3.3 TARIFF STRUCTURE AND FARE ANALYSIS

3.3.1 Existing Tariff Structure

(1) Tariff System

Present PKP tariff system, being adapted to passenger and freight transport, shows a characteristic of the official price, which state is concerned, and an aspect of the commercial market price which is determined by PKP itself based on its market policy. Furthermore, the State has subsidized PKP by compensating the revenue loss which results from the official discounting for passenger transport and it is considered that such a subsidiary has significantly related to PKP fare system.

(2) Related legal system

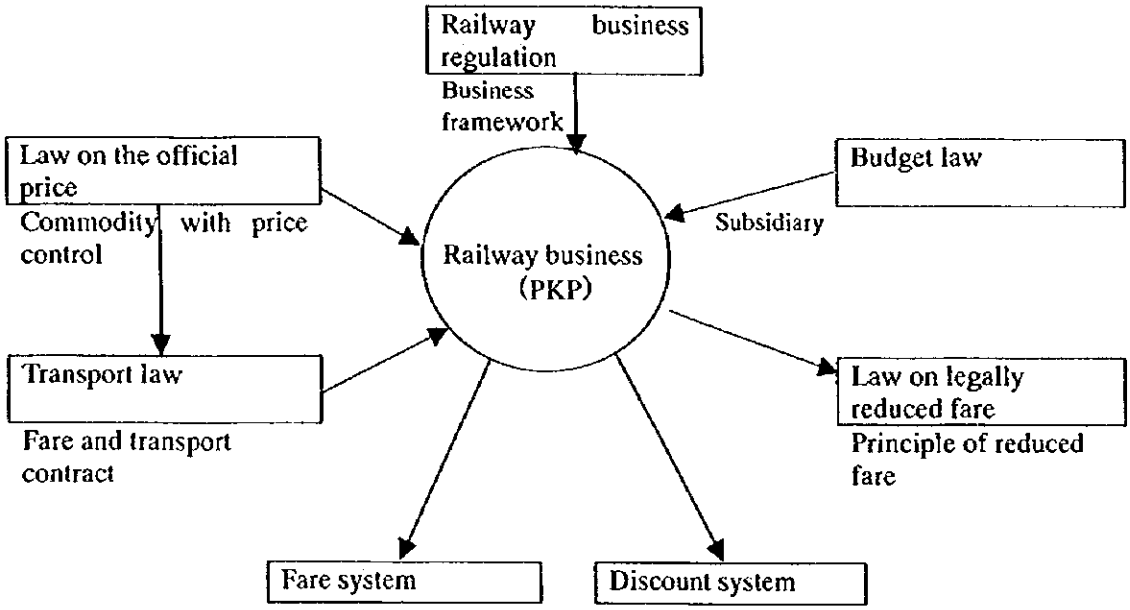


Figure 3.3.1 Interrelationship of statutory system related to fare

Table 3.3.1 Outline of the law related to fare system

Item	Prescription	Legal background
Competence of PKP in the fare settlement	Board of management is approved to settle fare by itself .	Art. 32 of law on PKP Art. 11 of Transport law
Application of official price for the railway fare	The minister of transport and finance can introduce official price for the public transport including railway if necessary .	Official notice of the minister of transport , based upon art. 18 of price law . Amendment of art. 2 of transport law
Official price for passenger railway transport	Official announcement of passenger fare for normal and season ticket .	Directive by the minister of transport
Official price for freight railway transport	Official announcement of freight tariff for the transport of specific commodity , coal freight to the power plant and ore .	Ditto
Free and reduced charged transport	Range and definition of legal privilege for free and reduced charged transport .	Law on the special right of reduced charged transport

(3) Tariff structure

1) Passenger tariff

a) Normal ticket

- Passenger fare is fixed by the train type , including normal train , fast train and qualified train , and the seat classes , that is 1st and 2nd class .
- For the normal train service , the government decides it as an official price .

b) Season ticket

- Season ticket consists of the sectional season ticket , the district season ticket and the suburban section ticket .

2)Freight tariff

Basic tariff is fixed according to the haul length of freight, taking account of tariff discount by haul length. There are two types of tariff available, one of which is the official price for coal and ore transport and another is for the commodity transport other than coal and ore.

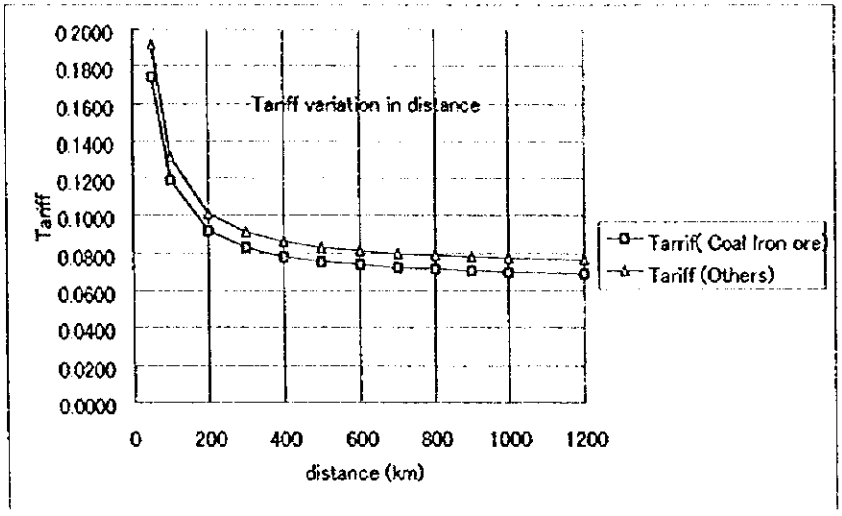


Figure 3.3.2 Freight Tariff Distribution by Distance

(4) Discount system

Table 3.3.2 Passenger fare discount system

Cause of discounting	Group to get advantage	Content of discounting
By law	Members of parliament	Free of charge
	Pupils with handicap and their attendants , the blind and their attendants , attendants for the disabled person	
	Infant below 4 years old , border guard , custom officer ,	
	Police officer on duty , military person on duty	
	Highly handicapped person of 1st grade	Free of charge for normal train ,2nd class
		50% discount for normal train ,1st class qualified train 2nd class
	Child before elementary school , military personnel off duty , person belonged to union , the war disabled , the blind	50% discount
	Student until 26 years old	50% discount for 2nd class
	Teacher , Professor	50% discount for normal train ,2nd class
By transport operator	Employees , pensioners and their family	Free of charge or discounting

3.3.2 Fare level

(1) Comparison of railway fare level

Comparable fare level is shown in figure 3.3.3 and 3.3.4 for the rail passenger fare and the rail freight tariff among the European countries . This chart shows the relative fare level between each countries , converting the real fare per unit transport into the universal money term (purchasing power parity) .

According to this table , the PKP fare is staying at lower level than that in western countries and the passenger fare is in particular .

Figure 3.3.3 Statistics on Passenger Railway Revenue (Fare / P * km)

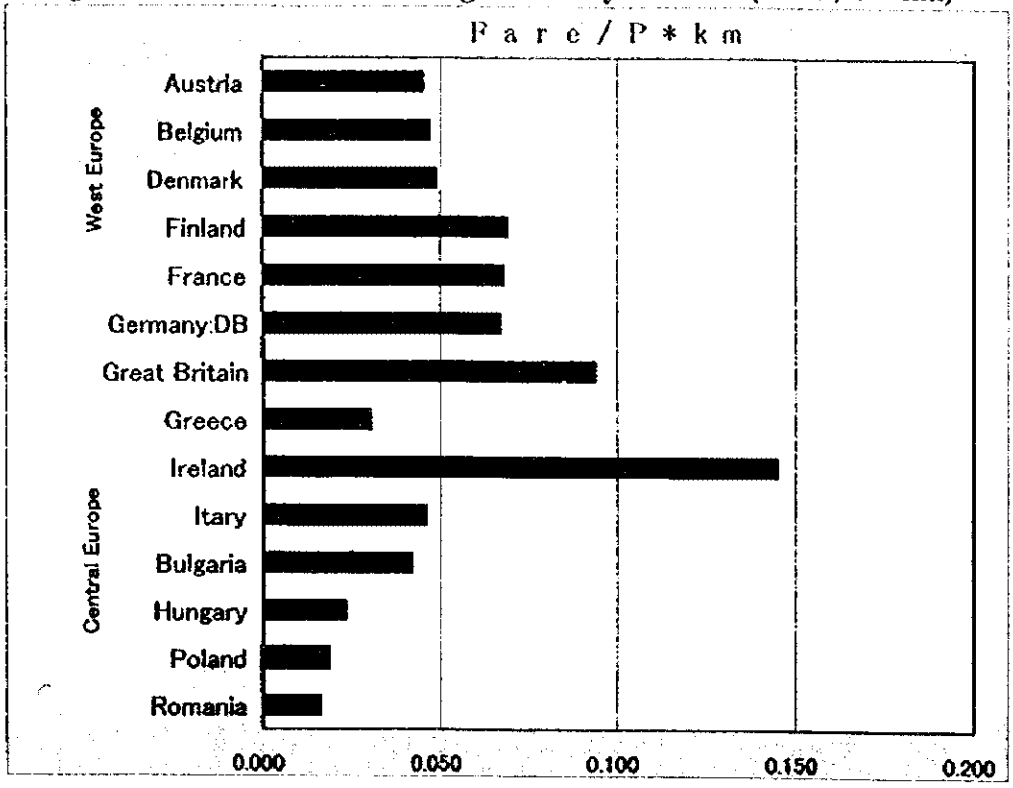
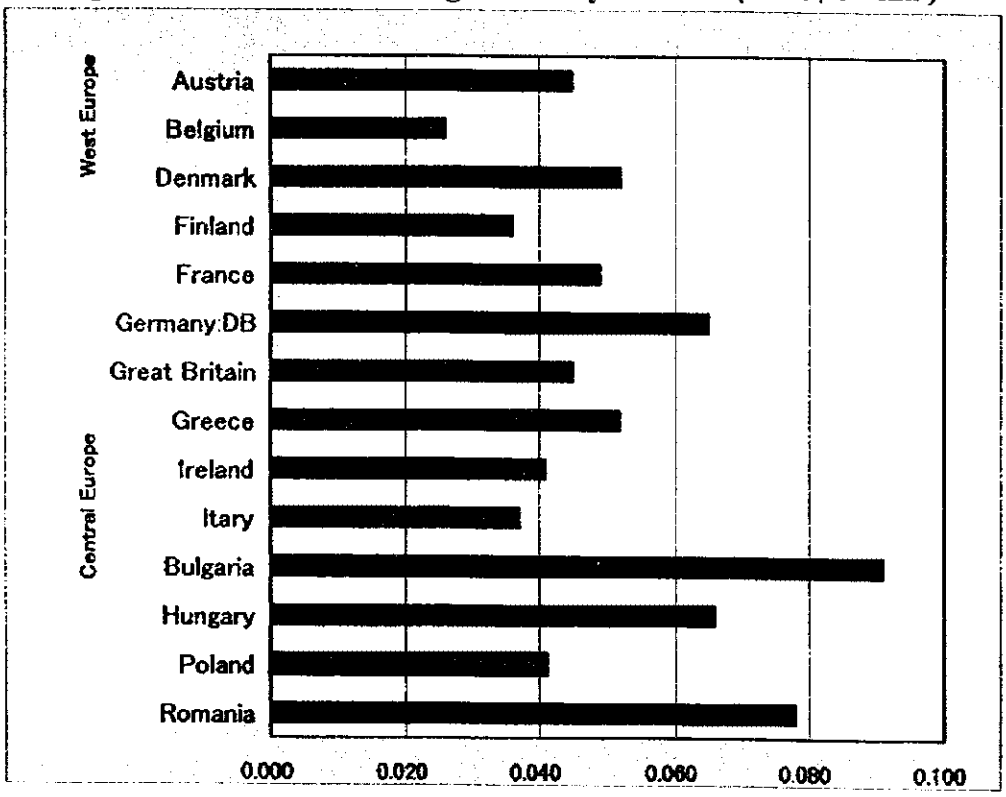


Figure 3.3.4 Statistics on Freight Railway Revenue (Fare / t * km)



Source) Railway Business Report 1995

(2) Railway fare comparison with other transport mode

Some fare comparisons , in which the railway passenger fare is contrasted with PKS bus fare (for long distance service as well) , are shown in figure 3.3.5 and 6 . They look almost same level , excluding a range from 40 to 120 km , where the PKP fare shows slightly higher level .

Meanwhile , figure 3.3.7 shows a comparison result of the freight tariff between railway and truck cargo . As far as referring to the figure , it seems that the truck cargo tariff is a little higher than that of railway .

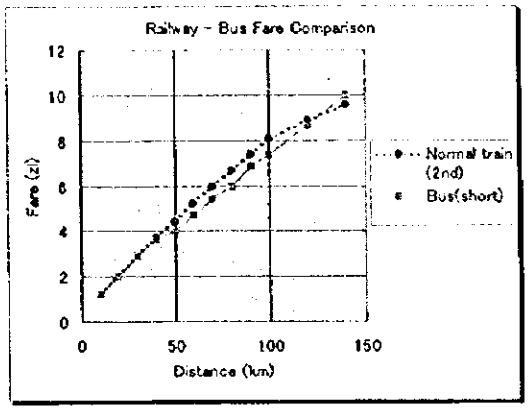


Figure 3.3.5 Passenger Fare Comparison Between Railway and Bus

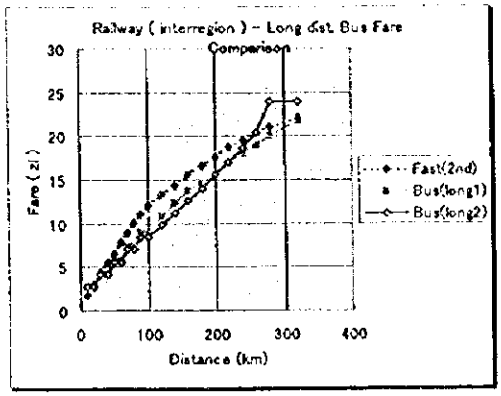
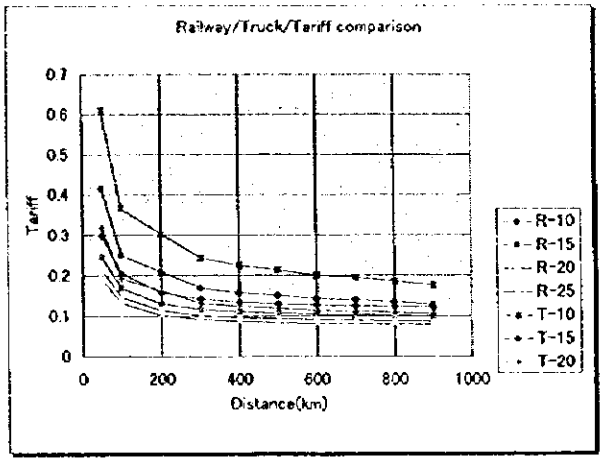


Figure 3.3.6 Fare Comparison between railway and Long Distance Bus



(Note) R-n denotes railway freight tariff for (n) ton cargo.

