5.5.1 PKP Target employment by UIC classification (000's)

	1997	2005	Difference	Change
General Administrative	10	15	5	+53%
Operations	80	53	-27	-34%
Traction/Rolling Stock	70	56	-14	-20%
Infrastructure	70	36	-34	-48%
Total	230	160	70	-30%

(2) Target staff numbers by PKP classification

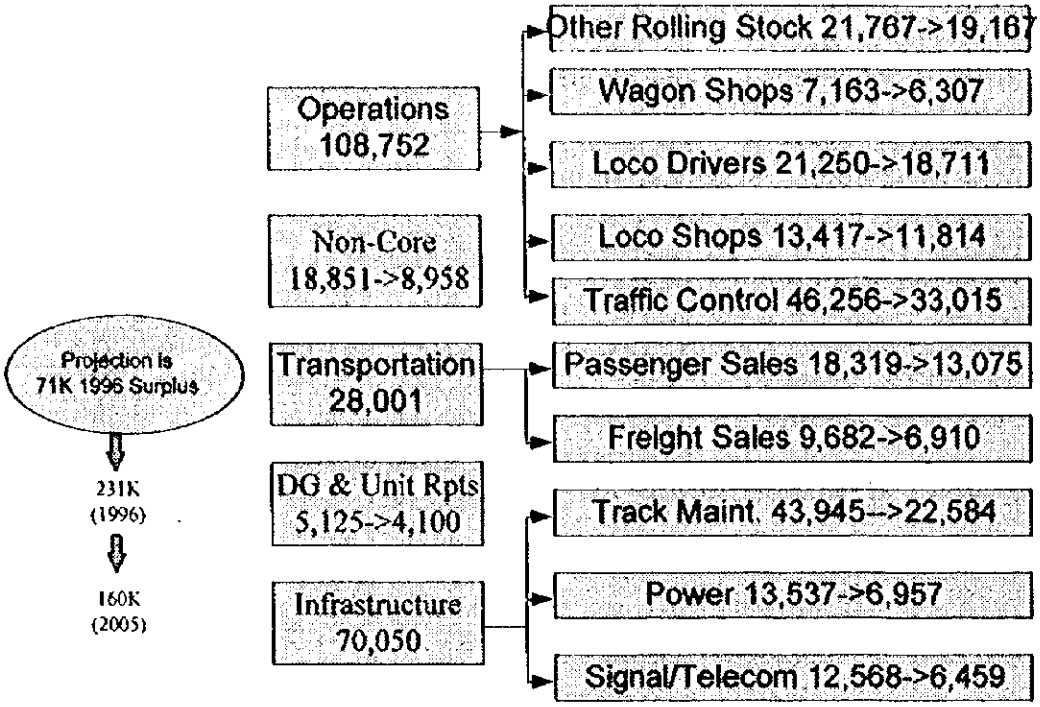
Following the bench-marking analysis, these sector level allocations were applied to the PKP staff classification and the results presented in the table 5.5.2.

Table 5.5.2 Target staff numbers by PKP classification

Functional Sector and Subsector	1996	2005	% of Initia	Strategy Summary
Transportaion				
Passenger Sales	18,319	13,075	0.71	Reduction percentage in accordance with UIC Benchmarking
Freight Sales	9,682	9,173	0.95	Lowest decrease, transfer staff from pass to freight
Exploitation				
Traffic Control & Station	46,256	33,015	0.71	Reductions consistent with UIC Operations department grouping
Traction & Rolling Stock				
Other Rolling Stock	21,767	19,167	0.88	Reductions are minimal in traction and rolling stock backup
Wagon workshops	7,163	6,307	0.88	as a result of 1) past cuts and 2)train drivers OT and 3)
Loco Workshops	13,417	11,814	0.88	wagon /loco workshops maintaining old plant and equipment
Locomotive drivers	21,250	18,711	0.88	Loco drivers are among the strongest union and can have the large
Infrastructure				
Maintenance	43,945	22,584	0.51	Redutions in accordance with UIC benchmarking
Power	13,537	6,957	0.51	Achieve competitive bidding, automation and
Signal	12,568	6,459	0.51	preventive maintenance
Non-Core (Other)				
Supply	1,894	1,515	0.80	Move to Piller
Social	4,169		-1.0	Take outside PKP
Security	3,843	3,074	0.80	Redistribute to core sectors
Narrow Gage	1,156		-1.0	Transfer Operations or Liquidate
Sanitary Inspection	448	358	0.80	Redistribute to non core sectors
Technical Inspection	191	91	0.48	Move 100 to MTME to staff new RR inspection/safety office, distribut
Training Center	208	416	2.00	Double because PKP deperately needs increase
Central DRP	82	41	0.50	Decrease function by half and redistribute to verticals/sectors
Central DOKP	6,341	3,171	0.50	Decrease function by half and redistribute to verticals/sectors
Units Reporting to DG	4,261	3,305	0.78	Marginal cuts, essential functions re-allocated(see "Baseline Staff Rpt
General Directorate	864	795	0.92	Reallocate to core-sectors
Sum	231,361	160,030	0.69	

The above information is summarized in the diagram below :

1996-2005 Labor Targets



(3) Qualitative Assessment of the Impacts on PKP Labor Policy

It is estimated that last year alone, PKP hired over 4,000 new staff amidst a stated hiring freeze for all positions. The Government policy is to provide military leave of absences for up to 18 months In the interim, PKP supervisors may become compelled to pay out a great deal of overtime and hence have the justification to hire new staff. These policies create an endless "revolving door" of staff in key line functions that need reform. When PKP is privatized, it will be possible to cap leave of absence time away and transfer the burden to the state (even though wages and overhead are reimbursed by the State). It is anticipated that PKP managers' perceived labor shortage issue does not diminish unless financial incentives are introduced at PKP to save operating funds, initiate performance-based pay and share company profits.

- Hiring Policy is somewhat ambiguous because PKP management state that there is a hiring freeze yet readily encourage new hiring and filling of temporary vacancies created by leave of absence policies. In reality, this leads to a lowering of net attrition (about one percent). It suggests strongly that the outlook for the majority of PKP labor is far from encouraging outside the railway employment. We discuss this critical point in detail in the staff treatment section because it is this suggestion that a buy-out plan is the best option for PKP and its staff. The alternative can lead eventually to staff being discharged unwillingly or PKP finding itself in bankruptcy

in the long run.

- In a robust economy, the rate of attrition would be about 3.5 percent annually Yet in Poland and in PKP's case, the year has among the best economically and staff are reluctant to leave their posts. As a result, net attrition is lower.

5.5.4 Analysis of Labor Surplus and Shortages by Region and Function

PKP and Ministry of Transport management identified the problem of regional staffing mobility. The problem concerns the ability of PKP line supervisors and top management to deploy its human resources where railway activity and workload is highest. In effect, the problem can be expressed as an inability to meet the demand for labor, based upon traffic activity, with the provision of qualified individuals to get the work done.

The problem is tied to a variety of issues, all of which are interrelated both within PKP and in Poland at-large. Major issues concern the reluctance of workers (especially older individuals) and their families (especially those in the public school system) to leave their local communities on a permanent or short-term basis. In some regions of the country, the tendency is more pronounced than in others, particularly where the economic outlook is more depressed in one area than in the area of origin. Lack of affordable and available housing in many locations worsens the problem as do highly inflexible work rule agreements which make it difficult to allocate labor where necessary, particularly for train drivers and other key operating positions.

After considering these issues many regional imbalances were found. The analysis of labor shortage and surplus was conducted by 1) calculating the ratio of traffic units on employment regionally and nationally; and 2) assessing overtime distribution by function.

Eight geographic regions in Poland, as well as the system-wide average were evaluated to quantify the relationship between demand (traffic) and supply of labor (number of staff by function and at the systems level). The methodology developed to determine current functional staffing levels and project staff needs for the 2005 target year is laid out.

PKP was not able to provide line-level cost and revenue data. As a result the analytical methodology is based upon data which was made available. At some point in the future, it would be extremely useful to calculate labor, material and equipment inputs with respect to work done regionally at the line-level as data is captured through the use of the PKP

Financial Management Information Systems (FMIS) system. At that point, line-level crew consist and maintenance inputs can be calculated to support such decisions as line consolidation, wagon load freight consolidation, crew scheduling, route assignment, and maintenance requirements as key inputs to the Operating Plan.

Secondly, the information on passenger and ton-kilometers at the DOKP is captured at the originating region level. By definition, segment by segment labor costs by function were not available such that the DOKP data cannot currently accurately determine the true proportion of train costs assigned to the region. For example, there is no ability to assign train crew costs between the current 500 WORG units across Poland. A train movement from one region to the next is generally assigned labor, fuel, train crew and other operating costs at one node along the route (generally the origin). As these costs and revenues are assigned to line segments, it will be possible to build line level profitability in the future.

The second point is that the traffic and employment analysis presented herein provides a methodology which PKP can use now and in the future to improve its decision support capabilities over time. It is our hope that this analysis can support PKP's efforts to solve its regional labor supply issues with a more precise method than has been used in the past. As a result, the approach documented herein is a first attempt to develop regional model for national railway labor allocation and assignment. It serves to identify staff shortages and shortages at the highest level rather than as a tool to make precise assignments at the line and shop level.

Thirdly, we did not adjust the regional labor assessment by such relative factors as the amount of locomotive and rolling stock maintenance, switching intensity, traffic dispatcher moves, and other activity factors at the DOKP level necessary to run the railway on a day to day basis. This would be a next step in the process of deploying staff regionally but was beyond the scope of this study.

The regional labor surplus and shortage methodology for staffing levels by DOKP were calculated for the following functions:

- Passenger Sales
- Freight Sales
- Infrastructure (track maintenance, signal, and power)
- Train Control
- Traction and Workshops Backup

The results of our analysis follow. We apply the appropriate traffic demand driver, traffic units per employee (TUE), to each functional group baseline based on the Overview of Staff Reductions Table in order to achieve 2005 target staff levels. Basic labor demand and supply drivers used for this analysis, a concept plan to improve productivity, and results of the analysis are presented below. Some of the productivity issues shown the chart are addressed in Chapter 5-9 due to the inter-relation between labor allocation, work rules, payment systems and productivity.