T-n denotes truck freight tariff for (n) ton cargo.

Figure 3.3.7 Freight Tariff Comparison between Railway cargo and Truck cargo

(3) Comparison with price index of other goods and services

Table 3.3.3 shows the increase rate of PKP railway fare with other primal price index

during last decade . Each number denotes index of the price in respective year to that of previous year and the figure of highlighted cell shows the highest rate and italic one shows the lowest for convenience . According to that , the PKP railway fare shows almost same increase level as average price indexes although the passenger fare increased a little higher .

Table 3.3.3 Price increase comparison between railway tariff and other price

Commodity \ Year		1990	1991	1992	1993	1994	1995	1995/1990
Railway Tariff	Freight	996.9	*133.1*	*126.0*	123.2	131.9	124.6	339.5
	Passenger	930.3	202.6	170.0	163.0	135.9	127.6	973.5
Industrial production index		722.4	148.1	128.5	131.9	125.2	125.4	394.1
Construction price index		650.0	146.3	118.4	124.6	119.7	121.9	*312.3*
Service industry index		685.8	170.3	143.0	135.3	132.2	127.8	556.7
Consumer Price index	Food price	675.5	144.3	136.0	133.0	132.9	126.8	439.6
	Commodity	691.4	175.8	136.5	136.8	131.4	127.3	549.2
	Passenger car	*534.0*	139.3	134.9	132.5	124.6	117.8	365.5
	Oil	700.5	161.9	139.9	136.5	120.3	*112.5*	418.5
Service	Housing	995.9	207.0	157.2	133.6	127.1	146.2	807.8
	Central heating	1303.0	322.8	322.5	168.4	165.9	131.3	3818.0
	Electricity & gas	1397.0	317.0	194.6	134.2	134.7	126.7	1413.0
	Education	668.2	226.1	150.7	131.9	124.6	124.4	696.6
	Long dist. Bus	896.5	222.0	151.2	175.1	146.4	129.2	1112.0
	Urban transport	820.7	220.9	159.8	148.4	134.0	127.3	893.6
	Postage , telecommunication	793.9	267.8	143.6	*111.6*	*113.8*	115.5	564.1

Note) Figures show increase index to previous year , shadowed one denotes highest in respective year and italic one means lowest .
Source) Statistical yearbook GUS , Statistical yearbook PKP

3.3.3 Fare elasticity analysis

Table 3.3.4 shows data on the fare elasticity coefficients obtained from several studies which has been conducted to analyze demand characteristics of domestic transport in Poland. The table describes that the fare competition will be expected more for the long distance transport like IC because the fare elasticity of long distance transport indicates relatively high rate , -1 , compared with –0.39 of fare elasticity for general railway transport .

The cross elasticity of bus fare is +0.21 and this means the railway will turn to be unfavorable if the fare increase is made by same rate for both railway and bus .

It is necessary that fare rise should be made with reinforcing railway compatibility as a whole through improvement on the time reduction and the comfortableness of railway , taking account of demand trend .

Table 3.3.4 Comparison of Tariff Elasticity among several data source

User	Result		Data
	Mode	Change %	Source
Case : A 10% rise in railway fares			
1st class railway passengers , car available	Railway	-1.70	a)
2nd class railway passengers , car available	Railway	-2.70	a)
All railway passengers , car available	Railway	-2.60	a)
Railway travelers on business , car available	Railway	-1.60	a)
All railway passengers	Railway	-3.90	a)
Bus passengers	Bus	1.80	a)
Car users	Car	2.20	a)
Railway travelers on business / long distance train	Railway	-8.00	b)
Railway travelers on private purpose/ long distance train	Railway	-10.00	b)
Railway travelers / long distance train	Railway	-8.00	b)
Case : A 10% rise in bus fares			
Bus passengers	Bus	-8.60	a)
Car users	Car	2.10	a)
Railway passengers	Railway	2.10	a)

Source: a) Analysis of the economic costs of transport and user charges in land transport , Feb. 1997
b) Stated preference survey by study team , Dec. 1996

3.3.4 Fare policy

(1) Repeal of fare settlement as an official price

Present fare system is affected by the government price policy through introducing the official price to passenger and freight fare although the law (PKP law) specifies PKP could manage its own business by commercial enterprise rule.

According to the EC directive 91/440 that is recognized as a common principle applied to any railway business in EU, which Poland will expect to join in future, it is mentioned that any railway business should be isolated from state control in all aspects of its management, finance and account, and should be managed by same rule as an ordinary commercial business. In addition, public service obligation should be carried out only on the contract basis between the state and the enterprises. Concerning the railway fare, the principle is that railway enterprise can lay down its own fare system by itself unless there is possibility to violate the EC regulation 1191/96.

(2) Formulation of future fare system

1) Fare level

It will be required that PKP improve its business performance through both increasing business profit and decreasing cost , aiming at the realization of its privatization . As for the fare policy, following issues are expected in future

Table 3.3.5 Issues on fare change by transport division

Transport division		Issues on fare change
PASSENGER	Inter city transport	Since few fare difference exists between railway and bus ,and fare elasticity is expected to be high for both mode , a hasty fare hike results in revenue reduction . However it can be done if sufficient facilities investment is provided because passengers would accept reasonable fare rise with improving transport service .
	Urban transport	In general fare elasticity is low , however exceeding fare increase is not recommended because it will result in reduction of public transport demand and such a situation is not acceptable from urban policy .
FREIGHT	Coal and ore	Reasonable tariff rise is allowed because present fare is kept at lower level from price policy. Regarding the demand decreasing due to fare increase , it is not expected so much because railway keeps dominant position for this commodity .
	Others	It is probable that excessive tariff increase makes the freight demand shrink , while the increase is allowed if it does not violate international rule like EC directives .
Fare discount		It is desirable that present discount system , applied to passenger and freight fare system , should be reviewed to be abolished in long term , taking account of its commercial viability even if it is politically decided .

Based on the present railway business performance , it is foreseen that passenger transport business will go into the red while freight business keeps profit when the railway business is reorganized vertically with separating railway operation from infrastructure management . Under this situation , it will be favorable that the track access charge is controlled by type of railway operation , that is passenger service and freight service . Concerning with this , the possibility of fare rise was examined additionally . Based on the result , it is foreseen that following measures are desirable to increase railway transport revenue in future .

① Suspension of applying the official price to coal freight transport.
② Increasing fare revenue by fare rising up to 50% mainly for inter city passenger transport .
③ Suspension of applying discount charge to the transport for PKP employees etc.

2) Fare system after the vertical separation of railway

In future as a result of vertical separation of railway business , the cost related to railway infrastructure will be managed in a way that each railway operator pays infrastructure charge to infra management body when rail access , and such cost is transferred to railway users through the railway fare system in the end .

The infra access charge is to be unavoidable for railway operators if they use the railway track , and becomes common cost , the sharing of which affects the development of railway transport market and the profitability of railway business , for all operators .From viewpoints of using railway , the infra access charge should be maintained so that railway access could be vitalized by introducing a price regulation or state subsidiary on the infra access cost .

3.4 PASSENGER TRANSPORT

3.4.1 Passenger Transport Sector

To reduce the subsidies from the government, thepassenger transport sector which is now in a large deficit must attain self-subsistent management in potentially profitable divisions such as passenger transport mainly by high-class trains in the inter-city transport division. In the field of accommodation trains which is one of typically unprofitable divisions, revenue and transport demands are considerably different between urban and local areas, which are separately analyzed below, therefore.

As large cities scatter at distances from 100 to 300km in Poland, inter-city transport is more advantageous for its punctuality, high-speed and capacity of mass transport than cars and airplanes. However, PKP cannot be optimistic in this division either, as expressway networks are expanding and cars are increasing to gain on the market share of railways.

The inter-city transport will be able to brake the decrease in passengers through improvement of passenger services, as people are increasingly concentrating into cities and cars are suffering from chronic congestion and shortage of parking areas.

On local lines, the number of passengers will decrease further, as catchment areas become depolutated and cars rapidly increase. Therefore, transport volumes will substantially decrease.

To privatize PKP, it is required to distinguish profitable and unprofitable divisions and establish quantitative approaches. For profitable divisions, policies must be adopted to attain self-subsistence in the future by eliminating cross-subsidization. It must be judged whether to maintain unprofitable divisions while obtaining subsidies from the government.

We will discuss the income and expenditure after PKP has been privatized in Chapter 5.

3.4.2 Profitability of Passenger Transport Sector

(1) Transport Volume and Revenue by Division

The Table below shows the volumes of passenger transport and revenue in the inter-city, urban and local line transport. The revenue from inter-city and urban transport accounts for 84% of the total to indicate that emphasis must be placed on the business in these two fields. In the inter-city transport, in particular, the revenue is larger than that in other divisions, as the revenue per passenger is larger though the number of passengers is smaller.

Table 3.4.1 Comparison between different divisions.

(unit: million persons, 100 million passenger-km, million PLN)

	No. of passengers		Passenger-km		Revenue	
Intercity	69	(15)	165	(62)	529	(52)
Urban area	263	(56)	64	(24)	327	(32)
Local Line	133	(29)	37	(14)	163	(16)
Total	465	(100)	266	(100)	1019	(100)

(Note) The figure in ( ) is an index when the total is taken as 100.

(2) Profitability

The inter-city, urban and local line transport divisions are all in the red. As the inter-city transport division doesn't suit subsidies from the government, it must be targeted to balance revenue and expenditure including a minimum amount of track rental charges in this division.

Table 3.4.2 Present profitability of different divisions

(unit: million PLN)

	Revenue (A)	Cost (B)	Cost (C)	(A)-(B)	(A)-(C)
Inter-city	529	987	671	-458	-142
Urban area	327	1,047	712	-720	-385
Local line	163	958	651	-795	-488
Total	1,019	2,992	2,034	-1,973	-1,015

(Note) Calculated based on the materials of passenger transport by PKP. The cost (c) is the direct cost of train operation.

(3) Demands and Load factors forecast in 2005

The Tables below show the number of passengers and passenger-kilometers based on the demand forecast in 2005, and train kilometers, car-kilometers and load factors to meet the transport demands.

Table 3.4.3 Present and future of the number of passengers and passenger-kilometers

	Number of passengers (1,000)			Passenger-kilometer (million)		
	1995(a)	3005(b)	(b)/(a)	1995(a)	2005(b)	(b)/(a)
Inter-city	69,315	83,000	120	16,474	19,620	119
Urban	262,969	263,000	100	6,425	6,426	100
Local	132,775	81,000	61	3,723	2,396	64
Total	465,059	427,000	92	26,622	28,442	107

Source: PKP

Table 3.4.4 Present and future of train- and car-kilometers

(Million kilometers or cars)

	1995			2005		
	Train-kilometer	Number of cars in a train	Car-kilometer	Train-kilometer	Number of cars in a train	Car-kilometer
Inter-city	68	8.0	544	75(110)	7.3	548(101)
Urban	58	5.6	325	61(105)	4.8	293 (90)
Local	45	4.5	203	29 (64)	2.5	73 (36)
Total	171	6.3	1,072	165 (96)	5.5	914 (85)

Source: PKP

(Note) The figure in ( ) is an index when that in 1995 is taken as 100.

(We estimated the transport capacity, transport volume and load factor of a train based on the following policies.)

We determined the number of cars in a train to avoid excessive transport capacity, and set the transport volume at a proper level to reflect the decrease and increase in the number of passengers and passenger-kilometers. As a result, we attained a load factor of 65 to 70% for efficient transport.

Table 3.4.3 Present and future of the transport capacity, transport volume and load factor per train in different divisions.

(Per train)

		Transport capacity (passengers)	Transport volume (passengers)	Load factor(%)	Remarks
Inter-city transport (EC, IC, EX)	1995	384	226	59	
	2005	384	271	70	
Inter-city transport (inter-regional express trains)	1995	736	331	45	
	2005	604	397	66	
Urban transport	1995	375	226	60	
	2005	322	226	70	
Local transport	1995	380	224	59	
	2005	211	143	68	

Source: PKP

3.4.3 Management Form of Different Divisions in the Future

(1) The inter-city transport division (with a total length of about 4,000km) must be put in competition with cars and airplanes in the future. In Poland, inter-city trains connect major cities and passengers move to and from every corner of the country. If the management foundation has been reinforced to successfully compete with other modes of transport, therefore, railways can gain profit. Inter-city transport must be promoted by an integrated organization to aim at sound management without obtaining subsidies from the government.

(2) Although the urban transport division of PKP (with a total length of about 1,100km) may be unprofitable, it is extremely disadvantageous from social viewpoints to solely rely on private cars for urban transport. It is desirable, therefore, to determine the level of transport service in each urban area based on a contract with the autonomous body of the region. The method of raising funds must be determined through negotiations between the government and autonomous bodies along the route.

(3) PKP must determine to maintain or abolish local lines used by few passengers (with a total length of 11,000km) through negotiations with autonomous bodies. When PKP has decided to maintain a line, an appropriate level of transport service must be set through a contract with the autonomous body of the region. The source of funds must be determined through negotiations between the government and autonomous bodies along the route.

3.5 FREIGHT TRANSPORT

3.5.1 Subjects for Freight Transport

Subjects for PKP's freight transport are summarized as the following seven items.

① Changes in Transport Structure

While Poland had undergone social and economic structural changes, the volume of transport dropped from 482 million tons in 1980 to 201 million tons in 1992, to represent a quantitative change in the COMECON structure. As social and economic stability has recovered in recent years, however, the volume of transport rallied to 224 million tons in 1995.

As the country shifts to a market economy and vitalizes economic activities, transport by truck will develop in the future. The privatization of PKP will expedite new entry of domestic transport agencies. Advanced transport technologies of EU will flow into the country. Under the circumstances, the physical distribution industry in Poland will enter into an age of merciless competition and be forced to undergo qualitative changes.

② Changes in Transport Items

Among the current transport items, coal accounts for 50% of the total transport volume. When the volumes of coal, other minerals, petroleum and cement are summed up, the volume of bulk cargos shares 70% of the total, to make the basis of the operation of PKP, as they suit rail transport. PKP cannot be optimistic, however, amid the development of other transport facilities. In the physical distribution industry, volumes of general commodities and industrial products will increase, as a market economy develops. Rapidity and clarification of arrival date and time are essential for these cargos, which must duly be addressed by PKP to develop in the future. For the measures to be taken for this purpose

③Insufficient marketing and transport systems

The current marketing and transport systems are based on a nationwide railway network, about 1,800 stations distributed all over the country, 12 marshalling yards and 212 shunting bases. Although trials have been made to operate through-trains to bypass marshalling yards, PKP still preserves the transport system when it monopolized freight transport and played a leading role. Although the present system is useful for commodities that require efficient transport, it cannot cope with those for which rapidity and the arrival date and time must be clarified. In addition to the

present yard-based transport, therefore, PKP must offer speedy inter-mode transport services such as those with containers .

As the rail transport was only one monopolized business in the country, the transport service is at a low level and tends to be offered one-sidedly from PKP.

④ Superannuation of facilities and rolling stock

Since it started railway operation in 1842, Poland has constituted a railway kingdom after a number of vicissitudes in its history, claiming high level railway technologies in terms of the magnitude of railway network, length of double-track sections, electrification and rolling stock engineering. Amid the changes in social and economic structures, however, it delayed modernizing the railway industry and now requires a drastic modernization of superannuated facilities and rolling stock. It still preserves rolling stock, freight handling stations, shunting yards and freight car yards of the magnitudes when the railway enjoyed a large transport volume. This involves inefficient allocation of employees and pushes up costs of freight transport. To raise the productivity of the Freight Transport, it is essential to optimize the facilities for freight transport.

⑤Delayed off-rail transport

From arrival stations to consignees (short-distance transport), cargos are transported on private tracks to customers who use the railway to transport large quantities of cargos, or by trucks of consignees or contracted road transport agencies to general consignees who don't have a private track. As trucks increase and their business areas expand in the future, PKP will lose its market share, in that small cargos and those transported through private tracks will shift to trucks, except those that particularly suit railway transport or that cannot be handled by trucks. It is required, therefore, to establish a system to handle off-rail transport integratedly with on-rail transport.

⑥Importance of international transport

Rail transport can fulfil its inherent characteristics in constant mass transport for medium and long distances. The territory of Poland is circular and mostly flat, extending 600km from the east to the west, and 560km from the south to the north. Although Poland is now entirely covered with a railway network, the entire territory will fall in the scope of road transport, as trucks increase and road networks are improved in the future. Under such circumstances, businesses in which rail transport is viable in the future are transport of basic materials such as coal and minerals and international transport for long distances.

The volume of international transport in 1995 accounted for 37% of the total tonnage

of transport and 50% of total ton-kilometers. While coal and minerals share a majority of the transport volume, metallic and chemical products are increasing in recent years. Container transport of these products that is applicable to through-transport over different transport modes, such as railways, ships and trucks, is one of the most promising businesses that are expected to develop in the future.

⑦ Departure for a competitive enterprise

The Freight Transport of PKP maintains a large amount of surplus. It is not conceivable, however, that this trend remains unchanged for ever, as a market economy is developing and the transport structure is changing. Despite the favorable balance between revenue and expenditure at present, PKP must make efforts to further improve its transport businesses, modernize its operation and stabilize its management. Prior to or in parallel with its privatization, PKP must promote self-subsistent management as a privatized organization, compete with foreign transport companies in an open access system, and endeavor to make a new departure as a railway promoter that can fulfil its mission.

3.5.2 Profitability of Freight Transport

As clarified in the PKP Annual Report (1995), the Freight Transport earned 4.288 million PLN, spent 2,802 million PLN with a profit of 1,486 million PLN. To prepare for discussions on the future management form, we divided the freight transport commodity-wise into the following four categories to investigate the profitability of several scenarios.

A ... Cargos for which characteristics inherent to railway transport for medium- and long-distance
masstransport can easily be fulfilled.

B ... Cargos for which characteristics inherent to railway can be fulfilled, when commodity-wise
terminals and other facilities have been improved.

C ... Other cargos

D ... Complex transport that is expected to develop in the future.

In this discussion, we used fixed and variable costs of the transport and infrastructure divisions for freight transport of PKP in fiscal 1995.

We also assumed direct transport ratio for the categories A and B, and complete direct

transport for the category D. We assumed some amount for additional investment to improve freight terminals and replace rolling stock in the scenario 3.

(1) When the present PKP remains unchanged (scenario 1).

The volume of freight transport of PKP will remain unchanged as a whole, though coal will decrease as shown in 3.1.2 Transport Demands in the Future. In this scenario, revenue will also remain at the present level with expenditure remained almost unchanged.. Therefore, profitability seems to be maintained in Freight Transports in the future.

(2) When the volume of transport decreases through severe competition with other transport facilities (scenarios 2 and 2-2).

Although PKP will retain the present volumes of transport in mass transport and in medium- and long-distance transport, the volume of the category C which is related to yard-to-yard transport and the revenue therefrom will decrease as a result of severe competition with other transport facilities. In this case, in case the volume of the group C has decreased by 20% or 40%, the profitability of the group C decreases to compromise the profitability of entire Freight Transports.

(3) When efforts are made to maintain the present volume of transport through various improvement measures (scenario 3)

It is necessary to improve commodity-wise freight terminals for bulk cargos in order to demonstrate characteristics inherent to railway transport as far as possible to attain the target set by PKP, as an effort to secure a sufficient volume of transport and revenue. In parallel, expenditure must be cut through various modernization measures. In this case, the present level of profitability will be maintained.

Table 3.5.5 summarized the above discussions. To survive the competition with other transport facilities and play the role assigned to the railway, it is required for PKP to promote the scenario (3).

Table 3.5.1 Profitability of freight transport in the future

Scenario	Description	Effect
1. (When the present trend continues.)	1 Volume of transport: 224 million ton, 69.1 billion ton-kilometers A 92 285 B 30 99 C 97 287 D 5 20 2 Major improvement measures are not taken with transporting methods remained almost unchanged.	1 Revenue Expenditure Difference (million PLN) 1682 1258 424 648 263 385 1906 1241 665 131 29 102 2 Although revenue and expenditure are balanced, PKP must not be optimistic, as this case will develop to scenario 2 or 3 depending on the development of other transport facilities.
2. (When other cargos (category C) largely shift to other transport facilities.)	1 Volume of transport: 205 million tons, 63.6 billion ton-kilometers A 92 285 B 30 99 C 78 232 D 5 20 2 Major improvement measures are not taken with transporting methods remained almost unchanged. 3 Other cargos (category C) decreases by 20%.	1 Revenue Expenditure Difference (million PLN) 1682 1258 424 648 263 385 1520 1105 413 131 29 102 2 Profit decreases.
2-2. (When other cargos (category C) shift more to other transport facilities.)	1 Volume of transport: 185 million tons, 57.9 billion ton-kilometers A 92 285 B 30 99 C 58 175 D 5 20 2 Major improvement measures are not taken with transporting methods remained almost unchanged. 3 Other cargos (category C) decreases by 40%.	1 Revenue Expenditure Difference (million PLN) 1682 1258 424 648 263 385 1144 966 178 131 29 102 2 Profit, particularly that of other cargos (category C), further decreases.
3. (When improvement measures are take to maintain the volume of transport)	1 Volume of transport: 224 million tons, 71.8 billion ton-kilometers A 92 285 B 30 99 C 88 278 D 14 56 2 Efforts are made to maintain the volume of transport and cut expenditure by implementing yard-pass train operation and complex transport. 3 Additional investment is required for ground facilities and rolling stock. 4 Investment is also required to abolish excess facilities including freight yards to cope with decreases in the volume of transport.	1 Revenue Expenditure Difference (million PLN) 1682 1256 426 648 273 375 1821 1181 640 867 125 242 2 Despite increases in costs due to additional investment, revenue is maintained through strengthened competitiveness as a result of improved transport measures. 3 Rationalization of freight yards including improvement of track layout will cut the number of employees and expenditure.

(Note) The figure of the category A is coal (77) + oar (15) =92, and B is oil (16) + cement (14) = 30.

The figure of the category D is extrapolated to the present trend in scenarios 1 and 2, and assumed by PKP in scenario 3.

3.5.3 Management Form in the Future

As the management form of freight transport, several ideas are conceivable, i.e., entrusting it to a nationwide integrated entity, or dividing it region-wise, commodity-wise or according to transport system.

①However, regional division doesn't suit transporting cargos that move across the country.

②In the case of coal which accounts for about 50% of the total volume of transport, only about 30% are being transported by complete train compositions and others are mixedly with other cargos through freight yards and shunting yards.

③As the basis of freight transport system, the entire railway network is divided into about 220 zones, over which 12 freight car yards and 212 shunting bases or regional base stations are distributed. Cargos are collected from consignors to the nearest base station by local freight trains or shunting trains with cargo handling staff on board, and then transported to the base station nearest the consignee by base-to-base freight trains. From the arrival base station, cargos are forwarded to consignees by local freight trains or shunting trains with cargo handling staff on board. when necessary. Finally, they are transported to the freight handling station nearest to the consignor. This is an ideal system in terms of rapidity and efficiency. Therefore, commodity-wise division of freight transport is not practical at all.

④As referred to in the above discussions on the profitability of freight transport, general commodities will be exposed to severe competition with other transport facilities. If the transport of general commodities stagnates as a result, the efficiency of yard-based freight transport system will totally be compromised. Therefore, it is advantageous in terms of profitability to operate a freight transport system to encompass general commodities and bulk cargos including coal and petroleum as a whole.

⑤Among the commodities transported by rail, about 80% are those for which rail transport can demonstrate its inherent advantageous characteristics. It is not difficult, therefore, to maintain the present volume of transport, if transport costs are cut through improvement measures and services that meet customer requirements are offered.

⑥Miscellaneous commodities that account for 20% of the total will encounter severe competition with other transport facilities with respect to rapidity and transport costs.

Therefore, it is required to implement door-to-door complex transport of these commodities. Unlike the conventional transport system, such a direct transport system to connect freight handling stations will be profitable, even if some amount of funds are invested. For above reasons, it is appropriate to divide freight transport business and perform it by the following two companies in the future.

Freight transport railway company .... To transport conventional cargos efficiently at low costs.

Complex freight transport company ... To transport door-to-door cargos that are promising in the future at high speeds and low costs.

Companies who transport coal for power plants or those who have private freight cars for petroleum or cement transport will enter the market when an open access policy is implemented in the future. It is not desirable for PKP, however, to withdraw from this profitable and efficient through-transport of cargos that it has brought up through various improvement measures, as withdrawal would adversely affect the profitability of the transport of other cargos.

3.6 INFRASTRUCTURE

3.6.1 Subjects for Infrastructure

① Over-scaled railway network

In addition to the standard gauge (1,435mm) lines which are the mainstream in the country, PKP's railway network consists of a broad gauge (1,520mm) line to Ukraine and some narrow gauge (600, 750, 785 and 1,000 mm) lines.

In this study, we adopt the standard and board gauge lines with a total length of 22,285km.

What should be noted in discussing the railway network to be preserved in the future is the fact that the present network has retained a scale to correspond to the volume of transport when it was first planned. As the volume of transport has lowered to almost a half, the railway network is now over-scaled. Being aware of this fact, PKP is rationalizing and abolishing facilities to match them to the volume of transport, in that it reduced (abolished) railway lines of 314km (1.4% of the entire network) in 1996, and suspended transport on lines of 73km.

Some drastic measures must be taken further, however, as the present speed of retreat from unprofitable lines is not sufficient, in order to reform and privatize PKP.

② Changes and Concentration of the Volume of Transport into Specific Sections.

When the data in 1989 under a planned economy and in 1994 under a market economy are compared, the volume of transport by PKP decreased by 41% (in ton-kilometers) in freight transport and by 51% (in passenger-kilometers) in passenger transport. In addition, 92% of passengers and freights were transported on 11,625km-long electrified sections which account for 52% of the total length. In total, 94.2% of passengers and 98.6% of freight concentrate into important and specific lines. (Table 3.6.1)

Table 3.6.1 Concentration of PKP's transport (Fiscal 1994)

Division	Ratio of concentration	Length of lines
Passenger	Out of 207 sections, 67 sections secure 90% of revenue.	Length of the 67 sections = 11,300km (59% of passenger transport sections)
Freight	Out of 287 sections, 58 sections secure 90% of revenue.	Length of the 58 sections = 10,100km (48% of freight transport sections)

Source: Mercer Report

③ Excess Employees

Table 3.6.2 shows the number of employees in the infrastructure division quoted from a PKP yearbook.

Table 3.6.2 Number of employees in the infrastructure division

(in persons)

Sector	Fiscal 1996
Track maintenance	43,945
Power supply	13,537
Signalling and Telecommunication	12,568
Traffic control	46,256
Total	116,306

Source: Mercer Report

Although the track maintenance is mostly mechanized on its entire network of 22,285km, PKP has about 44,000 employees at the track maintenance division. When the total ton-kilometers per employee in west European countries is taken as unity, the figure of PKP is as low as 40% (Table 3.6.3). To prepare for privatization in the future, PKP must establish an independent company by separating its track maintenance division, contract track maintenance work with private companies and promote other measures for modernization to cut expenditure.This also holds true with power supply, signalling, telecommunication and train dispatch divisions.

Table 3.6.3 Comparison of productivity in infrastructure division

Railway	Total ton-kilometers per employee (millions)
SNCF	6.13
RENFE	6.97
CFF/SBB/FFS	8.33
NSB	6.33
FS	4.99
CP	4.77
BLS	7.80
Average (1)	6.47
PKP (2)	2.58
Ratio (2)/(1)	0.40

Source: PKP Yearbook

④ Insufficient Investment for Modernization of Infrastructur

One of the problems of PKP's present infrastructure is that its modernization, maintenance and renewal have been retarded to large extents due to insufficient investment. Only about 50% of the planned modernization work has been implemented at different infrastructure divisions.(Table 3.6.4). Investment costs in Table 3.6.4 contain new investment costs for modernization and replacement of facilities, excluding maintenance cost of infrastructure (2.1 billion PLN in 1995).

Table 3.6.4 Status of investment in infrastructure

(in million PLN)

Year	Implemented (%)	Not implemented (%)	Required amount of investment (total)
1989	860.0 (67%)	431.1 (33%)	1,291.1
1990	870.5 (88%)	115.5 (12%)	986.0
1991	773.4 (54%)	646.1 (46%)	1,419.5
1992	381.5 (29%)	939.6 (71%)	1,321.1
1993	501.7 (55%)	403.0 (45%)	904.7
1994	559.8 (38%)	918.4 (62%)	1,478.2
1995	1,029.6 (64%)	581.3 (36%)	1,610.9
1996	1,618.5 (48%)	1,768.1 (52%)	3,386.6
Total	6,595.0 (53%)	5,803.1 (47%)	12,398.1

(Note) 1. At the value in 1995

2. Figures for 1995 and 1996 include costs for improvement.

3. Figures for 1996 are planed amounts.

4. Source: Department of Investment Construction and Engineering, PKP

Table 3.6.5 shows the ratios of funds for procurement of rolling stock and investment in the infrastructure to the total investment funds.

Table 3.6.5 The ratios of funds for procurement of rolling stock and investment in the infrastructure to the total investment funds

(%)

Year	Infrastructure	Procurement of Rolling stock	Others
1991	40.2	18.1	41.7
1992	39.8	21.3	38.9
1993	42.0	24.5	33.5
1994	42.7	21.3	36.0
1995	52.6	10.9	36.5
1996	54.7	16.6	28.7
1997	53.2	13.7	33.1

Source: Department of Investment Construction and Engineering, PKP

(Note) Figures of 1995 and thereafter include funds for improvement.

As a result, tracks have deteriorated. Although trunk lines and first class lines are maintained satisfactorily, other lines are maintained only to a level that barely ensures the safety of train operation. Trains are operated, therefore, according to the maintenance level of tracks.