(1) Infrastructure

The target number of staff by region for infrastructure (including Power and Signaling) is shown in the table 5.5.3 along with the annual changes required. (Note : Performance Driver = TUE = (Passenger-Km + Ton-km)/Employees)

Table 5.5.3 Infrastructure - staff numbers and annual changes required

	ΣTU	Regional Traffic Units (TU)							
	95.7	10.9	8.9	8.3	41.9	8.3	8.6	3.9	4.9
Year	Staff Target	Central	East-ern	South-ern	Silesia	North-ern	Lower Silesia	West-ern	Pomer-anian
1997	70,050	11,389	7,471	6,022	11,181	10,947	8,455	9,325	5,260
2,005	35,000	4,053	3,355	3,121	15,774	3,140	3,250	1,459	1,848
TUE		.946	1.194	1.38	3.75	.762	1.02	.452	.934
Rank		6	3	2	1	7	4	8	5
Surplus/ Year		917	514	362		976	650	983	427
Shortage /Year					574				

Current Average TUE (95.7/70,050): 1.37

Target Average TUE (2005): 2.73

Notes

1. Rank indicates level of shortage/surplus from 1 (most efficient) to 8 (least efficient; candidate region for labor re-allocation where there are staff shortages, such as Silesia)
2. If labor is reduced and/or re-allocated each year based on the staff number shown beside surplus and shortages per year, target average efficiency of 2.73 will be achieved throughout each of the eight regions as shown in each year's target staff by region.
3. Vertical Structure will include Train Control. We apply the Train Control analysis separately because the planned staff reduction ratio differs from the three sub-sectors consolidated into Infrastructure above.

Discussion of Employment Distribution for Infrastructure Sector

By redistributing the surplus labor to regions where there are shortages, it will be possible to improve productivity, reduce overtime, reduce required staffing needs and allow PKP to improve its profitability outlook.

The analysis above shows the highest efficiency ratio (TUE) of all DOKP's in the Silesian region. It is also the area where the largest Infrastructure related staff shortages are located. In recent years, traffic has fallen in this region but it continues to account for nearly 39 ton-kilometers of the 69 million ton-kilometers currently moved over PKP systemwide. Hence, Silesia carries the most freight with the fewest Infrastructure staff and often experiences staff shortages.
Similarly, the region with the lowest TUE efficiency for the Infrastructure sector is the Western DOKP (see TUE ratio row).

This analysis i4mplies severe staff deficiencies in the Silesian industrial region (ranked number 1 above) for movement of coal and significantly lighter e.g. surplus staff in the Western (ranked 8th, Northern (ranked 7th) and Central (ranked 6th) regions. A mobility policy to encourage functional and regional labor redistribution would greatly enhance PKP's productivity from a network view.

In the Infrastructure case, transfer of staff from the Western, Northern and Central regions to Silesia would greatly alleviate staff shortages and optimize the labor distribution.

(2) Passenger Sales

The target number of staff by region for Passenger Sales is shown in the table 5.5.4 along with the annual changes required. (Note : Performance Driver = TUE = Passenger-Km/Employees)

Table 5.5.4 Passenger sales - staff numbers and annual changes required

Year	Σ} TU 26.6	Regional Traffic Units (TU)							
		6.77	1.73	2.84	3.07	4.66	2.75	2.40	2.39
	Staff Target	Central	East-ern	South-ern	Silesia	North-ern	Lower Silesia	West-ern	Pomer-anian
1997	18,319	3,748	1,584	1,906	2,834	2,949	2,087	1,757	1,454
2,005	13,075	3,324	851	1,395	1,510	2,292	1,350	1,179	1,175
TUE		1.80	1.09	1.49	1.08	1.58	1.32	1.37	1.65
Rank		1	7	4	8	3	6	5	2
Surplus/ Year		53	91	63	165	82	92	73	35
Shortage /Year									

Current Average TUE (26.6/18,319): 1.45

Target Average TUE (2005): 2.03

Notes

1. Rank indicates level of shortage/surplus from 1 (most efficient) to 8 (least efficient; candidate region for labor re-allocation where there are staff shortages.
2. If labor is reduced and/or re-allocated each year based on the staff number shown beside surplus and shortages per year, target efficiency of 2.03 thousand passenger-kilometers per employee will be achieved throughout each of the eight regions as shown in each year's target staff by region.
3. Vertical Structure will include Passenger Sales as part of the Passenger

Discussion of Employment Distribution for Passenger Sales

The analysis demonstrates the need for staff reductions in all regions in the former Passenger Sales sector. It is recommended that several steps be taken to redistribute labor involved in this function. First, there are few shortages shown for Passenger Sales staff. However, when we review the record for Overtime Hours paid in 1995 for this sector, it is significant. Passenger sales accounted for 15 percent of all overtime hours. Integrating the two facts, we conclude that passenger sales does have shortages yet they are not nearly as acute as some functions such as train drivers (see Overtime Analysis).

To alleviate staff shortages and overtime for this function, we recommend a combination of measures. First, introduce automatic ticket vending machines.

Second, complete the installation of real-time computerized ticketing at high traffic station. Third, close or consolidate stations where sales are low. Fourth, utilize passenger sales staff at sales windows where the annual multiple of gross sales revenues per agent exceeds the current threshold of twice wages. Double this threshold. Last, introduce stored value or stored ride tickets with incentives/discounts to purchase multiple rides at one time thereby minimizing the need for individual transactions.

Perhaps most importantly, transfer excess staff from Passenger Sales to Freight Sales where revenue growth is expected in combined and unit train service. To successfully re-train staff for these new positions, it is recommended that outside training consultants be used and that management has the right to select which staff qualify for this program based on qualifications and demonstrated motivation.

(3) Freight Sales

The target number of staff by region for Freight Sales is shown in the table 5.5.5 along with the annual changes required. (Note : Performance Driver = TUE = Freight-Km/Employees)

Table 5.5.5 Freight sales - staff numbers and annual changes required

	Σ TU	Regional Traffic Units (TU)							
	69.1	4	7.2	5.5	38.9	3.7	5.9	1.5	2.5
Year	Staff Target	Central	East-ern	South-ern	Silesia	North-ern	Lower Silesia	West-ern	Pomer-anian
1997	9,682	1,495	888	1,586	1,983	1,212	925	860	733
2,005	9,173	532	954	725	5,160	489	782	196	335
TUE		2.68	8.09	3.44	19.6	3.04	6.37	1.72	3.44
Rank		7	2	4	1	6	3	8	5
Surplus/ Year		532	954	725		489	782	196	335
Shortage /Year					-5,160				

Current Average TUE (69.1/9,682): 7.14

Target Average TUE (2005): 7.53

Notes

1. Rank indicates level of shortage/surplus from 1 (most efficient) to 8 (least efficient; candidate region for labor re-allocation where there are staff shortages, such as the Silesian region)
2. If labor is reduced and/or re-allocated each year based on the staff number shown beside surplus and shortages per year, target efficiency of 7.53 thousand ton-kilometers per employee will be achieved throughout each of the eight regions as

shown in each year's target staff by region.

3. Vertical Structure will include Freight Sales

Discussion of Employment Distribution for Freight Sales

This sector represents the greatest growth area for the new PKP. It is recommended that target staff reductions be only five percent of current staffing levels in order to foster growth in operations and sales.

Staff shortages are severe in the Silesian region as shown in the table above. Redistribution of low ranked efficiency DOKP's will help alleviate the shortages felt in Silesia together with the transfer of Passenger Sales staff to this region after freight sales and marketing re-training is completed. Specific re-training needs for freight sales are knowledge of logistics and inter-modal (combined) operations, routes, schedule reliability, and pricing strategies. We do not expect these skills to come from within PKP, at least at the onset. Rather, they can may come from other European and Japanese shippers and railway staffs, on loan to PKP, who have experience in these areas. PKP might consider soliciting the services of such companies to train in-house staff and in commodity group sales and marketing.In addition, PKP may consider the use of EU-PHARE funds for these activities as has been done to hire consultants now teaching classes in basic business processes.

(4) Traction & Back-up

The target number of staff by region for Traction & Back-up (total for passenger and freight) is shown in the table 5.5.6 along with the annual changes required. (Note : Performance Driver = TUE = (Passenger-Km + Ton-km)/Employees)

Table 5.5.6 Traction & Back-up - staff numbers and annual changes required

	Σ TU	Regional Traffic Units (TU)							
	95.7	10.78	8.92	8.3	41.94	8.35	8.64	3.88	4.91
Year	Staff Target	Central	East-ern	South-ern	Silesia	North-ern	Lower Silesia	West-ern	Pomer-anian
1997	63,597	11,203	7,249	7,182	11,014	10,231	6,094	6,019	4,605
2,005	56,000	6,304	5,220	4,857	24,537	4,884	5,055	2,269	2,874
TUE		.58	.76	.69	2.11	.50	.73	.36	.59
Rank		6	2	4	1	8	3	7	5
Surplus/ Year		612	254	291		668	130	469	216
Shortage /Year					-1690				

Current Average TUE (95.7/63,597): 1.50

Target Average TUE (2005): 1.71

Notes

1. Rank indicates level of shortage/surplus from 1 (most efficient) to 8 (least efficient; candidate region for labor re-allocation where there are staff shortages, such as the Northern, Western and Central regions.)
2. If labor is reduced and/or re-allocated each year based on the staff number shown beside surplus and shortages per year, target efficiency of 1.71 thousand ton-kilometers per employee will be achieved throughout each of the eight regions as shown in each year's target staff by region.

Discussion of Employment Distribution for Traction and Workshops Backup

Once again, the most severe shortages are experienced in the Silesian region as a function of high freight and medium passenger activity in the region. Facilities personnel under this sector include, loco workshops, rolling stock shops and train drivers based on PKP 1996 GUS/GIK statistical reporting.

It is recommended that labor for these the last four ranked regions be transferred to the Silesian region to alleviate the lack of manpower in shops and facilities. A complimentary approach would entail the closure of additional facilities in Silesia thereby reducing the workload. However, we recommend a thorough investigation of the need for these facilities in line with PKP's Strategic Plan to avoid disruption to Freight or Vertical rolling stock and locomotive maintenance reliability.

(5) Train Control

The target number of staff by region for Train Control is shown in the table 5.5.7 along with the annual changes required. (Note : Performance Driver = TUE = (Passenger-Km + Ton-km)/Employees)

Table 5.5.7 Train Control - staff numbers and annual changes required

Year	Σ TU 95.7 Staff Target	Regional Traffic Units (TU) 10.78 Central	8.92 East-ern	8.3 South-ern	41.94 Silesia	8.35 North-ern	8.64 Lower Silesia	3.88 West-ern	4.91 Pomer-anian
1997	46,256	7,485	4,442	4,809	8,876	6,570	5,695	4,638	3,741
2,005	33,015	3,717	3,077	2,863	14,466	2,879	2,980	1,338	1,695
TUE		4.91	7.58	6.05	39.21	4.39	6.37	2.00	3.16
Rank		5	2	4	1	6	3	8	7
Surplus/ Year		471	171	243		461	339	413	256
Shortage /Year					-699				

Current Average TUE (95.7/46,256): 2.07

Target Average TUE (2005): 2.89

Notes

1. Rank indicates level of shortage/surplus from 1 (most efficient) to 8 (least efficient; candidate region for labor re-allocation where there are staff shortages).
2. If labor is reduced and/or re-allocated each year based on the staff number shown beside surplus and shortages per year, target efficiency of 2.89 thousand combined passenger-kilometers and ton-kilometers per employee will be achieved throughout each of the eight regions as shown in each year's target staff by region.
3. Train Control is planned to be included as part of the Infrastructure Vertical under the JICA plan but is shown separately above for purposes of analyzing this sub-sector individually.