Given the present status of infrastructure that hasn't sufficiently been improved or remodelled, there are following subjects for investment in infrastructure before PKP is privatized.

1) Investment before Privatization

①Investment items and their order in consideration of economy, safety and lines to be preserved in the future.

②Modernization to acquire competitiveness against other transport modes including automobiles to prepare for privatization

③Rationalization of employment structure due to modernization of facilities

④Modernization of deteriorated and superannuated railway facilities

2) Investment after Privatization

Basically, the infrastructure will be maintained with the Rail Access charges borne by railway transport promoters. Although it depends on the profitability of passenger and Freight Transports, investment in modernization of important lines for the nation and construction of new lines require subsidies of the government.

3.6.2 Optimum Railway Network to be Preserved in the Future

In discussing the railway network to be preserved in the future, we took into consideration the following indexes.

(1) Important Lines for the Nation

These lines were determined by the ordinance dated September 3, 1996, based on the Paragraph 7, Clause 13, KPK Law (July 6, 1995).
These lines were specified as important lines for the nation by taking into account one or more criteria listed below.

① Economical criterion
② Social criterion
③ National defence criterion (Maintenance costs for the purpose of defence are borne by the government based on the Paragraph 3, Clause 21, Railway Transport Law.)
④ Criterion on environmental preservation

(2) Ninety percent of passenger and freight transport is being performed on sections of 11,000 to 12,000km. (Table 3.6.1)

(3) A network of 6,000km which is called a skeleton in PKP.

(4) A route length of 5,000km which is specified by international agreements AGC and AGTC.(Reference) "Reasonable institution of an optimum railway network in Poland," Strategy Department, PKP (April, 1995)
We have determined that a route length of about 17,000km (excluding excess assets) must be preserved as the infrastructure in the future, based on the above indexes, competitiveness of passenger and freight transport in the future, networks for passenger and freight transport (partly common and partly different) and the criterion on abolition of low-density lines (see 5.4 "Management of light-density lines").
Based on the above conclusion, we recommend to separate PKP's railway network as shown in Fig. 3.6.1.

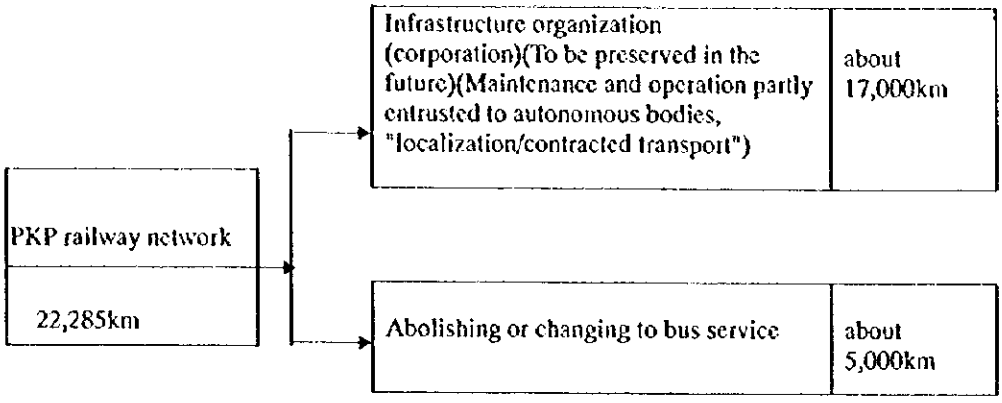


Fig. 3.6.1 Division of PKP's railway network

3.6.3 Rail Access Charges

(1) Conditions for Setting Rail Access Charges

To determine Rail Access charges, we have to discuss to what extents infrastructure costs for maintenance and depreciation and investment funds should be recovered as Rail Access charges.

As stipulated in the EU directive 95/19, Rail Access charges must not discriminate railway transport promoters. As the balance between revenue and expenditure differs to a large extent between passenger and freight transport in Poland, we must deliberately discuss what amount of Rail Access charges can be imposed on passenger and freight transport.

(2) Examples of Rail Access charges

According to the clause 8, EU directive 95/15, Rail Access charges must be set based on the quality of service, time, market conditions and the degree and type of wear and tear of infrastructure. We will briefly explain below the cases of setting Rail Access charges in Sweden, Germany, the UK and Japan (Japan Freight Railway Company) and their ratios in the revenue from operation. (Tables 3.6.6)

Table 3.6.6 Examples of rail access charges

Country	Description
Sweden	• Two-tier system • In the same way as the cases of other transport facilities, the railway infrastructure is possessed and controlled by a public organization and used for transport with public funds. • The level of Rail Access charges is very low. • Rail Access charges must be approved by the government.
Germany	• Costs for maintenance and depreciation of infrastructure are borne by track renal charges (except investment costs for new facilities). • DBAG sets Rail Access charges.
UK (charges for using tracks of passenger railway companies)	• Total costs for maintaining the infrastructure are borne by track rental charges (including investment costs for new facilities) • Rail Access charges are extremely high. • Price cap system (RPI-2%) • The government provides subsidies to the passenger railway companies.
Japan (Japan Freight Railway Company)	• Rail Access charges based on avoidable costs (that could be avoided for passenger railway companies, if freight trains are not operated) are paid to passenger railway companies who possess the infrastructure. • Rail Access charges are low (11% of the revenue from operation in 1995). • Rail Access charges must be approved by the government.

4. PRIVATIZATION SCENARIOS

4.1 TRANSITION PERIOD TO PRIVATIZATION

Poland aims to become a member of the EU in the near future. PKP is improving its organization and facilities in conformity with EU directives for infrastructure separation and open access etc. It is important for PKP to secure profitability and privatize as soon as possible, given the company's business deterioration, motorization and state fiscal rigidity since political reform.

Such situations considered, it is proposed that PKP should transform into a joint-stock company (JSC) by the end of 2002, and prepare for listing requirements on the stock exchange by the end of 2005 (indirect privatization). During the process, the field-work units for maintenance and railway-related business (RRB) units will be separated and actively leased and/or sold to investors (direct privatization).

4.2 SELECTION OF PRIVATIZATION SCENARIOS

Two typical privatization scenarios with different executive policies (scenario 1 and scenario 2), though the objective of realization of privatization is common to them, are presented and considered from a qualitative viewpoint. The better scenario (scenario 1) is selected and estimated quantitatively based on a set of assumptions. Scenario 1 shows that every sector of the railway business (infrastructure, passenger and freight) would be in the black and able to be privatized. Scenario 2 is also calculated in order to demonstrate the benefits of scenario 1. As quantitative analyses, income and cash-flow are estimated for the period 1997~2005. Further study and recommendations on scenario 1 are described in Chapter 5.

4.3 SCENARIO 1

4.3.1 Executive Policy

Early privatization of Poland's largest enterprise will contribute to the national targets of accelerating the market-economy, promoting privatization and joining the EU. Scenario 1 suggests that innovative means and active organizational separation will facilitate privatization. It also aims to ensure early privatization and ease labor problems.

4.3.2 Basic Means

(1) Streamline Organization

The current complex organization composed of 3 tiers and 8 regional DOKPs should be streamlined into 2 tiers, 4 sectors (infrastructure, passenger service, freight service, traction & workshop back-up facilities) and 12 pillars (real estate, welfare, housing, pension, health-care service, computerized data processing, telecommunications, power engineering, training, procurement, railway security service, structural units) by the end of 1998. This reorganization also aims at the decentralization of authority and the speeding up of decision-making.
Later, the traction & back-up sector will be integrated into the passenger and freight sectors to make the business efficient and competitive, and the 12 pillars will be combined into 3 larger railway-related business pillars by the end of 2000. (see 5.2.1)

(2) Transfer Of Surplus Assets To The Infrastructure Sector

Most of the surplus assets such as the 5,000 km lines to be decommissioned (cf. Chap. 5.4), narrow-gauge lines etc. belong to the infrastructure sector. Other surplus assets such as old coaches and wagons etc. scattered throughout the whole country should be transferred to the infrastructure sector in order to be managed intensively. Income from sales of the assets can be appropriated for management expenses.
On the other hand, it should be considered that some surplus assets which can be more utilized for promotion of future railway-related business are transferred to the real estate pillar. (cf. (10))

(3) Staff Investment Fund (SIF)

Commercial and privatization law provides that a privatized JSC can grant up to 15% of shares to the employees. It is recommended that PKP deliver exchange coupons for future shares to the present employees.
An SIF secures economic benefit for employees and increases support to accelerate privatization from them. The scheme which encourages early retirement will contribute to a reduction in staff numbers and a correction of the age structure (see table 4.3.1).
The introduction of an SIF needs no additional cost except several staff in charge of legal and data processing divisions.

Table 4.3.1 Vesting rate of exchange rights to SIF (example)

Length of Service (age)	Vesting Rate
0~20 years (20~40)	0~100%(increase in proportion to service length)
21~40 years (41~60)	100%

(4) Infrastructure Sector To Be Separated From PKP (see (5)~(8), 4.5.2(4), 5.1.1)

Rail infrastructure is a public property to be used, after Poland's entry in to EU, not only by PKP (or its successor operators) but by other operations including foreigners. The minimum requirement of the Directive 91/440 EEC is to separate the accounts for the management of rail infrastructure and for the provision of transport services. However, from the viewpoint of securing fair competition, it will be preferable to keep infrastructure management separated from PKP and leave it to a self-governing public authority (state-owned infrastructure corporation, hereafter called SOI).

When the infrastructure is separated from PKP, the SOI owns infrastructure assets from government (assumed 31 billion PLN) and owes the same amount of long-term debts to government. The capital is nominally set at e.g. 1 PLN, and the sole shareholder is the government. The SOI collects access charges from railway operators, and pays capital cost portion of the access charge for interest expenses (3.1 billion PLN, assumed interest rate at 10%) on the debt to government.

SOI

Assumed Opening Balance Sheet as of Jan. 1, 1999

Assets	31 bn PLN	Long-term Govt. Debts	31 bn PLN
		Capital	1 PLN
	Total 31 bn PLN		Total 31 bn PLN

(5) SOE Responsible For Infrastructure (SOI) Access Charges At Full Cost (see 4.5.2 (4))

The quality of infrastructure should be improved as soon as possible to catch up with the technical standards of EU countries. The SOI should be protected by a self-financing scheme based on a legal monopoly.

The SOI should charge train operators an access charge at full cost, for the use of the infrastructure. The access charge sould be composed of not only the SOI's operating & maintenance costs, but also capital cost. The capital cost means a financing cost (a cost to be necessary for raising money i.e. interest expense and/or dividends payment). It would be calculated at a rate of return that the creditors and/or investors could fairly expect on their loan/investment. Access charge can be described by a formula as

below:

$$AC = OC + CC = OC + (V - D)\,r$$

AC : Access charge, OC: Operating & maintenance cost, CC: Capital cost
V: Value of assets used, D: Depreciation accumulated,
r: Fair rate of return on asset (investment), e.g. 10%.

The access charge will be regulated to ensure the full cost by law. The SOI will be able to raise money for modernizing facilities from any creditor and/or investor easily by paying fair return on investment to them. This means that such access charge based on full cost will allow the SOI to be self-financing with small State subsidy, and the SOI can be privatized in the future.

Access charges should not be much higher than those of neighboring countries under the future open access, and in fact in PKP's case, the estimated access charge is considerably lower (see 5.2.2 (2)).

In its white paper, the EU also recommends that the infrastructure sector should charge full cost for access. But in order to privatize all railway transport sectors, all of them must balance their accounts under such access charge, and the access fees should not hinder fair competition, nor increase State burden (see (8), 4.5.2).

The SOI's financial data must be publicly disclosed in order to avoid the waste associated with a monopoly.

(6) Services To Be Provided Under Contract With The Local Government (See Fig. 4.3.1, Fig. 4.5.1)

Most of the deficit of the passenger sector accrues from commuter and local lines. Those services are essentially social services and PKP, which aims to support itself and privatize, should not necessarily shoulder the responsibility for them.
The level of such services should be decided by the local authorities concerned, and should be ensured by public service contracts concluded with the service providers (passenger train operators such as PKP).The different providers of commuter railway services will negotiate individually / separately their public service contract payments. As a result, PKP will avoid many of the losses caused by such services.

(7) Public Service Contract Fund (PSC Fund) (See Fig. 4.3.1, Fig. 4.5.1)

Local governments may not always have enough budget to provide services for commuter and local lines, and the source of their budget comes from taxes. So it is proposed that a PSC Fund should be set up under the jurisdiction of the Ministry of Transport and Maritime Economy (MTME). The PSC Fund is funded by interest which government receives from SOI. The P.S.C Fund grants the receipt from government to commuter and local lines operators via local governments. It will allow the local authorities to sponsor the contracted services, without spending their tax-derived budget.

Such governmental special account as PSC Fund should be more flexible to use annual state budget than general account.

The PSC Fund contracts with local governments, and it independently inspects the actual situation of the loss-making lines from a national viewpoint and assesses the necessary amount of subsidy. The process of assessment must be disclosed to the public. The public can then have informed discussions, and judge the necessity of individual services and their value for money, and alternatives, such as abolition of lines or switching to a bus service, can be agreed.

There is no contradiction between this scheme and the EU directives.

1) SOI, passenger and freight sectors are managed by different entities. Their accounts are therefore clearly separated from each other, fulfilling the requirements of EU Council Directive 91/440, Article 6. Passenger and freight sectors pay SOI "access charge".
2) SOI pays capital cost for "interest expense" to the government. How the interest revenues are spent for is decided by government (PSC Fund), not by railway sector.
3) The fund (interest revenues) are granted to commuter & local services via local governments. EU Regulation 1893/91 stipulates that such services should be ensured by concluding public service contracts between the competent authorities and transport undertakings.
4) Article 2-2 of the Directive 91/440 allows member states to exclude from the scope of the Directive railway undertakings whose activity is limited to the provision of solely urban, suburban or regional services. This is presumably for the reason that problems related to such local services should be decided on the responsibility of each member state.
5) We verified the fund circulation scheme does not amount to a cross subsidy (with EU DGⅦ).