Discussion of Employment Distribution for Train Control

Due to high traffic, Silesia is again a candidate to receive surplus train control staff from lower ranking regions. Less than ten percent of PKP lines are equipped with automatic train control and as a result the mission of maintaining train operating safety is very labor intensive. This will not change unless PKP closes a number of its low density wagon load only freight stations and accelerates the closure of low- density lines by 5,00 line-kilometers through the year 2005 elaborated elsewhere in this report.

Finally, we discuss a set of recommended work rule changes that would dramatically improve the productivity of train control assignment levels as a function of number of staff calculated to serve a post (such as a train control station) over a 24 hour period. Currently, the labor agreement calls for 4.95 positions per post, a number which PKP management should negotiate lower in exchange for pay for performance and

productivity bonuses (see Chapter 5-9).

5.5.5 Evaluation of Overtime Hours by Function

Overtime hours at PKP were assessed using PKP statistical data for reported classes of functional teams. System-wide results of this analysis are presented below as well as a set of recommended solutions. Work-rule changes, such as the 4.95 rule, are discussed in Chapter 5-9.

Table 5.5.8 Analysis of overtime hours by function

Function	Hours	%
Traffic control	1,644,016	47%
Traction teams	577,838	17%
Passenger sales	514,501	15%
Track maintenance	393,379	11%
Others	353,902	10%

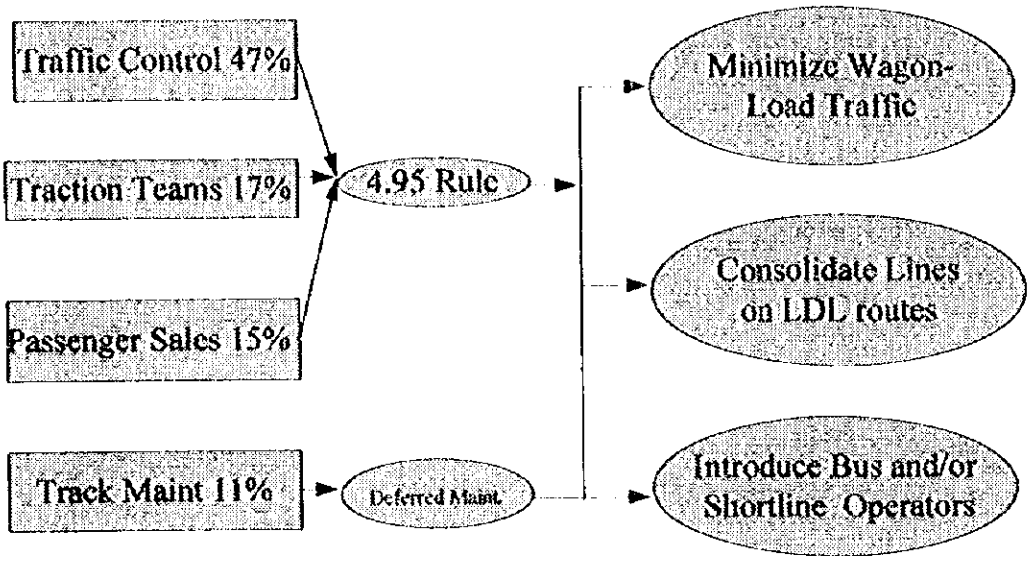
Source: 1995 CIS/GUK Statistical Yearbook

The above table shows that only 4 functions contributed to 90% of overtime worked.

- Overtime for Traffic Control , Traction Teams and Passenger Sales can be reduced by re-negotiating the 4.95 rule (The 4.95 rule negotiated by Unions with Management requires that 4.95 employees are needed to continuously man a continuous 24 hour position)
- Deferring maintenance could reduce overtime for Track Maintenance.

Overtime Assessment

4 Functions Equal 90% of Hours



During the course of our discussions with PKP shop and line management in the field, we found many managers felt compelled to authorize the use of overtime hours in order to get the workload done or staff a post. While overtime pay increases the salary of worker's take-home pay, it represents a substantial cost to PKP.

Consideration of overtime as a proxy for staff shortages is subjective. We found authorization of overtime can be driven by the *perceived requirement to fill posts*. This issue relates to work rules and is discussed in Chapter 5-9 whether or not the post itself is warranted.

In response to a manager's request for overtime, we advocate placing control a fixed budget for total labor, material and equipment in the hands of the manager with autonomy to spend the money as he/she deems fit. Yet, the manager must respond to a set of specific performance requirements for themselves and their staff. Reviews shall be conducted twice a year with bonus pay and profit sharing plans put in place to tie company and individual performance together. Workers themselves should also benefit in profit sharing plans, in order to distribute costs savings between the company and staff.

5.5.6 Principles of the Buy-Out Strategy

PKP management expressed some reservations concerning the amount that could be set aside for a buy-out program to eliminate surplus staff. It is necessary to consider the buy-out option, compared with the "do-nothing" as well as the settlement agency case.

In any case, the buy-out option will be clearly less costly than the do-nothing option and will pay for itself after a few years if a program is instituted. In this sense, we recommend careful consideration of cost tradeoffs between the one-time cost to PKP of a successful early retirement program compared with the payroll costs of keeping unnecessary staff until natural retirement age at either 55 for women or 60 for men. This consideration is particularly important because we recommend, realistically, buy-out programs as the most effective tool PKP has in its arsenal to shed unnecessary labor costs.

Buyout programs should be coupled with transfer of staff within PKP (labor re-distribution geographically and functionally), separation of business units, re-training for posts in and out of PKP, and absorption of excess staff into railway related businesses. Dismissal of uncooperative staff is addressed, but if alternative surplus staff treatment programs are well designed, the residual number of employees forced to leave PKP without some form of compensation should be exceedingly low as was the case during Japanese Railways privatization. The strength of the labor unions is recognized as is the avoidance of unnecessary confrontation.

Essential elements of a successful buy-out strategy, as gleaned from the experience of other railway programs, are discussed below

(1) Time-period for buy-out. The buy-out should be offered to employees with a specific start and closing date, typically one year. During this period, the railway cannot discriminate which employees can be offered the buy-out or legal challenges involving age or sex discrimination.

(2) Amount for Buy-out. Management should set the amount for the buy-out to achieve the largest number who voluntarily accept the plan, without offering an amount so large that it costs the PKP unnecessary expenditure. Many railways have made the mistake of offering a large buy-out in the first year in order to reduce staff quickly. The disadvantage is that management cannot legally cancel the program, once underway, until the specified closing date. This means that if the buy-out amount is set too high and acceptance for the plan is higher than expected, too few remaining staff could

result. The amount of the buy-out can always be increased during the next year but it is very difficult to decrease the amount offered in year two and expect many to accept the new terms.

(3) No one knows exactly how many workers will accept the first buy-out plan until it is offered.

(4) In the second year of the program, the amount is adjusted according to the number of remaining surplus staff It is recommended starting out with a modest amount, three months on average as the top pay-out, and increasing the amount in years two and three.

(5) Reduce the Trauma of Displacement by Offering Alternatives. We recommend applying re-training for in-house positions created by the re-structuring process itself in business practices (as PKP is now doing) and training for courses in railway related business as an option.

(6) Give Surplus Staff as Many Benefits as Possible During the Transition. If PKP offers, for example, two years of additional free train travel to its employees who opt for the buyout. The buy-out is made more attractive with no additional marginal cost.

(7) Duration of Buy-out. Management shall reserve the right to determine the total length and number of cycles of the buy-out period. Given the Poland situation, we recommend three consecutive periods each lasting a year. In this manner it will be possible to adjust the amounts offered each year to calibrate the rate of response (acceptance) with the amount offered. As the amount of the offer increases, management gains expediency but loses an element of control. Acceptance rates are not likely to increase proportionate to the additional increment offered in the next year because there will be fewer remaining employees to take advantage it. The most likely buy-out candidates have already accepted an offer and those remaining are more reluctant to leave the their situation.

(8) PKP is Free to Terminate Employees after the Buy-out is Closed. In this case, they will collect state provided unemployment insurance but receive no portion of wages as a "soft landing" during their transition to new careers or towards retirement. Without this clause in the buy-out provision, stated up front and explicitly, the buy-out will fail because surplus staff will believe that they can stay on at PKP regardless of whether their services are needed.

Based upon consultations with PKP the following buy-out plan has been devised:

- Start Buyout 1999. The sooner the better. However it will be difficult to pass legislation through the Sejm prior to 1999. In the event legislation and requisite funding to provide buy-out resources are not available by 1999, the same principles can be applied in subsequent years.

- Buyout Year 1- Start a 12 month buyout program offering three months of wages plus salary multiplier for PKP cost at 1.48 percent. The amount is 7900 PLN in 1997 prices. A 5 percent acceptance rate applied to all those eligible is estimated. Eligibility requirements consider the amount of time the individual has worked at PKP in combination with other public sector jobs. A typical "vesting" period might be 12 years of railway service. For each year of service, an additional month of pay is offered and, in the Polish case, the amount is divided by 25 percent.

Since PKP was not able to furnish us with an age distribution for PKP employees, estimating the probability of acceptance is made more difficult. We are aware, however, that PKP has a generally aging labor force. Hence the majority of workers are likely to be in a position to take the fullest advantage of the maximum compensation offered.

- Buyout Year 2 - Double the buy-out amount to six months wages plus pension benefits or a total of 8,004 1997 PLN. We estimate a 10 percent acceptance rate for those remaining at PKP after subtracting year one buy-out recipients, cumulative attrition, and staff absorbed by Railway Related Business (RRB).

- Buy-out Year 3 - Offer the same amount as in year two but announce, definitively, that there will be no more buy-out cycles and that workers may be exposed to discharge with no benefits thereafter.

The probability of accepting the buy-out plan, e.g. the participation rate, may adjusted by either shortening the total buy-out period or changing the amount offered. It is very important that management make no advance public commitments concerning the amount to be offered in the future or the total number of buy-out cycles that will be executed. In this way, management can effectively match number of voluntary participants in the program with PKP's ongoing labor need to reduce surplus staff.

On the other hand, another buy-out pan such as offering 9 months of wages in year 1,

offering 6 months of wages in year 2 and 3 months of wages in year 3 may be more suited for Polish conditions. In this case, the whole 3 year scheme should be disclosed to staff before the plan commences.

(9) Since the data of an age distribution for PKP employees was not available, we estimated future number of staff based on actual past years data. We assumed the reduction will be 70,000 staff during 9 years (1997 ~ 2005) to 160,000 staff, based on net reduction of 8,125 in 1995 and 7,609 in 1996.

5.5.7 Scheduled Staffing by Phases

The scheduled staffing is shown in the following table :

Scheduled staffing by phases

Phase	Staff numbers
Phase 1 (1997-1998)	216,920
Phase 2 (1999-2000)	200,657
Phase 3 (2001-2002)	184,394
Phase 4 (2003-2005)	160,000
Phase 5 (2006 -)	

5.6 POSSIBILITY OF RAILWAY-RELATED BUSINESSES

5.6.1 Types of Railway-Related Businesses and the Experience of Japanese Railways

(1) Types of railway-related businesses (RRB)

RRB fall into two categories:

1) Businesses which have an intimate connection with the railway business such as bus, truck, telecommunications, computerized data processing and construction etc.
2) Businesses which not only support the railway business but also develop new business opportunities. E.g. commercial operations in areas such as station-yards and station buildings, travel, retailing, restaurants, hotels, real estate, leisure, and resorts etc.

truck, telecommunications, computerized data processing and construction etc.

2) Businesses which not only support the railway business but also develop new business opportunities. E.g. commercial operations in areas such as station-yards and station buildings, travel, retailing, restaurants, hotels, real estate, leisure, and resorts etc.

(2) The experience of Japanese railways

The experience and results of Japanese railways are outstanding on a global scale. The RRB sales of East Japan Railway Company (JRE) group including 90 affiliated companies make up 45% of group's total sales in 1996. The JRE plans to increase RRB sales to 62% in 2001.

RRB of private railway companies are more diversified than that of Japan railway companies (JR). Typical RRB of private railway companies are bus transport and real estate. With growing urbanization, they purchase land in suburbs, construct houses (new towns), open railway stations and supply bus services. In the 3 largest private railway groups, revenues of railway are under 10 % of each group's total sales.

It is important to note that the prosperity of RRB depends on densely populated cities.

5.6.2 Experience of Hokkaido Japan Railway Company (JRH)

Of the 6 JR passenger companies, JRH resembles PKP the most in terms of geographic, climatic and traffic volume conditions, and JRH's experience should be useful for PKP. The business environment is worse than that of the other JR companies in terms of market scale, because Hokkaido is generally an under-populated, cold region. In 1994, the railroad distance was 2,623 km, with 4,810 million passenger-km, and no Shinkansen (bullet train). The roads in Hokkaido cover 84,150 km, 14.8 km per person, and the ratio of passenger car ownership is 0.35 cars per person.

(1) Sales of JRH group

Railway sales in 1995 were ¥90.5 billion, and costs were ¥132.8 billion, resulting in a loss of ¥42.3 billion compensated for by interest payments from the Management Stability Fund. JRH cannot expect a great increase in demand, and wants to grow less dependent on railway operations as quickly as possible.

RRB of JRH are mainly developed by subsidiaries. Table 5.6.3 indicates that subsidiaries which operate RRB have exceeded JRH in sales and the rate of growth since privatization on April 1st, 1987.

Table 5.6.3 Sales of JRH group (in ¥100 million)

	1987	1988	1989	1990	1991	1992	1993	1994	1995
Sales of JRH	726	811	809	857	895	905	902	905	905
Sales of RRB group	**669**	**769**	**801**	**883**	**993**	**1,049**	**1,072**	**1,097**	**1,148**
1. Hotel, restaurant	56	58	58	64	75	75	75	74	73
2. Distribution,	354	397	373	405	438	428	420	411	412
3. Real estate	11	12	22	27	21	51	46	33	51
4. Construction	158	192	224	237	251	259	274	304	321
5. Other service	90	110	124	150	208	236	257	275	291

Source: JRH (Notes: 2. Distribution and commercial facilities, 3. Real estate and leisure)

(2) Development policy of RRB

The public has a high image of JRH in terms of creditability as the largest company in Hokkaido. This plays a very positive role to start RRB. JRH aims to transform from railway industry into a total service industry by developing new business. JRH was reorganized into 3 business divisions (railway division, development projects division and travel division) after privatization. The latter 2 divisions are in charge of RRB. The development projects division has a hotel department (dept.), distribution dept. and a real estate dept., while the travel division has a domestic travel dept., foreign travel dept., group tour dept. etc. Furthermore, a community development planning dept. has been set up in the administrative division (general planning division).

RRB of JRH are operated principally by 39 subsidiaries in order to allow sufficient flexibility and efficiency in their management, whilst retaining well-defined responsibilities. JRH sends approximately 2,000 staff, which is 17% of total staff (11,795), to the subsidiaries, which helps to reduce JRH's payroll burden. The number of 2,000 is about the same as the number of the surplus staff when privatized in 1987. The human resource development dept. is in charge of the staff secondment system. The basic period of secondment is 3 years, but roughly half of them (1,000) volunteer to extend the period for 3 more years.

New businesses like hotels, supermarkets etc. require professional know-how, so it is important to send JRH's staff to, or borrow experienced staff from, established companies, or invest jointly with them. It is easy for JRH to apply accumulated technologies, such as mechanical, electrical, civil and information engineering to RRB.

(3) RRB promotion methods

1) Franchise

Franchise businesses, like fast-food eateries, are a good way of providing clear and well-established business practices via use of training manuals, to compensate for lack of operational know-how among new staff. The business is run by a JRH subsidiary, and JRH earns money by leasing space in station-yards to the subsidiary.

2) Coin lockers

Coin lockers produce steady profits, efficiently utilizing small space.

3) Utilization of space under elevated tracks

When a major station is elevated, new precious commercial space is created underneath the tracks.

4) Urban development projects

The land in front of Kotoni Station owned by JRH is included in the city's redevelopment project, and JRH acquired 10,000 square meter of floor space in the new building, which JRH can lease to tenants. JRH can turn idle land into highly-profitable commercial space without additional investment.

5) Railway forests

JRH owns huge tracts of railway forests along tracks, serving as barriers to snow and wind. As housing developed along the tracks, part of the railway forests near a major station was cut down, and a hypermarket and small hotel were built in its place.

6) Prefabricated panel for home

A construction subsidiary, which is predicting a future shortage of carpenters, manufactures prefabricated panels for homes.

(4) Problems

The main obstacles to the success of RRB are a lack of proper strategic management and a corporate culture with a standardized way of thinking. It is crucial to develop staff potential by assigning new projects.

The sales of RRB have grown steadily, but it must be remembered that many of the current businesses, such as the real estate business which requires a long pay-back period, are still below break-even point.

5.6.3 Telecommunication Business

(1) Current state of Poland's telephone

From an international viewpoint, the telephone network in Poland is not yet sufficiently developed, but this shows that the business looks promising (see Table 5.6.4). The telephone sector, including international phone, is now monopolized by one Polish state owned enterprise. PKP intends to separate its telecommunication function from the infrastructure sector into an independent organization (pillar) to prepare for future deregulation.

Table 5.6.4 International Comparison of Telephone Figures

Ranking	Country	No. of subscribers at the end of 1992 (Unit: thousand)	No. of lines per 100 persons (ranking)
1	USA	143,325	56.12 (5)
2	Japan	58,520	47.07 (14)
3	Germany	35,420	43.95 (18)
7	Russia	22,778	15.31 (42)
13	Turkey	9,410	15.98 (39)
17	Ukraine	7,300	14.01 (43)
24	**Poland**	**3,938**	**10.22 (49)**

Source: International telecommunication statistics (Siemens, 1994)

(2) Experience of JAPAN TELECOM Co., Ltd.

JAPAN TELECOM Co., Ltd. was established in 1984 by taking over trunk network lines from Japanese National Railways (JNR), with a view to future deregulation of the telecommunication sector. The company has principally provided long-distance calls, and a complete digital telecommunication network of fiber-optic cable throughout Japan since 1992, and now ranks 3rd with 19.7% share of domestic telephone service. The company was listed in 1994, raising ¥160 billion ($1.3 billion) from the stock market, and is now 52% owned by JRs .

The keys to the success of the company are summarized as follows:

1) The company watched the timing of deregulation, and responded to it quickly.
2) It improved its technological skills and took the initiative in completing a nationwide optical fiber network early.
3) The company was fortunate to be able to bury fiber-optic cable in its existing railbeds.
4) During the JNR days, JNR constructed the first national communication network in

Japan. JAPAN TELECOM made the most of such accumulated expertise.

5.6.4 Recommendations for promotion of RRB

(1) Organization

1) To promote RRB, PKP should establish a RRB division which unifies and specializes in RRB. 4 existing pillars (real estate, welfare, railway security service and structural units) would be integrated into this RRB pillar. The real estate department should be the core of future new businesses. It is crucial to place the RRB pillars, including other two pillars (computerized data processing pillar and telecommunications pillar), on an equal standing with the transport sectors in order to heighten staff morale, or it may be recommendable to change the status of the RRB from a pillar to a new sector. Such equal standing is the key to success of the RRB in the Japanese experience.

2) The top management of RRB should be selected carefully after inviting volunteers from within PKP. The management plan the strategy of RRB, and implement it, assisted by the PKP holding company and outside professionals. RRB management then establish subsidiary companies, train and second the right staff there, and assist the independent management to facilitate flexible decision-making, making their results clear and encouraging staff morale. On the other hand, RRB top management control the subsidiaries and coordinate their interests, taking active steps to privatize qualified subsidiaries. Periodical accounts must be submitted to top management and a general meeting, chaired by top management and including all subsidiaries, is held to clearly explain the group's unified strategy.

(2) Practicable means to promote RRB

1) Basic policy

The Polish economy is growing at the highest rate of all European countries, and PKP has many business opportunities. Priority of development should be given to station-yards and the neighborhoods around stations for commercial use because of the high profitability and relatively low risk. It is important to make a profit on station businesses first and later develop into towns. New business should be practiced through subsidiary companies in principle. Among the subsidiaries, core companies should be promoted in businesses such as commercial station buildings, hotels, retailing, restaurants, real estate development and advertising. Core companies can

build cumulative business know-how and share it with each other. As a result, the individual role of each subsidiary company shall be made clear and total group profitability shall be improved by such cooperative management. Chain operations which use the same brand throughout Poland, for example, is one good measure to make retail businesses efficient because of the broadness of PKP's market area.

2) Leasing businesses in station-yards and advertisement

These businesses can make use of PKP's advantageous locations, and require low initial costs and are profitable, with sales almost equal to profit.

a) Clean, light and heat station-yards, and make stations comfortable, cheerful and pleasant. The brighter and cleaner the station, the more passengers and the income from advertisement will increase.

b) Expand the station-yard area suitable for good for business by moving the station-office to a less prominent location.

c) Revise term of current lease to, for example, a 1 year contract, and replace third party leaseholders with operations by PKP or PKP subsidiaries for profitable locations.

d) d. Station buildings with shopping centers for lease is one of the typical RRB of JRs. The rent from tenants is indexed to the sales of tenants. Initial cost of the business is relatively small because approximately 70 % of construction cost is financed by deposit money from tenants contracting the space.