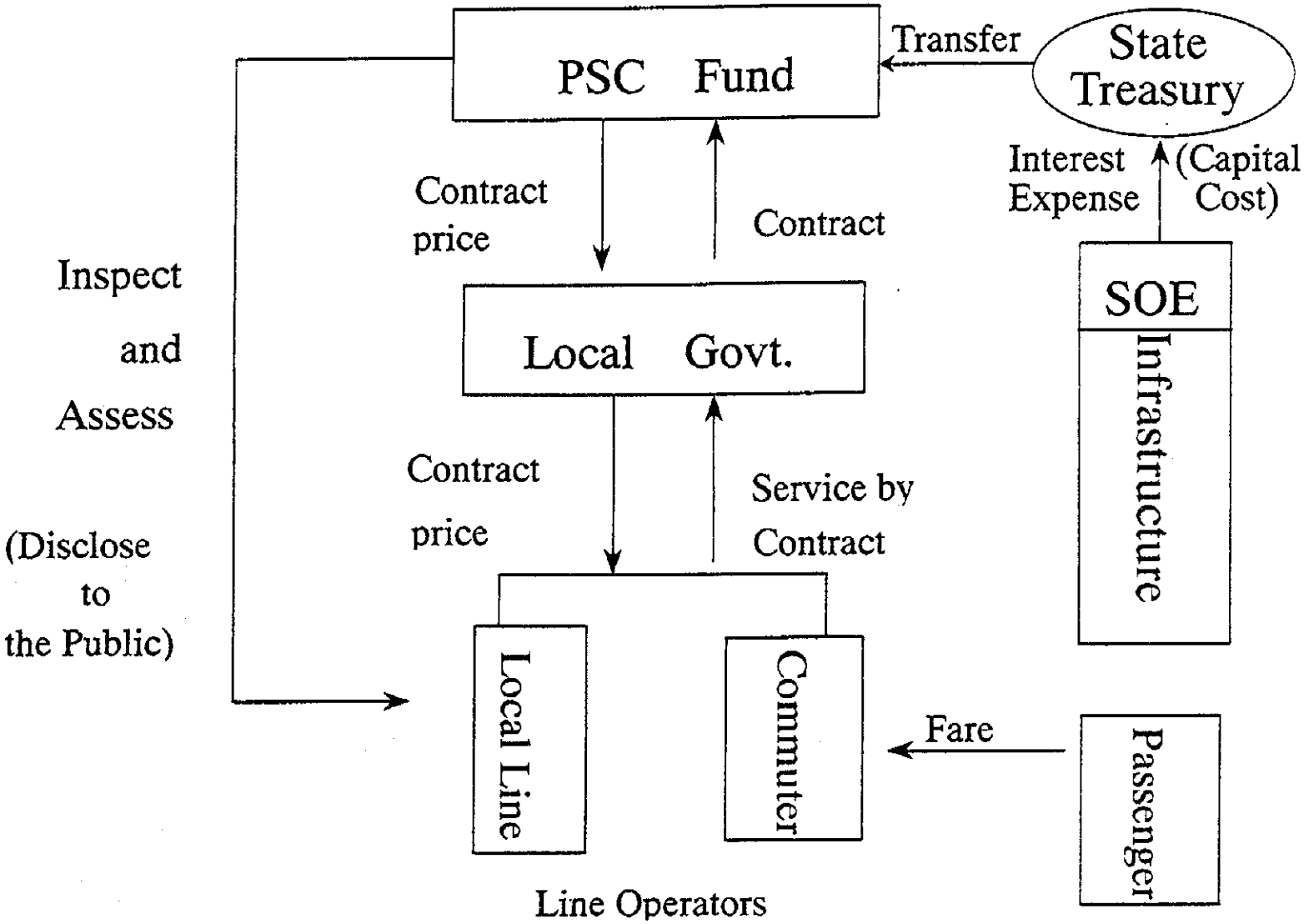


Fig. 4.3.1 Service by Contract with Local Governments

(8) Privatization of the SOI (see 4.5.2(4), 5.1.1)

Under scenario 1, all railway sectors will be able to balance their accounts, and under that situation the SOI can also be privatized.
When privatized, debts of the infrastructure Joint Stock Company (JSC) are converted into capital, and the government floats the JSC on the stock exchange and contributes the sales amount (assumed 31bn PLN = capitalized value = 3.1 bn PLN / 10%) to the PSC fund. The PSC fund can subsequently use the interest yielded from this contribution (3.1 billion PLN, assumed interest rate at 10%) as a contract payment to the urban, suburban or regional service providers via local governments. (cf. 4.5.2 (4))

After privatization, the infrastructure JSC can raise sufficient money and continue to exist independently by paying fair return on investment (ROI - capital cost) to the investors/lenders in the form of dividends/interest expense under the law which permits the JSC to fix the access charge at full cost.

(9) Separation Of Field-Work Units

Field-work units for maintenance, which belong to all sectors (infrastructure, passenger service, freight service, traction & workshop back-up facilities), consist of approximately 108 thousand employees. It is recommended that these units are separated, initially as independent accounting units and subsequently as totally separate organizations.
PKP is now reorganizing 500 field-work cost centers into about 100. These cost centers should be modified into profit centers (by accounting separation), separated from PKP and privatized through mergers and sales among the units themselves and to third parties. As a result, field-work units for maintenance will become outside suppliers, and PKP will be noticeably streamlined and able to shift to a strategy-oriented company composed of a smaller number of able staff. Namely, e.g. infrastructure company will be composed of mainly expert engineers and supervisors without conducting its own maintenance and construction works.

The profitability of PKP should be improved, with the burden of maintenance costs being replaced by service fee payments from third parties. Because PKP will make a profit through a staff reduction, curtailment of overhead costs, a cut in the service fee payments from third parties thank to introduction of competitive tender, leasing and/or sales of the units to strategic investors etc. (direct privatization).

(10) Railway-Related Business (RRB)

RRB is very promising thank to the best growing economy in European countries. PKP should develop real estate, telecommunications, data processing, travel, retail etc. under a unified strategy, concentrating on reorganization, and the active separation and privatization of RRB. It will bring PKP new income and employment opportunities (cf. 5.6).

(11) Investment Policy

PKP plans investment of about 28 billion PLN in different facilities from 1997 to 2005. It is proposed that an additional 2 billion PLN should be invested to recover past shortages caused by state subsidy.
On the other hand, PKP should reexamine its investment plan with respect to priority order and effectiveness, and cut the planned amount considering the current financial difficulties. (cf. 5.7, 5.8)

(12) Reexamination of Staff's Free Ticket Benefit, Increase of Fare and Coal Tariff.

The free ticket benefit for staff and their family amounts to 20% of total passenger sales. Such benefits were reduced during Japan National Railways' privatization process, and should be curtailed in the same manner for PKP.
A fare increase should be considered to increase revenue from passenger services. The current fare levels of PKP, after adjusted by purchasing power parities, are only at 20% of the UK's and 30% that of Germany & France (see 3.3.2, Table 3.3.3).

The income from coal transportation occupies half of total freight revenue, and the tariff is discounted 10% compared with other commodities. The discount is due to the government's energy policy, but PKP could claim a correction (cf. 3.3.4).

(13) Divide Operating Sectors Into 5 Companies.

The passenger operating sector should be divided into 3 companies (Inter-city, Commuter, Local) and the freight operating sector into 2 companies (Combined, Commodity) in order to make each performance clear, improve operational efficiency and facilitate privatization (cf. 5.10, 5.11).

(14) Holding company (HC)

It is recommended to divide and separate PKP's organization in order to facilitate privatization, considering the capacity of the Warsaw Stock Exchange. At the same time, a HC is very effective to frame unified strategies, make good use of managerial resources, avoid duplicated investment and eliminate waste.

The role of the HC is more important among the able minority companies and it will change as subsidiaries grow up. HC has some advantages in terms of business expansion, international competitiveness and financing. The purpose of the HC is not to dominate the market but to make the whole company's business efficient (see 5.1.2).

4.3.3 Privatization Phases (see Fig. 4.3.2)

(1) 1st Phase (1997~1998)

1) The current organization is reorganized into a more simple and flat structure consisting of 2 tiers, 4 sectors and 12 pillars by the end of 1998.
2) Surplus assets are transferred to the infrastructure sector.
3) The name of the real estate pillar is changed into the railway-related business (RRB) pillar.
4) Sectors and pillars settle internal transactions with each other, make their financial situation clear, and aim to be self-supporting .
5) Set up SIF and issue coupons to employees which are guaranteed to be exchangeable with future privatized PKP's shares.

(2) 2nd phase (1999~2000)

1) Traction and Infrastructure sector is separated from PKP and transformed into a newly established SOE (SOI) under the jurisdiction of MTME by the end of 1998. MTME also establishes a PSC Fund, and the fund begins to subsidize the local governments which contract with commuter and local lines' operators.
   Power engineering pillar returns to SOI by the end of 2000.
2) back-up sector is divided between passenger and freight sectors by the end of 2000.
3) Field-work units for maintenance are divided into independent accounting units (profit centers) within PKP.
4) RRB pillar merges with 3 other pillars (welfare, railway security service, structural units), sets up subsidiaries by type of business, and transfers the right staff there in

order to delegate authority, heighten morale and clarify responsibility.(see 5.6.4 (1))

5) The other 5 pillars (housing, pension, health-care service, training, procurement) are abolished or merged. As a result, pillars are reorganized into 3 larger divisions (RRB, computerized data processing, telecommunications), all connected with RRB in a broad sense. These pillars establish subsidiaries and privatize them by leasing or selling to employees or strategic investors.(see 5.2.1)

(3) 3rd phase (2001~2002)

1) PKP transforms from SOE into JSC 100% owned by the Ministry of Treasury (MOT).
2) 15% of the shares of the privatized PKP (JSC) are delivered to the SIF.
3) Passenger and freight sectors are divided into 5 sectors; inter-city, commuter & local for the passenger sector, and combined & commodity for the freight sector.
4) Promote separation and privatization of field-work units which have been modified into profit centers in the 1st phase.

(4) 4th phase (2003~2005)

1) The 5 sectors (3 passenger, 2 freight) and 3 RRB pillars are transformed into 8 JSCs. The 8 JSCs are 100% owned by a newly established holding company (HC).
2) HC implements proper privatization measures for each JSC such as leasing, selling to strategic investors, listing etc. The proceeds from privatization flow into the HC, and are appropriated for financial improvement etc.

(5) 5th phase (2006~)

MOT proceeds to list HC on the Stock Exchange. SOI is transformed into a JSC, 100% owned by MOT, and subsequently listed on the stock exchange. SIF delivers shares to employees in exchange for coupons just before HC's listing, and SIF then dissolves. Sales of HC's 85% share of PKP flow into MOT. Sales of infrastructure JSC's shares are contributed to the PSC fund via MOT. PSC fund uses the interest yields from such amounts as a grant to commuter & local lines' operators.

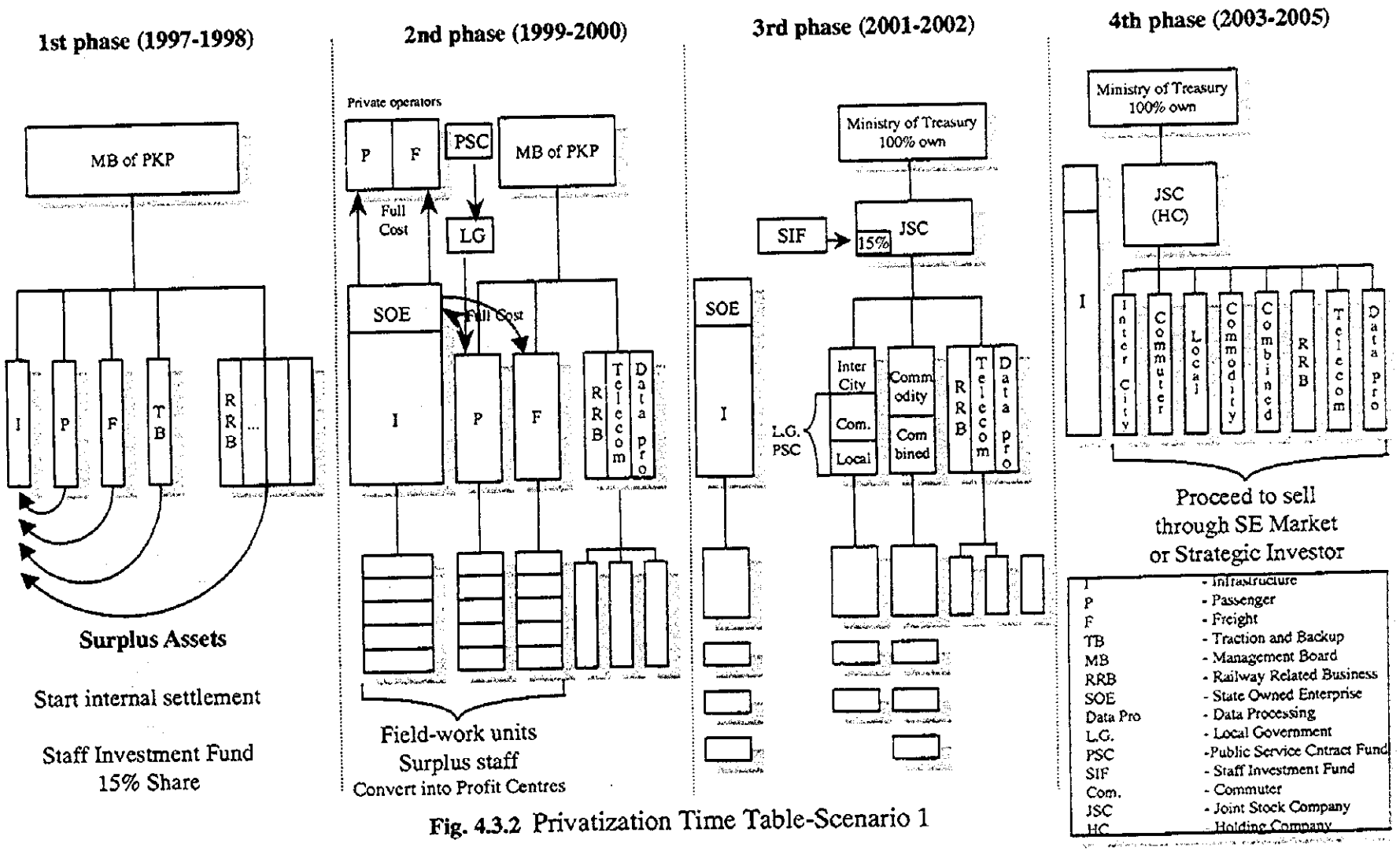


Fig. 4.3.2 Privatization Time Table-Scenario 1

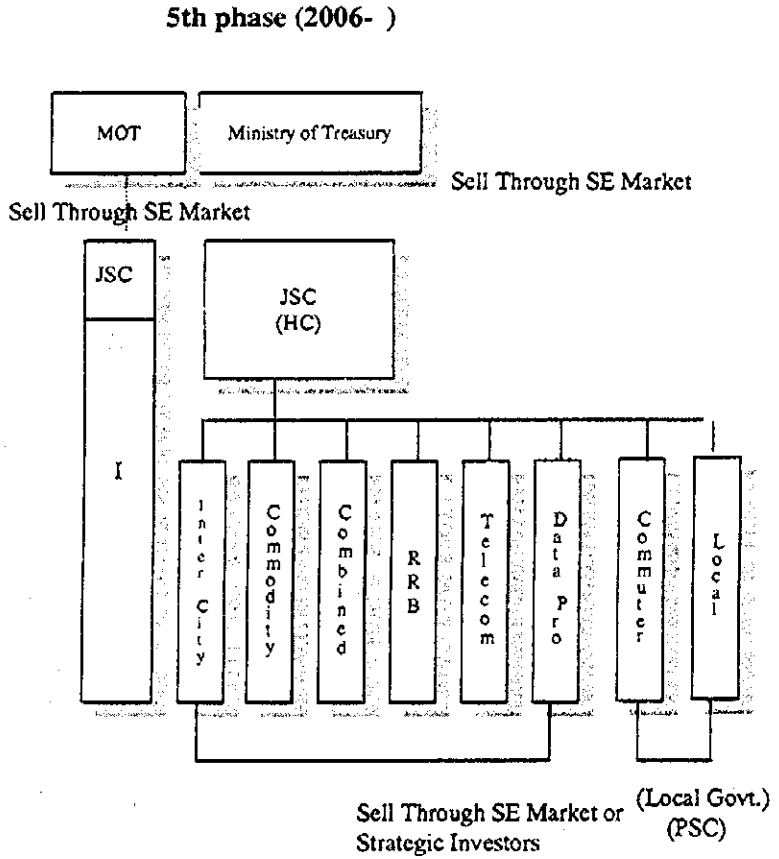


Fig. 4.3.2 Privatization Time Table-Scenario 1

4.4 SCENARIO 2

4.4.1 Executive Policy

Scenario 2 proceeds to privatize PKP by moderate means in order to avoid possible friction and confusion caused by radical means. Surplus assets and staff are transferred from PKP into a newly established settlement agency subsidized by the government. Infrastructure is separated from operations to suit to EU directives, but basically the whole organization is maintained under a HC, and advantages of scale are pursued.