3) Acquire shares of external companies

As a means of enlarging RRB, the acquisition of shares in established successful companies or mergers with them should be considered. It is advisable that, at first, such companies already have some connection with PKP, for example truck, bus, rent-a-car, construction, travel agency, dining car, kiosk, restaurant, advertising agency, hotel, security company.

4) Computerized data processing and telecommunications

These businesses have a promising future, and the 2 pillars should remain independent. They should be promoted by suitable means.

5) Ask for experts' instruction

It is indispensable when undertaking a new business to ask for external experts' instruction. When undertaking a travel agency or department store, it is necessary to send staff to specialized companies for several years, and to cultivate future leaders.

6) Real estate

PKP has advantages in possessing a lot of land conveniently located. PKP is surveying all areas, and the surveys' findings should identify many business opportunities such as hotels, shopping centers, housing etc. .

5.6.5 Implementation Schedule for Development of RRB (cf. 4.3.3, 5.2.1)

Implementation schedule for development of RRB by privatization phases is shown as follows:

Table 5.6.5 Implementation schedule for development of RRB

1st phase (1997~1998)	Divide the 6 functions of real estate, welfare, computerized data processing, telecommunication, railway security service and structural units into independent pillar organizations under the direct supervision of a Management Board. Real estate pillar becomes the core of the RRB and it surveys current real estate, and changes its name to RRB pillar. Each pillar and sector estimate the internal exchange of services and calculate the costs to be claimed for preparing future accounting and organizational separation. Plan for selecting, training, transferring staff in-charge of RRB is prepared.
2nd, 3rd phase (1999~2002)	RRB pillar merges with 3 other pillars (welfare, railway security service and structural units), and promotes RRB by means of subsidiary companies under a unified strategy. A 3 year secondment system to subsidiaries is implemented for all staff. Core companies are promoted by types of businesses. Direct privatization such as leasing, staff buy-outs or strategic sales, is advanced.
4th phase (2003~2005)	3 pillars (RRB, computerized data processing, telecommunications) are separated and transformed into JSC. Expansion and/or restructuring of RRB assisted by holding company by means of merger, acquisition and joint-investing with outside expert companies progress. Direct privatization is continuously encouraged.
5th phase (2006~)	Advance listing of qualified subsidiaries and 3 RRB JSC on the stock exchange.

5.7 INVESTMENT IN EQUIPMENT AND FACILITIES

5.7.1 Policies on Investment

(1) Investment Plan of PKP

As investment is a nucleus of comprehensive management strategies, it is important to prepare a plan to attain the purposes of management and determine whether to implement it by correctly assessing its effects. After privatized, PKP is required to have a more rigorous manner in discussing the contents of the plan, assessing the effects and raising required funds than when it was state-owned.

Table 5.7.1 summarizes the records of investment by PKP in 1996. Since 1995, the amount of investment includes expenses for development and improvement.

Table 5.7.1 Records of investment for development in 1996.

Item	Ratio (%)
1. Investment for construction	
Modernization of railway lines	31
Train operation and maintenance	9
Train operation control system	7
Urban railway networks and stations	2
Stations and train stoppage sites	2
Environmental preservation	2
Remodelling to double-track and quadruple-track lines	1
Development of scientific technologies	1
Education and training	1
Subtotal	56
2. Procurement other than investment for construction	
Rolling stock	27
Others	17
Subtotal	44
Total	100

Source: Investment and Construction Department, PKP

Table 5.7.2 shows the investment plan (draft) of PKP for fiscal 1997.

Table 5.7.2 Investment plan (draft) of PKP for fiscal 1997.

In thousand PLN

Item	Amount	Ratio(%)
Investment for modernization and development	1,164,034.5	54.5
Investment for improvement	297,785.9	13.9
Rolling stock (procurement)	292,580.0	13.7
Rolling stock workshops	351,761.2	16.5
Employee heal control	14,290.2	0.7
Housing	16,770.0	0.7
Total	2,137,221.8	100.0

Source: Investment and Construction Department, PKP

From the above, investment by PKP is summarized as follows.

① Investment to increase the volume of transport and improve transport services
Modernization of existing lines, remodelling to double-track, speed-up, improvement of station facilities, electrification, renewal of rolling stock

② Investment to improve efficiency and modernize railway operation
Manpower saving, mechanization (introduction of CTC, modernization of signal and telecommunication facilities, improvement of train operation control system and others)

③ Investment for safety and environmental preservation
Safety measures (grade separation, improvement of crossings), environmental preservation

(2) Policies on Investment for Privatization

The accumulated short amount of investment in infrastructure by PKP from 1989 to 1996 reached 5.8031 billion PLN (Table 3.6.3). As seen in this figure, delay in modernization of infrastructure is conspicuous (see 3.6.1 Subjects for Infrastructure). A same tendency is seen with rolling stock, with an average length of service of 17 years. In addition, inspection and repair work has also delayed to large extents.
Increases in investment will worsen the finance of PKP. In addtion, subsidies by the government cannot be expected much, given its constrained financial situation at present (see 5.8 Subsidies by the Government).
To effectively utilize such limited amounts of funds and acquire competitiveness against automobiles and other transport facilities, it will become more important than

ever for the privatized company to implement investment plans on a priority basis.
For reference, we quote below changes in investment items of railways in Japan after Japanese National Railways (JNR) was privatized. Investment items and amounts considerably changed after JNR's privatization. Due to an astronomical amount of long-term debts, JNR stopped investment just before privatization in principle except in projects related to the safety of train operation, and thus substantially saved investment funds. After privatization, the amount of investment has gradually increased as JR group companies continue sound management. However, JR group companies are investing less in the construction of new railway lines or tracks and more in rolling stock for high-speed operation and improvement of accommodations. In other words, JR group companies are now determining investment items based on their own judgement by placing emphasis on profitability, efficiency of investment and improvement of services closely linked with the requirements of communities.
PKP is required to review its investment plans referred to in (1) above in this manner and adopt efficient investment items to prepare for privatization.
Based on the present status of railway facilities we surveyed in this study to support the privatization of PKP, we propose that investment in equipment and facilities be promoted concentratedly and efficiently on a priority basis according to the following policies.

① Modernize the most important lines under AGC and AGTC international contracts, length 5,000km, out of the entire 17,000km-long railway network.

② For other lines, limit the amounts of investment only to ensure the safety of train operation and transport capacities to deserve the degree of importance. For low-density lines to be abolished in the future, don't invest funds except for the purpose to ensure the safety of train operation. In this manner, PKP is required to take drastic measures.

③ In privatizing PKP, invest in business fields where advantages of railway can be demonstrated in the future, while taking into consideration specific features of railway passenger and freight transport in the markets in Poland. Prospective fields are train-unit freight transport, combined freight transport, inter-city passenger transport and urban passenger transport.

④ To rationalize the employment structure, invest in projects for improvement, manpower saving and mechanization, in particular in those of signal, telecommunication and operation control systems where modernization is far behind.

⑤ In consideration of the present status of rolling stock, invest in locomotives and passenger cars for high-speed operation and passenger comfort (procurement and modernization). For reference, investment for this purpose is the most important in privatized Japanese railways to account for 20 to 30% of the total amount. In PKP, the ratio of the investment in rolling stock should be higher, as it is more superannuated. Remodelling existing rolling stock should also be considered, as funds required are less than for new procurement.

⑥ Invest in environmental preservation projects according to relevant laws and regulations.

In planning investment in equipment and facilities, profitability and its effects must be weighed more than ever. In other words, PKP is required to take investment actions with its own responsibility through strict marketing strategies.

The amount that should have been invested in 1989 to 1996 reached 5.8 billion PLN (about 6.0 billion PLN at the value in 1997). In addition to the above policies on investment, we propose to the government of Poland to assist PKP with 2.0 billion yen (at the value in 1997) or one third the amount of shortage in the past, during the period from 1998 to 2000 as an additional investment to prepare for privatization, while considering the amount of present subsidies for infrastructure by the government.

5.7.2 Investment Plan for Equipment and Facilities

To prepare for the privatization of PKP and separation into freight, passenger and infrastructure divisions in the future, we propose to invest in the following projects on a preferential basis (Table 5.7.3).

(1) Freight Transport

①Changing yard layouts to cope with decreases in the volume of transport through yards.

②Improving freight terminals.

③Replacing superannuated rolling stock

④Introducing high-speed locomotives and container freight cars for complex transport.

(2) Passenger Transport

①Replacing the existing fleet to high-speed rolling stock for inter-city transport

②Introducing rail buses into local lines.

③Installing waste tanks on passenger cars for environmental preservation
④Introducing automatic ticket vending machines into major stations

(3) Infrastructure
①Modernization and speed-up on AGT and AGTC contract lines (E-20, E-59, E-65 and CMK).
②Rationalization of operation (introduction of CTC and modernization of signal and telecommunication facilities)
③

Table 5.7.3 Preferential projects

(1) Freight transport

Transport field	Investment in infrastructure	Investment in rolling stock
Train-unit transport	• Improvement of transport facilities to smoothen transport from departure to arrival stations. • Improvement of departure and arrival bases to expedite direct transport.	• <Rolling stock> : Modernization of rolling stock and introduction of commodity-wise freight cars
Car-unit transport		• Modernization of existing rolling stock
Complex transport	• Improvement of AGTC lines and other selected lines for complex transport	• Modernization of existing rolling stock and introduction of high-speed cars (container cars) • Introduction of high-speed locomotives

(2) Passenger transport

Transport field	Investment in infrastructure	Investment in rolling stock
Inter-city transport	• Construction of a railway network for maximum 160km/h operation based on the AGC agreement • Construction of a railway network for maximum 120km/h operation to complement networks for higher-speed operation. • Introduction of automatic ticket vending machines into major stations.	• Procurement of rolling stock for 160km/h operation and of the pendulum type, and modernization of existing fleet • Modernization of existing locomotives and procurement of new locomotives
Urban transport	• Modernization of existing lines • Introduction of automatic ticket vending machines into major stations.	• Modernization of existing EMUs and procurement of new EMUs
Local line transport	• Introduction of a remote control system and radio communication facilities into low-density lines	• Procurement of rail buses

5.7.3. Investment Amounts

Table 5.7.5 shows the amounts and breakdown of investment calculated based on the records of investment in the past and plans for the future by PKP in Table 5.7.4 according to the policies on investment explained in the section 5.7.2.