4.4.2 Basic Means

(1) Streamline organization

Same as scenario 1 except the following.
The infrastructure sector remains within PKP in order to keep a close connection with operation sectors. The traction and back-up sector remains as an independent department within PKP by request of the labor union. Operation sectors are divided into only 2 sectors (passenger and freight) to maintain the advantage of business consistency. 12 pillars are not combined.

(2) Set Up Settlement Agency (SA)

Surplus assets such as the 5,000 km lines subject for abolition , narrow-gauge lines, houses for employees etc. cost a great deal to maintain. It is better to transfer such assets and those maintenance staff (15,800) to SA under the jurisdiction of MTME in order to accelerate restructuring. Working expenses for the disposal of assets, employment placement, salary etc. are paid by the government. The life of the SA should be limited to 5 years (from 1998 to 2002), and a government subsidy of 2 billion PLN (400 million assumed for 1 year's expenses * 5) is needed.

(3) Infrastructure Access Charges At Partial Cost

The infrastructure sector charges each operator access charges based only on operating & maintenance costs (partial cost).
Such access charges do not include capital cost , and this lightens the burden on operators and may facilitate the entry of new operators into an open access market. On

the other hand, the infrastructure sector does not collect financing cost, so it cannot raise new investment money by itself, cannot stop being subsidized by the government, and EU criteria regarding the public debt ratio to GDP (under 60%) make it rather difficult to borrow low-interested loan, even with a government guarantee. As a result, infrastructure cannot be sufficiently modernized, and the infrastructure sector cannot be privatized.
Moreover, if the access charges at partial cost are much lower than the access charges of neighboring countries, PKP will end up subsidizing foreign operators.

(4) Services To Be Provided Under Contract With Local Government

Same as scenario 1 except the following.
Access charge includes only operating & maintenance cost (partial cost), so there is no source of funds for a PSC Fund, and it cannot be set up. As a result, service by contract with the local government would not progress practically, and the improvement of PKP's financial position would be delayed.

(5) Streamline field-work units

The 500 field-work units for maintenance scattered all over the country should be put together into about 100. Thus, the organization could be streamlined and maintenance work would be conducted efficiently. Moreover, it would produce surplus real estate and staff, and by making good use of those resources, PKP could develop new business opportunities (RRB).

(6) Railway-related business (RRB)

RRB should be developed at each division's discretion, ensuring that the importance of the RRB is recognized by employees and avoiding the confusion that may be caused by a restrictive strategy and a change of organization.

(7) Investment policy

It is proposed that investment in a variety of facilities of about 28 billion PLN from1997 to 2005 should be implemented. PKP should refrain from additional investment, even for past insufficiencies from 1989 to 1996, in view of current financial difficulties.

(8) Staff's free ticket benefit, and increase in fare and coal tariff.

PKP should not discontinue staff's free ticket benefit, nor increase fares and coal tariffs more than the inflation rate, in view of unions' wishes and the social impact.

(9) Holding company (HC)

Same as scenario 1.

4.4.3 Privatization Phases (see Fig. 4.4.1)

(1) 1st phase (1997~1998)

1) The current organization is reorganized into a simpler and flatter structure consisting of 2 tiers, 4 sectors and 12 pillars by the end of 1998.
2) Sectors and pillars settle internal transactions with each other, and make their financial situation clear.
3) SA is established, and surplus assets and maintenance staff are transferred to SA.

(2) 2nd phase (1999~2002)

1) Sectors and pillars expand their businesses into external transactions, and gradually aim to be self-supporting departments.
2) PKP begins contracted services with the local governments for commuter and local lines.
3) PKP transforms from SOE into JSC 100% owned by the MOT by the end of 2002.
4) SA obtains the expected results and dissolves.

(3) 3rd Phase (2003~2005)

1) 4 sectors (Infrastructure, Passenger, Freight, Traction and Back-up) and 1 pillar (including 12 functions) are transformed into 5 JSC. The 5 JSC are 100% owned by newly established HC.
2) 2) HC leads and unifies every JSC, and endeavors to make them profitable.

(4) 4th phase (2006~)

1) HC implements proper privatization measures for each JSC such as leasing, selling to strategic investors, listing etc. The proceeds of privatization flow into HC, and are appropriated for financial improvement etc.
2) MOT proceeds to list HC on Stock Exchange. Sales of HC's shares flow into MOT.

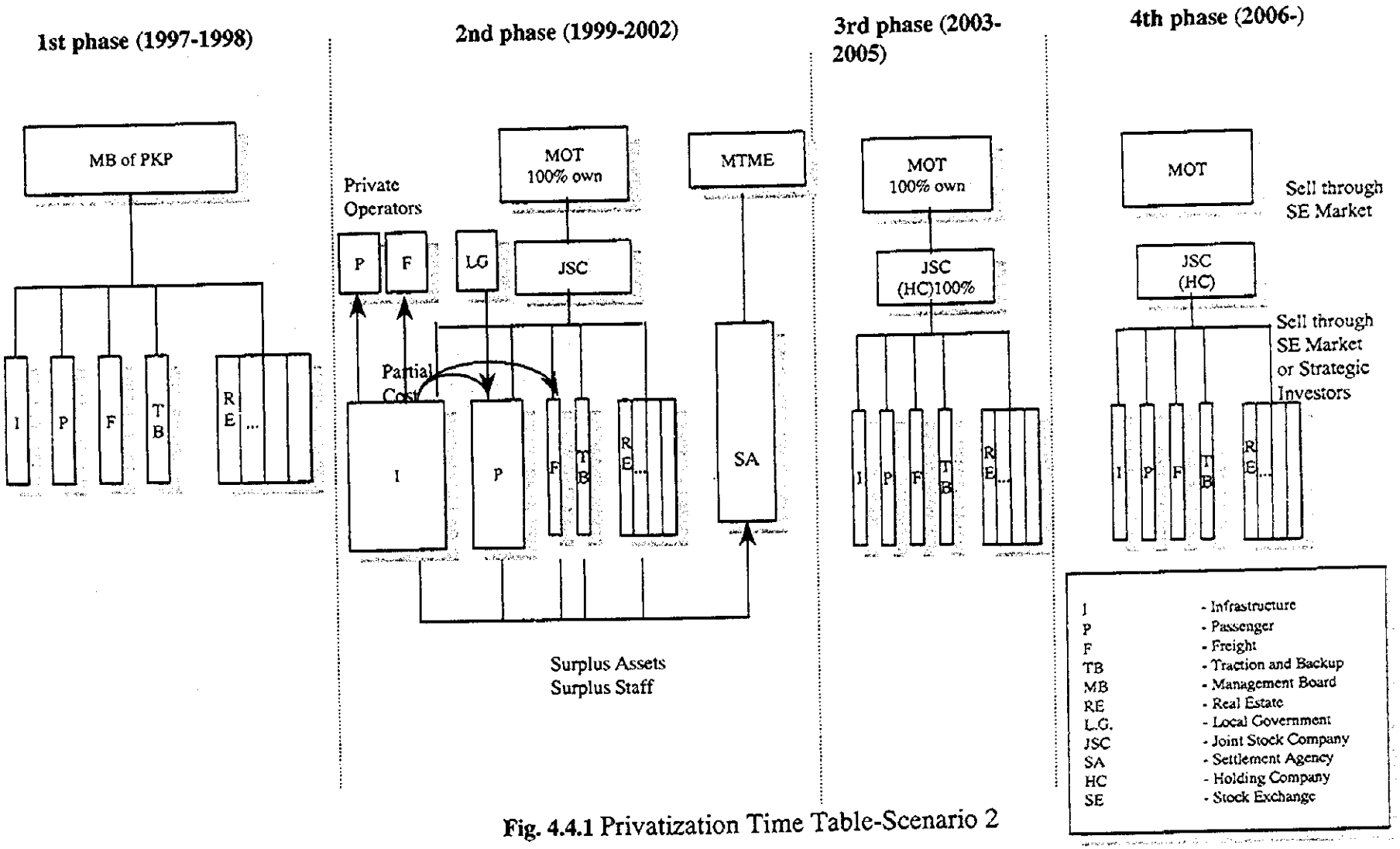


Fig. 4.4.1 Privatization Time Table-Scenario 2

4.5 EVALUATION AND CALCULATION OF SCENARIOS

4.5.1 Qualitative Evaluation

(1) Differences, and qualitative comparison between scenarios

Differences derived from the executive policies for privatization, and a qualitative comparison of the 2 scenarios are summarized in the following tables (Table 4.5.1, Table 4.5.2):

Table 4.5.1 Differences Between Scenarios

	SCENARIO 1	SCENARIO 2
Objective	Realize privatization	Same as scenario 1
Executive policy	Privatize efficiently by every means possible. Reform-oriented but coordinated with labor interests.	Privatize to a minimum. Status quo-oriented. Avoid conflict with labor and operational confusion
Streamline organization	Promote actively.	Promote by mutual consent.
Surplus assets	Infrastructure sector.	Settlement agency.
Surplus staff	Natral attrition, SIF. Separate infrastructure sector, field-work units. Promote direct privt'n. RRB. Placement. Buy-out.	Natral attrition, SA. RRB. Placement. Buy-out.
SIF	Establish.	Maintain the status quo. (I.e. do not establish)
SA	Unnecessary.	Establish under the state budget.
Infrastructure sector	Separate from PKP into new SOE.	JSC under PKP holding company.
Access charge	At full cost (Operating & maintenance cost + Capital Cost)	At partial cost (Operating & maintenance cost only).
Local lines etc.	By contract with local Govt.	Same as scenario 1, but difficult.
PSC fund	Establish.	Impossible.
Privatize infra.	Privatize infrastructure SOE.	Impossible.
Traction & back-p sector	Divide into passenger and freight sectors.	Remain as an independent department.
Field-work units	Separate from PKP. Privatize.	Amalgamate within PKP.
RRB	Reorganize. Unify strategy.	Leave to each dept.'s discretion.
Pillars	Put together into 3 RRB pillars	Maintain the 12 functional pillars
Investment policy	Additional investment. Reduction in waste.	Invest according to PKP's current plan.
Fare increases etc.	Raise passenger fares and coal tariffs.	Maintain the status quo.
Staff benefit	Curtail. Discontinue	Maintain the status quo.
Divide operating sectors.	3 for passenger, 2 for freight.	1 for passenger, 1 for freight.
HC	Set up after PKP has been streamlined.	Set up as top of large-scale organization
Govt. subsidy	For additional investment.	For SA, and passenger operators.

Table 4.5.2 Qualitative Comparison of Scenarios

	SCENARIO 1		SCENARIO 2	
Subjects	**Means**	**Comments**	**Means**	**Comments**
1. Privatization. Competition	Active privatization and separation of PKP's organization.	• In accordance with national privatization aims • Promoting competition, efficient allocation of resources ,and customer service. • Labor cooperation is indispensable for successful implementation	Privatization promoted by mutual consent and not by direct means. The existing organization of PKP is maintained	• This avoids confusion and it is easy to obtain labor cooperation. • But, it restricts competition. • Large, monopolistic organizations are contrary to the theory of privatization and efficient allocation of resources.
2. Organization 2.1 Infrastructure sector	Separate the infrastructure sector into an independent institution. Privatize	• Complies with EU directive. • Secures neutrality under open-access policy • Separation facilitates staff reduction. • Privatization facilitates voluntary investment by self-financing.	Infrastructure and , operation sectors come under PKP HC.	• Advantage of close on-the-job contact between infrastructure and operation sectors. • Investment depends on government subsidies. • Modernization is delayed.
2.2 Traction & back-up sector	Divide into passenger and freight sectors	• Unification of traction engines & drivers sector with operating sectors increases commercial power to compete.	Remain as a sector	• Complies with unions' demands. • Makes connected jobs inefficient.
2.3 Settlement agency	Do not establish	• Unnecessary. PKP has no debt. • Surplus assets and staff can be settled by other means.	Establish (for 5 year duration)	• Improves PKP's financial position and thus facilitates restructuring. • Burdens the government • Privatization may be delayed by late enactment of a law.
2.4 Split passenger, freight sectors	Split passenger sector into 3 JSCs and freight sector into 2	• Financial position, responsibility, and necessity of public aid for each JSC are made clear. • Promotes competition and privatization	Form 2 JSCs (passenger and freight)	• Keep each task's connection and continuity. • Privatization of passenger JSC is difficult.

2.5 Pillars	Amalgamate into 3 RRB pillar	Select the 3 most promising RRB. Other divisions are abolished or unified into other departments. Streamlined organization increases efficiency and reduces overheads	Retain 12 pillars	Complicated organization can make business inefficient and wasteful
2.6 Field-work units	Separate from PKP. Put field work out to public tender. . Actively privatize units where possible	PKP is streamlined, and turns into a strategy-oriented organization composed of a small number of able staff. Separated units seek outside orders, diversify and become easy to privatize. Reduce staff, overhead, maintenance cost. Earn external money by privatization	Amalgamate within PKP. Don't separate.	Streamline field work units within PKP. Easier to get labor understanding. Promote restructuring gradually. No new money available from privatization..
3. Management 3.1 Surplus assets	Set up an Infrastructure SOE, separate from PKP	Most surplus assets belong to infrastructure sector. Asset administration can be rationalized. No need for new law, and Infrastructure sector can manage flexibly.	Set up a settlement agency	PKP can concentrate on its principal business. SA needs state budget.
3.2 Surplus staff	Reduce PKP staff by natural attrition, SIF, separation of infrastructure sector & field-work units, and privatization of RRBs, and buy-out etc. 160 thousand at the end of 2005.	SIF encourages early retirement. Separate infrastructure sector & field-work units reduces PKP employees. Direct privatization of RRB further lessens PKP's staff burdens	Off-load PKP staff onto the Settlement Agency,. natural attrition, RRB, and buy-out etc. 178 thousand at the end of 2005.	Natural attrition will avoid conflict. Settlement Agency would become responsible for nearly 16,000 PKP staff. RRB would be at each division's discretion.
3.3 Labor morale	Ensure support of the labour force via SIF & active privatization.	SIF provides a direct financial incentive for the labour force, boosts support for early privatization and reduces number of staff by encouraging early retirement. Active privatization stimulates the organization and heightens the morale of able staff.	Privatize gradually. Set up SA.	This may reassure the mediocre staff, but the morale of able staff may suffer. SA may antagonize staff, or wound their pride.

3.4 Commuter and local lines	Local governments contract unprofitable commuter and local line services out to PKP JSCs etc.	Subsidies provided by the PSC fund help local governments to pay PKP JSCs etc. to run these lines. Separation of JSC makes performance clear and facilitates grant from PSC fund. Deficit from such lines can be reduced.	Local government contracts out non-profitable commuter and local line services to PKP passenger JSC etc.	The both line services are operated by one passenger JSC of PKP, and it keeps each job's continuity and avoids confusion. For the local government to contract out these services, a special source of funds may be needed.
3.5 RRB	Unify the strategy on RRBs for PKP as a whole, reorganize, separate and privatize actively.	RRB is promising, and can be expanded by reorganizing and concentrating management resources etc.	Leave RRB strategy to each division's discretion.	The various divisions will each be seeking out their own business opportunities independently. No central organization or unified strategy can lead to inefficiency.
4. Quantitative effect **4.1 Gov. subsidy**	In addition to the current subsidy (for passenger services and investment), an extra investment subsidy of 2 billion PLN (1998~2002) will be necessary	Additional subsidy necessary to recover past under-investment and to modernize the infrastructure. This is more constructive and significant aid.	In addition to the current subsidy (for passenger services and investment), Government funding of 2 billion PLN (1998~2002) necessary for running of SA.	The funding will be used for SA's operational expenses and ultimately there will be nothing concrete to show for this government spending.
4.2 Access charge	Full cost (Operating & maintenance cost + Capital cost)	Capital cost component is channeled through the PSC Fund to subsidize passenger (commuter & local lines) operators. Thus, all railway sectors' accounts balance without additional government subsidy. Also infra-structure sector can privatize by charging full cost on operators.	Partial cost (Operating & maintenance cost only)	Additional Govt.'s subsidy is required for passenger sector. Passenger and infrastructure sectors cannot privatize.

(2) Evaluation and conclusion

Scenario 1 aims to privatize PKP by reforming the current situation, and promotes business efficiency and urgent partial, direct privatization as the first step to full privatization. Scenario 2 aims to privatize PKP as a whole by more gradual means, taking into consideration the opinion of the labor force. Both scenarios have advantages and disadvantages. But considering PKP's current difficulties , priority should be given to improving business efficiency and promoting privatization. So, Scenario 1 is selected.

The executive policy of Scenario 1 is more in harmony with EU directives and the national target of promoting privatization. Scenario 1 improves PKP's financial position more rapidly than Scenario 2, by earning external money from direct privatization, and by reducing costs from the separation of organizational units and contracted services with local governments. As a result, power to compete against neighboring countries and other transport modes will be strengthened, and service for users should be improved. Regarding labor problems, SIF of Scenario 1 provides staff with a financial interest, while SA of Scenario 2 may cause the staff morale to decline.

4.5.2 Calculation Examples

(1) Conditions of calculation

Qualitative differences between scenarios inevitably lead to quantitative differences . It is difficult to measure the differences numerically, but conditions for calculation are set as an example.

Table 4.5.3 Conditions of calculation

	SCENARIO 1	SCENARIO 2
PKP income from railway services	Indexed to JICA's demand forecast. Increase 18% for passenger sales[1] & 5% for freight sales[2] from 1998.	Indexed to JICA's demand forecast.
Other PKP income	Increase[3] gradually to 10% of railway sales by 2005	N/A
Infrastructure cost allocation	Passenger services 45% : freight services 55% (according to PKP's 1995 data)	Same as scenario 1
Price level	Fixed at 1996 prices	Same as scenario 1
Demand forecast	JICA's forecast (see Appendix)	Same as scenario 1
Abolition of lines	5,000 km	Same as scenario 1
Settlement Agency (SA)	N/A	Establish SA at operating cost of 400 million PLN p.a. * 5 years (1998~2002) = Total cost of 2 billion PLN
Infrastructure Access charge	Full cost = operating & maintenance cost + capital cost (assets * e.g. 10%)	Partial cost = operating & maintenance cost
Investment **Additional investment**	Same as PKP plan 400 million PLN * 5 years (1998~ 2002) = 2 billion PLN	Same as PKP plan N/A
Changes to investment	Cut 10% of total investment annually	N/A
Interest rate of loan	6% (assumed)	Same as scenario 1
Government funding **Additional government subsidy**	Same as 1996 (400million for investment + 571million for passenger service = total subsidies of 971 million PLN) 2 billion PLN for additional investment	Same as scenario 1 2 billion PLN for SA
Number of staff at the end of 2005	160 thousand[4]	178 thousand

(Notes for scenario 1):

[1]Increase 18% for passenger sales = 10% from cuts to staff benefits + 8% from fare increases of 16%.

[2]Increase 5% for freight sales = 5% from increasing coal tariff rate of 10%.

[3]Other income = Income from RRB +direct privatization sales + reduction in PKP's current losses for non-profitable commuter/local lines thanks to contracting out via local government + reduction in maintenance costs by separation of field-work units + reduction in overhead costs by staff reduction[4] and streamlining the organization.

[4]Staff reduction: To be achieved by Natural attrition, and early retirement thanks to SIF, separation of infrastructure & field-work units, direct privatization and RRBs.

(2) Calculation result (ref. Table 4.5.3, Fig. 4.5.1)

Table 4.5.4 Calculation result (in million PLN)

	SCENARIO 1				SCENARIO 2			
	Year	Amount	Year	Amount	Year	Amount	Year	Amount
Total sales	1996	7,422	2005	8,597	1996	7,422	2005	7,611
Total profit	1996	-256	2005	1,125	1996	-256	2005	-876
Passenger & freight sales			1997~2005	60,818			1997~2005	56,955
Freight sales	1999	5,298	2005	5,340	1999	5,045	2005	5,085
Freight costs	1999	5,162	2005	5,125	1999	3,337	2005	3,843
Freight profit	1999	136	2005	214	1999	1,708	2005	1,242
Passenger sales	1999	1,476	2005	1,544	1999	1,250	2005	1,308
Revenue from PSC fund	1999	3,173	2005	3,148				
			1999~2005	22,078				
Govt. passenger subsidy	1999	572	2005	572	1999	572	2005	572
Passenger costs	1999	4,958	2005	5,002	1999	3,411	2005	3,998
Passenger profit	1999	263	2005	261	1999	-1,589	2005	-2,118
			1999~2005	1,851			1999~2005	-12,649
Other income			1998~2005	2,243				
Payroll costs			1997~2005	25,816			1997~2005	26,848
Access charge for passenger			2005	2,314			2005	750
Access charge for freight			2005	2,747			2005	932
Accumulated investment			1997~2005	27,072			1997~2005	27,945
Govt. investment subsidy			annually	400			annually	400
Balance of loan			2005	2,586			2005	12,555
Additional Govt. subsidy	1998~2002 (for inv.)			2,000	1998~2002 (for SA)			2,000
					1999~2005 (for passenger sector)			**12,649**

(3) Financial analysis of Table 4.5.4 (all figures in million PLN)

The above figures show that the active measures proposed under Scenario 1 are essential to avoid the decline in total profit (to -876 by 2005) that is envisaged under Scenario 2.

1) **Scenario 1:** Both passenger & freight operators pay "full cost" as access charges of 5,061 *(2,314 + 2,747)* in 2005 to infrastructure SOE. This is composed of operating/ maintenance costs *(1,913)* and capital cost *(3,148)*. The capital cost is passed on to passenger (commuter & local lines) operators in the form of grants, as necessary, via the PSC fund & local governments. As a result, both passenger and freight services are able to show a moderate profit until 2005 *(261 for passenger and 214 for freight in 2005)*. It suggests that both sectors can privatize.

2) **Scenario 2:** Access charges are made on an 'at partial cost' basis only standing at 1,682 *(750 + 932)* in 2005. Under this scenario, the freight sector makes a large profit of 1,242, but the passenger sector shows a huge loss of 2,118. Thus, under Scenario 2, privatization of the passenger sector would be rather difficult.

3) **Scenario 1 vs. Scenario 2:** Under Scenario 1, the passenger sector makes a total profit of 1,851 over the seven year period from the commencement of the PSC fund in 1999. Over the same period, the sector makes a loss of 12,649 under Scenario 2; this amount would have to be met by government subsidy.

Borrowings of Scenario 2 amount to 12,555 which greatly exceeds total sales of 7,611, i.e. a highly unusual financial situation.

Incidentally, other income (RRB sales etc.), under Scenario 1 is approximately the same as government subsidy for SA, under Scenario 2 - 2,243 & 2,000 respectively. It shows that there is a possibility of earning same amount of income as subsidy for SA by aggressive means under Scenario 1.

(4) Fund circulation scheme (see 4.3.2 (4)~(8), Fig. 4.5.1)

Scenario 1 shows that funds circulate through the railway industry autonomously without an additional government. subsidy except 2,000 PLN for investment. As a result, not only the passenger and freight sectors but also the infrastructure sector can be privatized. Namely, the government. should make a new law which prescribes the infrastructure enterprise a pricing method as follows:

Access charge revenues = Full costs

The full costs include capital cost, i.e. a fixed fair return on assets which is paid to lenders and/or investors. The reasons why this pricing method is adopted are that,

(a) The railway infrastructure enterprise is a public and monopolistic utility,

(b) The access charges should not bring the enterprise arbitrary profit, while

(c) The revenues should make the enterprise run soundly with necessary investment, and

(d) The pricing method should be clear based on objective figure('costs'), and transparent and impartial among every operator.

Namely, this pricing method aims at harmonization between 'sound improvement of railway infrastructure' and 'protection of users' interests'.(cf. 4.3.2 (5))

A fixed return on assets for infrastructure enterprise is equal to a fixed return on investment for lenders/investors. So, the stock of the infrastructure enterprise will thus become blue chip, like a fixed interest bearing bond which is guaranteed by the government. When the infrastructure enterprise is privatized, the government will be able to sell or list the shares of the infrastructure JSC to the investors by capitalized

value (31 bn PLN = 3.1 bn PLN / 10%).

The government contributes the sales amount to the PSC fund, and afterward, the PSC fund can use the interest yield on the contribution as a grant to local governments. (cf. 4.3.2(8))

This scheme is in conformity with the idea of a public service contract proposed by the EU's white paper, and the idea of full cost pricing is adopted by Japanese utility companies (electric power, gas). For example, Japanese electric power companies are sanctioned by the government to base prices on cost plus a fair return on assets (financing costs) which is appropriated for interest on borrowings and dividend on capital. These companies also hold a local monopoly, and are listed on the Stock Exchange. They are obliged to provide a stable public supply of the utility in question.

The fund circulation scheme of the 2 scenarios are compared as follows:

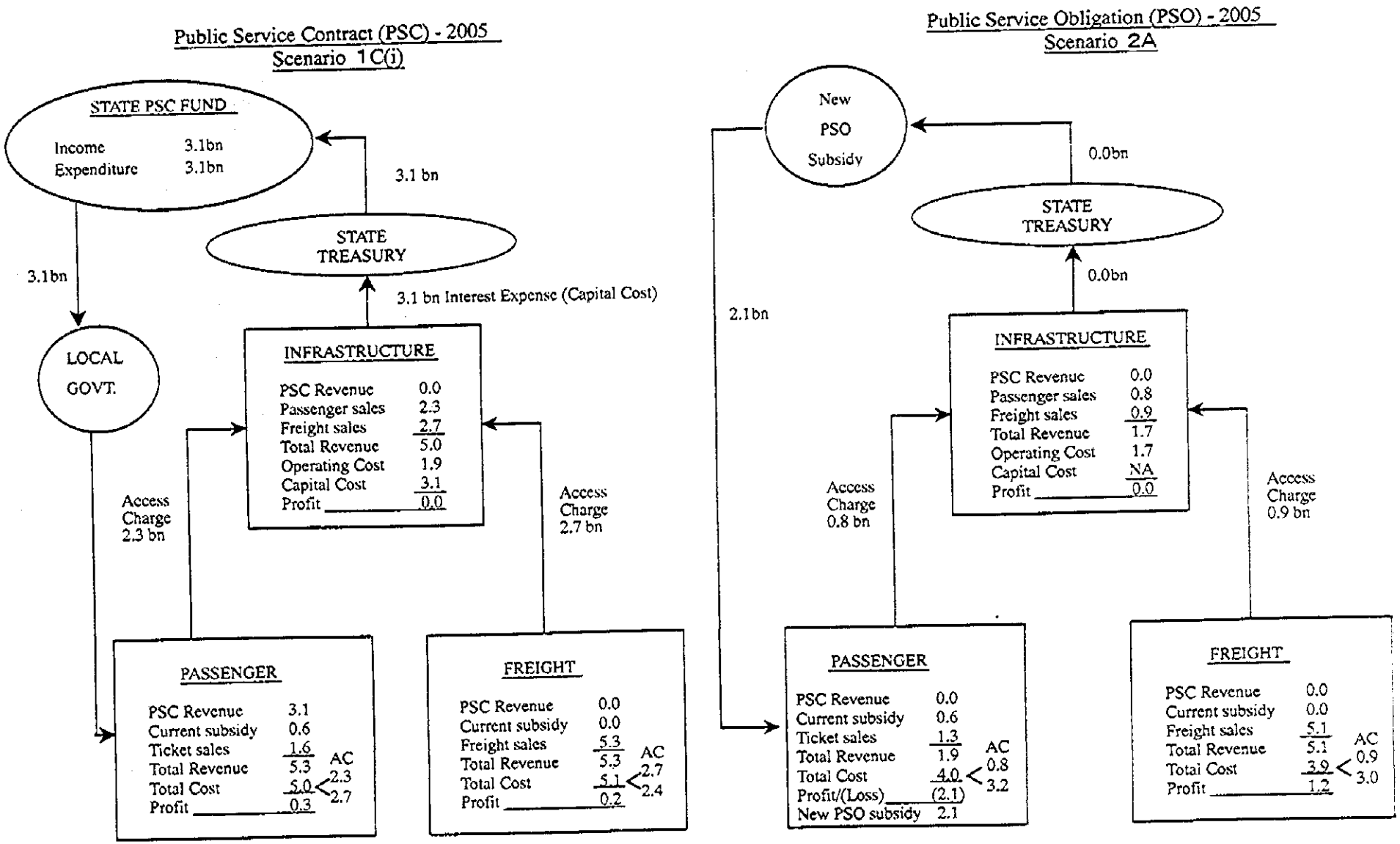


Fig. 4.5.1 Fund circulation scheme

Explanation of Figure 4.5.1 (i.e. differences between Scenario 1C(i) and Scenario 2A Fund Circulation Schemes)

1. Passenger

a. Ticket sales

This is 1.3 bn in Scenario 2A but 1.6bn in Scenario 1C(i). This is because Scenario 2A assumes fares at current levels but a 18% increase is assumed in Scenario 1C(i).

b. Passenger Access charge

This is 0.8 bn in Scenario 2A but 2.3bn in Scenario 1C(i). This is because Scenario 2A assumes payment of only operating costs to Infrastructure. In Scenario 1C(i), capital costs of Infrastructure are also charged to Passenger.

c. Passenger operating costs

This is 3.2 bn in Scenario 2A but 2.7bn in Scenario 1C(i). A number of factors contribute to this difference including

- staff numbers are lower in Scenario 1C(i) than in Scenario 2A
- lower housing costs in Scenario 1C(i)
- lower depreciation costs in Scenario 1C(i)
- electro-energetic costs are included in passenger operating costs in Scenario 2A but are included in Infrastructure's operating costs in Scenario 1C(i).