Table 5.7.4 Investment plan of PKP

In million PLN

Sector		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Passenger transport sector		25	25	25	25	25	25	25	25	25	25	250
Freight transport sector		41	23	14	86	21	21	93	42	42	13	396
Power and maintenance sector		901	1,031	1,138	1,252	1,377	1,515	1,567	1,707	1,833	2,218	14,539
Infrastructure sector		891	981	1,349	1,409	1,436	1,581	1,596	1,592	1,594	1,594	14,023
Breakdown	Track maintenance	553	602	810	810	810	820	820	820	820	820	7,685
	Signal	205	206	200	200	200	320	320	320	320	320	2,611
	Power distribution	132	173	339	399	426	441	456	452	454	454	3,726
Investment planning		13	22	20	20	20	20	20	20	20	20	195
Total		1,871	2,082	2,546	2,792	2,879	3,162	3,301	3,386	3,514	3,870	29,403

(Note) Value in 1997

Source: Investment and Construction Department, PKP

The annual investment of 400 million PLN from 1998 to 2002 in Table 5.7.5 are subsidies by the government to be appropriated to the projects for speed-up and rationalization.

Table 5.7.5 Investment amounts In million PLN

Year	Necessary amount	Additional investment	Total	Breakdown	
				Infrastructure	Procurement of rolling stock
1996	(Actual) 1,871	-	1,871	1,590	281
1997	(Planned) 2,082	-	2,082	1,770	312
1998	2,291	400	2,691	2,287	404
1999	2,513	400	2,913	2,476	437
2000	2,591	400	2,991	2,542	449
2001	2,846	400	3,246	2,759	487
2002	2,971	400	3,371	2,865	506
2003	3,047	-	3,047	2,590	457
2004	3,163	-	3,163	2,689	474
2005	3,483	-	3,483	2,961	522
Total	26,858	2,000	28,858	24,529	4,329

(Note) Value in 1997

Such investment plans must be promoted by the infrastructure sector (company) for infrastructure and by freight and passenger transport sectors (companies) for rolling stock..

5.7.4 Financing Investments

Attraction of finance requires reaching some non-traditional project financing sources such as bonds, leasing and others – Annual Report PKP 1996.
The World Bank supports increased private sector participation in the development of basic infrastructure -- World Bank Resident Mission, Warsaw, June 1997.

(1) Sources of finance

Sources of finance for the PKP can include:

1) Government grants
2) Government loans
3) Long-term credit bank (similar to Japan Development Bank, which lent money to the Japanese railways after the war does not now currently exist in Poland. The Polish government should study the possibility of setting up such a bank for long term loans (say 10 –20 years) with low interest financing for infrastructure i.e. so as not to compete with existing banks. Such a bank if managed properly will be able to obtain funds at close to the sovereign rate i.e. the rate charged to the Polish government. The PKP should take steps to make the Polish government set up a long-term credit bank
4) International development banks e.g. IBRD (World Bank), EBRD, EIB, and PHARE
5) Commercial banks
6) Bond issues
7) Convertible bonds (after privatization)
8) Share issues (after privatization)
9) Leasing

The above sources of funds are listed in order of increasing cost (also volatility) i.e. government grants is the cheapest source of funds for the PKP whereas leasing would be the most expensive.

(2) Domestic Vs foreign funds

The PKP has to decide whether to borrow domestically or from foreign sources

1) Domestic funds

Due to inflation and monetary situation, the interest rate is very high in Poland at present and not expected to decrease sharply in the near future. Thus the PKP may prefer to borrow abroad at lower rates of interest e.g. borrowing in Japanese Yen would be cheapest for the PKP and borrowing in Polish Zloty would be most expensive for the PKP as far as interest rate risk is concerned.

2) Foreign funds

Borrowing in foreign funds does however mean taking on foreign exchange risk. The reason why interest rates are low in the key currencies (US$, DM etc) and high in Poland is because the "market" expects the Polish Zloty to depreciate against the strong currencies. If money is borrowed in key currencies for a long period e.g. for infrastructure, the amount to be repaid could greatly escalate. The borrower should consider hedging to cover the foreign exchange risk but hedging for long periods (say over 5 years) may not be easy for the borrower who has no way to earn foreign currencies.

(3) The use of Polish Government guarantees

The PKP in the past has depended on government guarantees to raise funds outside the country. A partly or wholly privatised PKP might not be eligible for a sovereign guarantee. Thus the cost of funds to the PKP can be expected to rise.

Thus it is recommended that the PKP propose to the government to set up an independent, half-government Long-term credit bank (preferably outside the PKP group) whose cost of funds can be similar to that of government borrowing.

If the PKP has implicit guarantees from the Polish Government, the PKP could (subject to current market conditions) raise funds on the Eurobond market for 5 years maturity US$ LIBOR + 40 b.p. (BBB- rating) and +65 b.p. (BB rating).

In the case that neither implicit nor explicit guarantees are given from the government and the PKP has no rating, the spread would be subject to the financial position of the PKP and may easily reach 300 b.p. (it all depends on the market).

We do not recommend that the PKP go to the Eurobond market without a rating. It is preferable that the PKP has a rating and even better if the rating is close to the country's rating. The PKP in its current state is unlikely to be rated as investment grade

without the Polish Government's guarantee. The Polish Ministry of Finance officials have indicated to us that they would not want to guarantee PKP's borrowings.

The cost of obtaining a rating for the PKP might be US$ 100,000.

(4) Current situation

The current situation of external financing of investments is in chapter 2.2.

(5) Financing PKP after PKP's restructuring

After restructuring, the PKP will have 4 sectors and 12 verticals reporting to the PKP Board. Over time, the PKP Board will change its status ultimately becoming a holding company. Thus all parts of the current PKP will remain united within one company.

Under the above scenario, any lender takes on the risk of the whole of the PKP. As this huge PKP will continue to have loss-making sectors and verticals (e.g. passenger services), any lender would thus be reluctant to finance the PKP. Financing for the PKP by sector / vertical is discussed in the following table :

Sector / vertical	Loan prospects	Reason
Infrastructure	Poor	• This sector is to be a cost-center i.e. not profit-making • Infrastructure will not be an independent company
Passenger	Bad	• This sector will be loss-making
Freight	Average	• This sector would not be independent of the loss-making parts of the PKP
Traction and back-up	Difficult	• This sector would not be independent • Over-capacity and inefficient
Real Estate	Difficult	• This vertical would not be independent • Will not charge "market rents" to PKP tenants
Computerized Data Processing	Difficult	• This vertical would not be independent • Will not charge market rates for PKP work
Telecommunication	Difficult	• This vertical would not be independent • Will not charge market rates for PKP work
Power Engineering	Poor	• This vertical would not be independent • Will not charge market rates for PKP work
Welfare (Social Units)	Poor	• This vertical would not be independent • Will not charge market rates to PKP customers
Housing	Poor	• This vertical would not be independent • This vertical is loss-making
Railway Health Service	Poor	• This vertical would not be independent • This vertical is loss-making

(6) Financing possibilities in Poland

If financing by other means is not possible, the PKP should consider:

1) Syndicated Loan

The features of syndicated loans are:

- A large amount is available
- Risk is diversified
- Easy to negotiate for both sides
- Easy for management of mortgage (if any)

Syndicated loans might typically be for 5 years at LIBOR +25-30 b.p. LOT (Polish Airlines) borrowed 3 months ago for 2 years at LIBOR +65 b.p. Polish Telecom borrowed for 5-7 years at LIBOR +30 b.p.

In the case of Poland, when lending to State Owned Enterprises, the fact that a government guarantee exists or not may not affect the interest rate. This is because lenders will assume that a government guarantee exists (this was the basis on which Bank Rozwojo Eksportu lent money to the PKP).

Syndicated loans are cheaper than bilateral loans that might typically be at LIBOR +40-45 b.p. but in now often at LIBOR +25-30 b.p. The reason for this is that the market is overheating and has become very competitive because of the many Telecom privatisations and also because institutions like the EBRD are keen to lend money.

2) Bridging Finance

This is a short-term loan the purpose of which is to have funds until a known bond issue date. The interest rate is likely to be just above LIBOR.

If the bond issue date has not been set, it is better to have a syndicated loan. In this instance, the loan period should be longer than the bond issue date. Once the bond is successfully issued, the syndicated loan can be repaid early.

3) Leveraged lease (e.g. if rolling stock is separated into a different company and this company sets up leases with the operating companies)

After thoroughly checking Polish Laws, a Special Purpose Company (SPC) can be set up to own railway assets and this company can lease these assets to the operating

companies. The value of the assets of the SPC and revenue from leasing can act as a guarantee and be used to get loans or investment from outside e.g. equity or senior debt.

As leased assets will be owned, the equity investor's depreciation reduces the tax liability and is thus an advantage of leasing.

If this type of lease is adopted, the interest charge could fall by 100 b.p. i.e. from LIBOR + 70 b.p. to LIBOR – 30 b.p.

The point here is to find equity investors. Germans are keen on investing in Poland and so the German type leveraged lease is best.

(7) Recommendations for financing for specific investments

The advice that follows in this section is based on discussions with Polish financial institutions, Japanese financial institutions and leasing companies. The PKP will be able to finance specific investments more cheaply / easily under the following scenarios (i.e. conditions that potential lenders would like to see) :

1) For financing infrastructure

Infrastructure includes tracks, electricity transmission, telecommunications and signaling. Financing for infrastructure will be readily available (in addition to the governmental financing) from the private sector under the following conditions:

- infrastructure is separated from the rest of the PKP into a new company (sayPKPInfra)
- PKPInfra is allowed to recover the total of all its costs plus a Return On Capital Employed (ROCE) from the PKP and other operators
- PKPInfra is perceived by the "markets" to be independent and well managed.

2) For financing locomotives

Locomotives covers both freight and passenger locomotives. Financing for locomotives will be readily available from the private sector under the following conditions:

- locomotives are separated from the PKP into several locomotive companies (say PKPLoco's)
- the several PKPLoco's genuinely compete against each other
- there are several railway operators

- if to be repossessed, the use of PKPInfra's track will be possible
- PKPLocos is perceived by the "markets" to be independent / well managed

3) For financing rolling stock

Rolling stock covers both freight and passenger cars. Financing for rolling stock will be readily available from the private sector under the following conditions:

- rolling stock is separated from the PKP into several rolling stock companies (say PKPCar's)
- the several PKPCar's genuinely compete against each other
- there are several freight and passenger railway operators
- if to be repossessed, the use of PKPInfra's track will be possible
- PKPCars is perceived by the "markets" to be independent / well managed

4) For financing property development

Property development includes offices, shops, housing and stations. Financing for property development will be readily available under the following conditions:

- any property to be developed is separated into an independent company or if the property is owned by a property company that is separated from other PKP activities (say PKPProp)
- tenancy agreements are in place at "market rents"
- PKPProp is perceived by the "markets" to be independent / well managed

5) For financing "Railway Related Businesses" (RRBs)

RRB includes all activities carried out by the PKP for commercial purposes excluding 1) to 4) above. Financing will be readily available for RRB under the following conditions:

- a Railway Related Business is separated into a new company (say a PKPRRB)
- the PKPRRB charges "market rates" for its products or services
- the PKPRRB is perceived by the "markets" to be independent / well managed

(8) Financing Requirements

1) State Assistance

It is assumed that the State will assist the PKP to finance its investment program[8] i.e.

- by means of increased subsidies and grants or
- State guarantees in order to get loans from international development banks.

[8] Approximately 30 billion PLN of capital investment by 2005

2) External funding summary

The external funding position (for investments) is shown in the following table :

Investment financing

Phase	Government funds (million PLN)	Other external funds (million PLN)
Phase 1 (1997-1998)	1,200	943
Phase 2 (1999-2000)	1,600	518
Phase 3 (2001-2002)	1,600	543
Phase 4 (2003-2005)	1,200	(154)
Phase 5 (2006 -)	400 per year	(1,850)

5.7.5 Implementation Schedule of Investment Plans

Table 5.7.6 shows the implementation schedule of investment plans in different phases of privatization.

Table 5.7.6 Implementation schedule of investment plans

Phase	Details of investment
Phase 1 (1997 - 1998)	• Additional investment by the government (400 million PLN per year) in the infrastructure sector for five years after 1997 for speed-up on AGC and AGCT lines and rationalization of infrastructure • Promotion of manpower saving and mechanization measures to rationalize the employment structure (e.g., introduction of automatic vending machines and expansion of CTC sections) • Reduction of low-efficiency freight yards and shunting bases • Introduction of rail buses into local lines
Phase 2 (1999 - 2000)	• Continuation of investment for speed-up and modernization • Continuation of investment for manpower saving and mechanization • Improvement of freight terminals and integration or abolition of freight yards and shunting bases • Modernization of rolling stock workshops • Scrapping of superannuated passenger and freight cars, improvement of accommodations and introduction of new type rolling stock. • Introduction of rail buses into local lines
Phase 3 (2001 - 2002)	• Continuation of investment for speed-up and modernization • Continuation of investment for manpower saving and mechanization to rationalize the employment structure • Modernization of rolling stock workshops • Procurement of high-speed rolling stock • Procurement of high-speed locomotives, container cars and containers for complex transport
Phase 4 (2003 - 2005)	• Continuation of investment for speed-up and modernization • Continuation of investment for manpower saving and mechanization to rationalize the employment structure • Improvement of major passenger stations as complex terminals • Improvement of complex facilities at major freight terminals • Continuation of renewal and procurement of rolling stock
Phase 5 (2006 -)	• Promotion of investment plans autonomously adopted by the infrastructure company, three passenger transport companies and two freight transport companies

5.8 GOVERNMENT SUBSIDY

5.8.1 Government Policy for Subsidy

(1) Legislative framework

The rules of the government subsidy are constituted by the PKP Law and Railway Transport Law and cover the following activities:

Subsidy for investments and liquidation of closed lines

- investments in railway lines of national importance are financed by the state budget
- investments in railway lines of national importance and the value of subsidy to finance such investments are determined each year in the budgetary act

- cost of maintenance of railway lines of national importance are covered by PKP with exception of lines included in group of defense lines, financed by the state budget
- costs of liquidation of railway lines are financed by the state budget
- investments in railway lines of national importance and liquidation of closed lines may also be financed from other sources

Subsidy for passenger transportation

- state budget provides subsidy to compensate the difference arising between the amount of justified costs for domestic passenger transport with the profit margin and the amount of revenues obtained for such transport
- amount of this subsidy is determined by the network of railway connections established in the protocol
- rate of subsidy is determined with respect to one train-kilometer
- amount of subsidy is established in the budgetary act each year

Agreement between the government and PKP

- detailed manner of financing PKP by the state budget and its rules are determined by the agreement between the State Treasury, represented by the Minister of Transport and Minister of Finance on one part and PKP on the other part
- agreement determines the scope of assets of railway lines of national importance, rules for investments and liquidation of closed line, rules for determination and use of subsidy, scope and standard of services rendered by PKP
- integral part of the agreement is protocol, signed each year, which should constitute the basis for determination the amount of subsidy in the budgetary law

(2) Present subsidy pattern

The PKP and the Ministry of Finance together with the Ministry of Transport discuss each year the rules for government financing. The agreement, its appendix and protocol to the agreement determine the levels of services to be provided by line and the investment modernization to be financed by the State.

The annual list of investments on lines of the national importance is a result of development plans of PKP and is coordinated with the national transport policy. The subsidy assigned to lines of the national importance can not be used for other purposes. The costs of liquidation of closed railway are to be reduced by the revenues received from the sale of liquidated assets. The Ministry of Transport is responsible for supervision of the performance and termination of investments and the liquidation of

closed lines.

The subsidy targeted to domestic passenger transportation is determined by the Protocol and covers:

- agglomeration transportation
- regional transportation
- inter-regional transportation

The protocol also includes information about the increase of passenger tariffs, set by the Government. Each type of transportation is determined by:

- planned number of passengers,
- average distance of transportation,
- transportation work (number of passengers multiplied by average transportation distance) expressed in passenger kilometer,
- average unit value of revenue due to the one passenger-kilometer performance,
- revenues from sale of tickets (transportation work multiplied by average unit value of revenue due to the one passenger-kilometer performance),
- coefficient of average fulfillment of passenger train expressed in per cent,
- average number of seats in train,
- performance work expressed in train-kilometer,
- costs of transportation performance,
- cost of one train-kilometer performance and average value of unit revenue in respect to one train kilometer.

The performance work expressed by train-kilometer for each type of transportation is defined as follows:

① $E = (100 * N * d) / (wz * m)$,

where:

E - performance work for each type of transportation,

N - planned number of passengers,

d - average distance of transportation,

wz - coefficient of average fulfillment of passenger

m - average number of seats in train.

The unit rate of the targeted subsidy for one train-kilometer is determined by a difference between the unit cost of one train-kilometer performance with profit and the unit revenue of one train-kilometer performance and calculated as follows:

② ② $d = k (1 + z / 100) - p$,

where:

d - unit rate of the targeted subsidy for one train-kilometer,

k - unit cost of one kilometer performance (cost of transportation performance divided by performance work),

z - profit set by the annual Protocol (in %),

p - unit revenue of one train-kilometer performance (revenues from sale of tickets divided by performance work)

The total targeted subsidy is calculated as a sum of unit rate of the targeted subsidy for one train-kilometer multiplied by the performance work in all considered types of passenger transportation. In addition, the protocol also includes the ratio between revenues and costs. This measure, expressing the covering costs by revenues, should grow between 1% and 5% annually, starting from 1%. It should link directly the cost and revenue sides and force gradual commercialization of passenger transportation.

(3) Size and structure of subsidy

The total government subsidy for the PKP (without railway health care) amounted to 1,057 bn PLN in 1997, equivalent to 0.83% of the total state budget expenditure and indicated an increase of 14.6% as compared with 1996. In real terms the growth rate is very moderate, close to zero, with an assumption of the inflation rate on the level of 13.5 -14.5%.

In 1997 the government subsidy was allocated to:

- targeted subsidy for domestic passenger transportation, 710 million PLN (67.1% of total subsidy).
- investment subsidy, 347.6 million PLN (32.9% of total subsidy).

Table 1. Government subsidy for PKP in 1996 and 1997 in PLN million

Type of subsidy	1996	1997	1996 = 100.00
Targeted subsidy	571.5	710.0	124.2
Investment subsidy	377.4	347.6	92.1
Total subsidy	948.9	1057.6	114.6
Total subsidy as % of budget expenditures	0.84	0.83	99.9
Subsidy for railway health care	392.0	470.3	120.0
Investment subsidy for railway health care	8.0	--	--
Total PKP subsidy with health care	1 348.9	1 527.9	113.3
Total PKP subsidy with health care as % of budget expenditures	1.2	1.2	100.0

Source: PKP, State Budgetary Law for 1996 and 1997, Ministry of Finance

The targeted subsidy for domestic passenger transport is to increase by 24.2% PLN in 1997, considerably higher than the inflation rate. The State Budget Law projects a nominal decline of investment subsidy by around 8%, which denotes de facto a 20% reduction in real terms in 1997.

The subsidy for railway health care amounts for 470 million PLN. Its increase by 20% is higher than the expected inflation rate. There will be no investment subsidy for railway health care in 1997.

(4) Lack of agreement on targeted subsidy for 1998

The rules of subsidy calculations for 1998, determined by the PKP Law, have not been changed. However, the negotiations among PKP and Ministry of Transport and Ministry of Finance, representing the government side, have not been successfully terminated. The agreement and protocol for 1998 have not been signed yet (end of September 1997).

The controversy point is an amount of targeted subsidy for passenger transportation as a compensation for the difference between revenues and justified costs. PKP, following its cost allocation to passenger and freight transport, has indicated a high loss for passenger transportation. The enterprise demanded initially 1.5 bn PLN subsidy for 1998, which would denote more than 100% growth rate in comparison with 710 m PLN in 1997. The Ministry of Transport has proposed a subsidy increase by the inflation rate plus 260 million PLN as a compensation for the total PKP financial loss

in 1996.

The "hard constraint budget" statement of Ministry of Finance has offered an increase by inflation rate only. The government has argued that the PKP requirements could not be matched due to:

- wrong cost allocation to passenger and freight transport, which generated too high loss for the passenger transport („hidden" cost transfer from the freight to passenger transportation)
- lack of improvement in cost rationalization, i.e. that the total costs grew by 16% while the total revenues only by 14.2% in 1996. The ratio between revenues and costs declined by 1.6%.

The final subsidy amount for 1998 seems to be determined by conditions of the Ministry of Finance. Meantime the total financial loss for 1996 was covered by PKP in July 1997.

5.8.2 Desirable Government Subsidy

The desirable government subsidy for railway transportation is discussed in the interdependence among the following factors:

- government financial possibilities
- PKP needs
- requirements of the European Union

The presented below considerations on the subsidy for railway transportation do not cover the railway health service. It is assumed that this government subsidy will be regulated in accordance to the general reform of health system in Poland in the near future.

(1) Government approach

The government approach to PKP subsidy is determined by the following factors:

- state budget policy as indicator of general macroeconomic performance
- general transport policy
- execution of the PKP Law

The state budget policy is a result of macroeconomic development. The structure of the state budget revenue and expenditure is determined by the performance of key

macroeconomic categories as GDP growth, investment, unemployment, inflation rate, foreign trade etc.

The performance of state budget policy is probably one of the most spectacular achievements in the transformation processes of Polish economy. The relation of the state budget deficit to GDP considerably declined from 6% in 1992 to a level of 2.6% in 1996. These results indicate the fulfillment of fiscal requirement for the European Monetary Union (Maastricht Treaty postulates 2.9%).

The public debt as a percentage of GDP has also significantly declined from 81.4% in 1991 to 54% in 1996. It denotes the fulfillment of the Maastricht criterion of 60% as well.

The policy of low budget deficit and low public debt will be continued in the next years. The government projects a further reduction for both categories (see table below).

Table 5.8.2 Budget deficit and public debt in 1992 - 2005, in % of GDP

	Budget Deficit	Public Debt
Performance		
1992	-6.0	81.4
1993	-2.8	85.2
1994	-2.7	86.0
1995	-2.8	69.5
1996	-2.6	56.2
1997	-2.8	54.0
Projection		
1998	-2.0	48.5
1999	-1.8	45.3
2000	-1.7	43.7
2001	-1.7	42.0
2002	-1.7	42.0
2003	-1.7	42.0
2004	-1.7	42.0
2005	-1.7	42.0

Source: Central Statistical Office, Central Office of Planning,
Poland 2000. The New Economic Strategy

The state budget policy is also reflected by limitation of targeted subsidy. The State Budgetary Law for 1997 distinguished only 5 positions. The government subsidy for railway passenger transportation amounts for over 70% of total targeted subsidy in 1997 (table below).

Table 5.8.3 Total targeted subsidy of the state budget in 1997

Targeted subsidy	million PLN	% share
1. railway passenger transportation	710.0	70.3
2. bus passenger transportation	195.4	19.4
3. production of special school and academic textbooks	11.6	1.1
4. personal cars sold in the form of prepayment	79.6	7.9
5. meals sold in milk bars	13.6	1.3
Total	1 010.2	100.0

Source: State Budgetary Law for 1997.

The development of railway investment was formulated in the document on transport policy, published in 1995. The following financial sources were proposed:

- government subsidy for investments on railway lines of the AGC and AGTC agreements in the framework of subsidy on railway lines of national importance, determined by the state budgetary law each year
- PKP own sources
- loans from international and domestic financial institutions
- participation of private capital

The government participation in the railway investments until 2005 is presented below.

Table 5.8.4 Planned government participation in the railway investments until 2005

Investment task	Subsidy as % of task
• modernization of line E-20 (871 km)	35.4
• modernization of line E-65 (247 km)	49.5
• modernization of basic system lines (500 km)	42.9
• equipment of automation	44.0
• modernization of border crossing	69.2

Source: PKP documents

Total subsidy for railway investments should amount for 3.5 bn PLN in the period from 1996 to 2005, an equivalent of 41.1% of the total investments in the lines of national importance. It denotes approximately 350 million PLN annually.

The execution of the PKP Law is formulated by the agreement between the government and PKP. The investment subsidy is limited to the lines of national importance and liquidation of closed lines. The share of government participation is a

result of the transport policy.

The targeted subsidy for passenger transportation should compensate the loss, caused by justified costs. The justified costs should reflect their realistic allocation to the freight and passenger operations. In addition, an improvement in the PKP cost rationalization must be implemented, measured by growing ratio of the total revenues to total costs.

(2) The PKP approach

PKP approach to the government subsidy, a microeconomic type, results from different foundations. The amount of subsidy should take into account the following determinants:

- execution of the PKP Law
- PKP limited impact on cost rationalization
- necessity of government aid for investments

PKP demands the execution of the PKP Law according to its legal formulation. The government should accept the loss in passenger transportation. PKP has a limited impact on cost rationalization. The 90% passenger tariffs are set up by the government under the inflation rate (social protection factor). It has a direct impact on increase of the total revenue, which is lower than the inflation rate. Simultaneously the PKP follows the inflationary growing costs. These two opposite tendencies lead to a growing gap between revenues and costs.

The most difficult problem is the employment rationalization. Strong pressure from trade unions does not allow to reduce the employment only according to financial and economic criteria. The socioeconomic situation determines a careful employment policy, mostly affected by the maintenance of „social peace".

The cost rationalization is also „biased" by the transportation performance on loss generating light density lines. PKP can not independently close its operations. Such decision must be made with the permission of government and local governments. It is sometimes very difficult process due to objections from local governments, which still regard an access to railway as a symbol of local status.

The cost burden is also maintenance of non-core activities as housing, social or health services. There are strong tendencies to separate these activities outside PKP structure

in the near future.

The PKP approach regards that the government participation in railway investments is too low. The government subsidy covers only 41.1% of investments in the lines of national importance. It means that the government share amounts for approximately 20% in the total PKP investments, e.g. 22.6% in 1996 and 16.5% in 1997. In PKP's opinion an increase of government aid is necessary due to the investment shortfalls in the last years and projected modernization of the enterprise.

(3) EU requirements for subsidy

The EU approach to railway subsidy is expressed by directives and other official documents (see section 2.5.3). EU postulates the following activities:

- government subsidy can not be transferred between infrastructure and railway operations
- implementation of public service contracts (PSC) agreed by the government and railway operators (as opposed to the imposition of obligations on transport operators) for public services of passenger transportation
- government should pay full compensation for public services and exceptional social costs, also including specific infrastructure investment as to compensate the unpaid external costs in the road transport or to meet non-transport objectives (e.g. regional development)
- government should relieve railways of the debts of the past
- government financial support for the railway restructuring programs (social package for retraining, retirement benefits etc.)

(4) Proposal for government subsidy

Considering the present subsidy rules and different approaches, represented by the government, PKP and the EU directives, it is postulated to increase the government participation in the railway transformation.
The increase of government subsidy shall match three fundamental criteria:

- lack of deregulative impact on the State Budget Policy
- increase of government aid for PKP
- accordance with EU Directives

It is proposed a government grant of 2 billion PLN (588 million US$) for the five year period from 1998 to 2002, proportionately divided into amount of 400 million PLN

annually. [9]

The grant would be aimed at:

- capital investment for PKP

The financing could be performed by a issue of domestic Treasury bonds combined with a government issue of bonds on international markets (denominated in US$, DM or Yen). From the financial point of view the government loan for PKP grant shall be divided into 2-5 annual issues (respectively between 1 billion PLN and 400 million each) due to its relatively large amount in the present Polish circumstances.
The effects for the State Budget Deficit are presented in the table below.

Table 5.8.5 Financial impact of grant on the budget deficit in 1998 - 2002

	Projected Budget Deficit *		Projected Budget Deficit with Grant		Growth Ratio of Budget Deficit due to Grant
Years	% of GDP	billion PLN	% of GDP	billion PLN	%
1998	-2.0	-10.1	-2.08	-10.5	4.0
1999	-1.8	-10.3	-1.87	-10.7	3.9
2000	-1.7	-10.9	-1.75	-11.3	2.9
2001	-1.7	-12.2	-1.76	-12.6	3.5
2002	-1.7	-13.6	-1.75	-14.0	2.9

* Source: Poland 2000. The New Economic Strategy, Warsaw 1996

The calculations have been conducted by using the official government publications on development of GDP growth rate, inflation rate and the budget deficit for Polish economy

The grant impact on the State Budget Deficit results in its deterioration by 0.08% in 1998 to 0.05% in 2002. The growth ratio of the budget deficit due to the grant indicates an annual increase of the budget deficit from 4% in 1998 to 2.9% in 2002.

The financial impact of additional government subsidy seems to be acceptable from the macroeconomic point of view. The estimated deterioration of the budget deficit does not deregulate the financial policy of government. The fulfillment of the Maastricht criterion is also ensured.

The impact of the proposal is more visible from the PKP point of view. The grant would mean a significant aid for PKP. An increase of investment subsidy would be

[9] The explanation to the draft Act to set up a Restructuring Agency states that this would cost the government about 400m PLN per year for 5 years.

higher than 100% annually. The „new" government participation in the total PKP investment will increase to the level of 28.4% in 1998 and 21.4% in 2002.

Table 5.8.6 Government subsidy share in PKP investment plan for 1998 - 2002, in %

Years	PKP Plan*	Grant Proposal
1998	13.2	28.4
1999	12.0	25.8
2000	11.7	25.2
2001	10.7	23.0
2002	10.0	21.4

* Source: PKP

It is also postulated the government subsidy for domestic passenger transportation covering agglomeration, regional and inter-regional transportation. The qualified passenger transportation shall generate profits (see section 3.4). It is proposed:

- introduction and implementation of negotiated public service contracts (PSC)
- gradual decentralization of decision centers for contracts to local governments

The subsidy should be conducted in the form of contracts between the government or local governments and railway company or companies. The operators, selected according to the tender regulations, should receive a full compensation of losses, resulted from public services and exceptional social costs.

The contracts, especially for agglomeration and regional transportation, shall be transferred to the level of local governments. It could positively affect the rationalization processes in liquidation of low density lines or limitation of unprofitable transportation. The local governments would accelerate the liquidation processes of unprofitable lines (reduction of subsidy), if the governments could have a certain influence on the fund allocation to other activities.

On the other hand the cost rationalization and commercialization of railway operators, forced by the negotiated contracts and potential competition, should also lead to a rationalization of the government subsidy.

Generally, the total targeted subsidy shall not exceed its present level, however it shall be corrected annually by the inflation rate.

5.8.3 Analysis of Efficiency of Subsidy

The analysis of subsidy efficiency should be conducted by the Ministry of Transport in the form of periodical evaluation. Ministry of Transport should elaborate a set of standard routines and rules for control functions.

The analysis of investment subsidy must cover all stages for each investment task. First, the projects shall be analyzed in accordance with their expected improvements in the railway operations, financial aspects, conducted transport policy and fulfillment of the EU requirements. The aims of projects have to be determined in a detailed manner and supported by their feasibility analysis.

The contractors should be selected according to the tender rules, included in the Law on Ordering of Public Works. The government must have the right to permanent control of conducted tasks. The performance of investments should be periodically reported and monitored.

The costs and quality evaluation of projects, conducted in different regions, have to be compared and investigated periodically. Also international comparisons are recommended, e.g. for unit costs of similar investment tasks. The control body should have full competencies to stop the conducted projects, if the projects would not satisfy the imposed requirements.

The efficiency of targeted subsidy for passenger transportation should be also analyzed. The contracted passenger transportation must be based on the tender procedures in the case of at least two operators. The conditions of contract between government or local governments shall be carefully negotiated.

The efficiency procedure should evaluate the proposed amount of loss to be compensated by the government (local government) side. The amount of social costs, determined by the social protection policy and the demographic structure, must be estimated. Some amounts are relatively easy to identify, e.g. number of reduced tickets and amount of this loss is relatively easily to identify through the cashier financial statements.

The evaluation of unit costs and revenues can be also performed on the background of inter-regional and international comparisons. The analysis of improvement shall cover efficiency, quality and reliability for transportation services in particular market segments.