2. Freight

The reasons for the differences in Freight Sales (tariffs increased by 5%), Freight access charge and freight operating costs are similar to that for passenger (see above).

3. Infrastructure

a. Passenger and Freight sales

This is because Scenario 2A assumes charging of only operating costs to Passenger and Freight. In Scenario 1C(i), capital costs of Infrastructure are also charged to Passenger and Freight.

b. Infrastructure operating costs

This is 1.7 bn in Scenario 2A but 1.9bn in Scenario 1C(i). This is because Scenario 2A assumes Electro-Energetic is in a separate Power Vertical. In Scenario 1C(i) the Power

Vertical is included in the Infrastructure company.

4. Payment to State Treasury

In Scenario 1C(i), the Infrastructure company was created with Infrastructure assets valued at 32bn (Gross) with balancing debt (mainly to the government). Thus Infrastructure company has to pay interest costs (capital costs) of 3.1bn to the State Treasury (excludeing a small amount of interest payable to banks).

In Scenario 2A, since the Passenger and Freight are not charged "capital costs" by Infrastructure, there is no possibility for the Infrastructure to make any payment to the State Treasury.

5. New Public Service Obligation (PSO) Subsidy

In Scenario 2A, passenger makes a loss of 2.1bn which the State is obliged to fund by a "New PSO Subsidy" of 2.1bn. In Scenario 1C(i), the State PSC Fund can receive 3.1bn of new money collected by the State Treasury. This is paid to Passenger (via local authorities etc.). As Passenger makes a profit, no "New PSO Subsidy" is required.

Table 4.5.5 Fund circulation scheme (in million PLN)

SCENARIO 1	SCENARIO 2
Additional Govt. subsidy for commuter & local lines services is not needed	Additional Govt. subsidy is needed (2,118 for 2005, 12,649 for 1999~2005).
Aid for loss-making lines (commuter and local lines) is provided by contract with the Govt.'s Public Service Contract (PSC)	Govt. is under obligation to aid loss-making lines. Public Service Obligation (PSO)
Suits EU directive (access charge = operating & maintenance cost + capital cost). Market economy-oriented	Access charge = operating & maintenance cost. Controlled economy-oriented
Infrastructure sector can be self-financing, and can be privatized. Investment can be financed by private money.	Infrastructure sector cannot be self-financing for investment, and cannot be privatized. Investment needs Govt. subsidy (increase Govt. burden).
Passenger sector makes profit, and can be privatized.	Passenger sector makes loss, and cannot be privatized.
Earn more from foreign operators (assumed 10% of access charge of 2005, 5,061 * 10% = 506)	Earn less from foreign operators (1,682 * 10% = 168)
Full cost is charged, and real cost will be transparent.	Only partial cost is charged , and real cost will be opaque.
Real cost is transparent, and easy to adopt cost reducing measures (e.g. price-cap).	Real cost is opaque, and difficult to reduce cost.
Grant from PSC Fund (3,148 for 2005, 22,078 for 1999~2005) is not Govt. subsidy, but public disclosure will advance abolition of loss-making lines and force savings in the grant.	Grant (2,118 for 2005, 12,649 for 1999~2005) is Govt. subsidy, and it should be disclosed publicly to advance abolition of loss-making lines and save the grant. The necessity of such lines should be judged by the public (taxpayers) ultimately.

Notes on EU's recommendations:

1) Concerning aid for loss-making lines, EU recommendations have shifted from PSO (Public Service Obligation), whereby subsidies are repeatedly granted on a periodic basic (usually annually), to a PSC (Public Service Contract) basis, whereby each separate contract between train operators and the government is individually assessed, with grants made on a case-by-case basis, with consideration for the social necessity of non-profitable lines. PSC aims to reduce the fiscal burden on tax payers and eliminate government waste.
2) EU recommends that the full cost of all transport infrastructure in EU countries should be transparent and charged to users, so that access charges in member states are priced according to the same conditions, and international open access can be accelerated.
   Another objective of charging full cost is to make the infrastructure sector self financing, facilitate its privatization, and lighten each member nation's fiscal burden.

(5) Consideration

Remarkable differences between the 2 scenarios lie in the demand for additional subsidy and the possibility of privatization. Namely, scenario 1 indicates that the whole railway industry can be self-financed without additional fiscal burden, and as a result, every sector can be privatized. On the other hand, scenario 2 indicates that a large additional government subsidy is required every year to cover the passenger sector's deficit (2,118 million PLN for 2005).

5. PROPOSALS FOR EXECUTING THE SELECTED SCENANIO

In this chapter, concrete recommendations to materialize the selected scenario in chap. 4 (Scenario 1) are proposed.

5.1 MANAGEMENT FORM

5.1.1 Infrastructure Sector

The infrastructure sector is separated from PKP and transformed into an independent SOE, and subsequently to a JSC and finally a listed company. The income derived from the ultimate sale of the SOE is contributed to the PSC fund through the MOT. The degree of privatization can differ depending on the government's policy toward public infrastructure. For example, 51% of the shares may be retained by the MOT.

Main effects of Scenario 1 on the infrastructure sector are as follows:

1) Separate SOI is responsible for research and development, construction and maintenance of railway infrastructure, and has the option to leave as it is, maintain, lease, sell or dispose of surplus assets such as closed lines.
2) The SOI announces its capacity, and serves its facilities to the selected operators.
3) The SOI charges full cost for access charge to operators.
4) Before privatization, capital cost portion of access charge collected is contributed to government (the PSC Fund) as an interest expense for the long-term government debt. After privatization, capital cost (fair return) is paid to private lenders/investors in the form of interest expense/dividends
5) The privatized infrastructure JSC can raise private money for infrastructure investment easily, on the condition that a fixed return on loan / investment is guaranteed by law.

5.1.2 Holding Company (HC)

The organization of PKP is streamlined by separation, integration, closure and sale (direct privatization) etc. of field-work units for maintenance, pillars (see 5.2.1) and medium and small-sized railway-related businesses etc. Afterward, these streamlined 8 JSC of Inter-city passenger company etc (see 4.3.3 (4)) are 100% owned by a holding company (HC). Both commuter and local line companies will serve under contract with local government, so accounting responsibility of both companies will be substantially separated from PKP. HC sells and/or lists 8 subsidiaries, but preserves its supremacy. HC itself lists and 85% of the income from its sale are paid to the National Treasury. The function of HC will change,

as the subsidiaries grow or the economic situation changes. The main functions of HC are as follows:

1) Objective of HC is to make the whole group's business efficient, not to control the market.
2) In principle, the authority to execute individual business is delegated to each subsidiary. HC plans a united strategy for the whole group and coordinates the subsidiaries, responding swiftly to economic trends.
3) HC receives periodic business information from subsidiaries, to help it in its advisory and coordinating roles.
4) HC develops new businesses by establishing, merging and purchasing other companies, or by selling and closing businesses at opportune times.
5) HC raises money on advantageous terms. It provides effective investment in and loans to subsidiaries by intensive management of the whole group's financial affairs.
6) HC manages the group's common administrative tasks such as legal matters, accounting, data processing, research & development, human resource development etc. collectively in order to streamline organization, make those tasks efficient and reduce overhead costs.
7) HC holds personnel records and reshuffles staff among the subsidiaries. It contributes to employment stabilization of whole group, and staff are given the opportunity to realize their full potential, thus raising morale.

5.2 PRIVATIZATION PHASES AND EFFECT OF PRIVATIZATION

5.2.1 Privatization Phases (see 4.3.3, Fig. 4.3.2)

Privatization phases are shown in 4.3.3 and Fig. 4.3.2, and some additional explanation on 2 items of 2nd phase (1999~2000) is given here.

(1) Extend and privatize the railway-related business (RRB) pillar

1) RRB pillar (formerly the real estate pillar) is merged with 3 other divisions (welfare, railway security service, structural units), and actively extends businesses.
2) Welfare pillar has some sanatoriums, and these can be upgraded or rebuilt as resort hotels for external customers.
3) Railway security services can be contracted out to private security companies, and dissolved. Alternatively, the pillar could turn itself into a consultancy business, retrain its staff and seek external orders.
4) Structural units pillar has the train tickets reservation unit (POLRES), cable-cars unit,

printing unit etc. These businesses can form the mainstays of the future RRB.

Preparing a business plan is indispensable to start the new RRB. It is recommended that, after disposing of any of the current undesirable businesses, the newly formed RRB division is separated into individual companies, the appropriate staff are transferred and given authority to manage the firm, together with responsibility for the results. When self-sufficiency of some businesses is in sight, such businesses should be actively privatized.

(2) Reorganize other pillars (housing, pension, health-care service, training, procurement)

1) 170 thousand houses for employees cause a deficit of about 122 million PLN annually. 90% of the houses are not yet registered with local government offices, and these cannot be sold. Even if they are sold, the proceeds are contributed to the Social Fund, and are not received by PKP. It is proposed that management of such houses should be transferred to self-governing resident associations, with caretaking/maintenance obligations being charged to each association. The authority to dispose of houses would also be given to the associations. Each association would be responsible for financing itself. As a result, management expenses would be forced to be economized, and, the housing pillar would be excluded from PKP's account.
2) The mass of clerical work regarding retirement pensions should be computerized, or consigned to outside companies and the pension pillar should be dissolved.
3) The health-care service pillar consists of 84 hospitals and clinics. Such a public service is not suitable for a PKP that wants to privatize. So, these should be amalgamated, sold, donated to the local government or closed except for small clinics annexed to workplaces.
4) Training and procurement pillars should be divided and merged into other appropriate sectors, or transferred to the future holding company as common services for the whole group in order to intensify and make the function efficient.
5) As a result, the current pillar organization of PKP would be reduced to 3 pillars; namely, RRB, computerized data processing and telecommunications. All pillars will be specialized in promising businesses related to PKP's railway business. Each pillar would separate its component businesses and encourage privatization of individual firms.

5.2.2 Effects of Privatization

(1) Qualitative effects

1) Conditions for fair competition will be arranged in the railway industry by the institutional separation of infrastructure from PKP. This is the most advanced model of EU directives, and it will assist Poland in joining the EU early.
2) The infrastructure sector can be privatized by charging full costs for access to operators. It can be modernized and soon catch up to other EU countries' technical level.
3) Privatization of PKP will improve the standard of railway service, mobilise human resources and materials, and make the Polish economy more efficient. It will also contribute to controlling pollution.
4) SIF will secure the financial interests of staff, and heighten morale for early privatization and cooperation with management.
5) The PSC fund will advance services contracted with the local governments by giving grants for loss-making commuter & local lines to the local governments, and will accelerate the abolition of lines of less social importance by strict assessment and disclosure of its process to the public.
6) Active privatization and extension of RRB will develop staff capacity, increase employment opportunities, and promote the market economy.

(2) Quantitative effects

The infrastructure sector can be self-financing and privatized by charging for access at full costs (5,061 million PLN for 2005). The passenger sector, as well as the freight sector, will become a profitable entity by being granted the capital cost (3,148out of 5,061 million PLN for 2005) via the PSC fund. As a result, all railway sectors can be independent profitable industries, and moreover, it is important to note that this balance can be achieved without additional government subsidy except 2 billion PLN for investment.

Access charges envisaged under Scenario 1 are considerably lower than that of the UK's railways as indicated in Table 5.2.1, and PKP will be able to compete on the EU open access market. Rather, access charges should be raised in line with the EU's standard charges in order to allow for infrastructure modernization as soon as possible.

Regarding Access Charge/Sales in Table 5.2.1, the fares of PKP are about at only 20% and 30% of UK and German railways respectively, so the ratio (AC/Sales) of PKP should be substantially lower than that of those countries (ref. 3.3.2, Table 3.3.3, the

fare is one per passenger-km adjusted by purchasing power parities). The access charge of German railways is not made public, and the figure is only estimated.

Table 5.2.1 Comparison of Access Charge (AC)

	PKP (2005)	UK railway (95/96)	German railway (1994)
1. AC (Passenger)	2,314mPLN	£2,003m	NA
2. AC (Freight)	2,747mPLN	£158m	NA
3. Total AC Income	5,061mPLN	£2,161m	DM8,000m
4. Railway Sales	8,597mPLN	NA	DM23,753m
5. Railway length (km)	18,000km	16,564km	41,256km
6. Passenger-km	28,442mP-km	28,656mP-km	61,333mP-km
7. Freight ton-km	69,123mT-km	12,992mT-km	70,554mT-km
3/4. AC/Sales (%)	**58.9%**	**76~203%**	**33.7%**
3/5. AC/thou km	**281.17PLN($78.8)**	**£130.46($213.9)**	**DM193.91($106.5)**
1/6. AC(P)/thouP-km	**81.35PLN($22.8)**	**£69.90($114.6)**	**NA**
2/7. AC(F)/thouT-km	**39.74PLN($11.1)**	**£12.16($19.9)**	**NA**

Note; AC of German railway is not made public (estimated), m: million,
1US$ = 3.57PLN = 0.61£ = 1.82 DM (Jan.1988)

(3) Concerning costs of privatization

Many types of costs are needed during privatization process such as below. It is a very important subject but very complicated and changeable. So, further detailed study should be done continuously. Revenues which are earned through privatization usually exceed costs in almost every case. Therefore when the costs amount is estimated, the revenues amount should be estimated at the same time.

1) Responsibility of government
   a. Enactment of PKP reform law and regulation for separation and privatization. (administrative cost)
   b. Determination of assets, liabilities and capital of newly established entities through separation and privatization. (administrative cost)
   c. Selection of promoters and top management of new entities. (administrative cost)
   d. Government subsidy
      1 Subsidy for modernization of railway facilities. (2 billion PLN, see 5.7.3)
      2 Abolition cost of low density lines (90 million PLN, see 5.4.6)
      3 Buy out cost
2) Responsibility of PKP
   a. Determination of assets, and division of assets and staff into new entities. (ordinary operating cost)

b. Arrangement of facilities for new entities. (ordinary operating cost)
c. Staff training and placement activities for privatization.

Some taxes, and registration costs of land and newly established affiliated companies etc. could be reduced or exempted by legislation.

5.3 SEPARATION AND DISPOSAL OF ASSETS

5.3.1 Desirable separations and their methodology

(1) Goals (primary & secondary) for the Separation and Disposal of assets are:

1) To make the PKP smaller so that it is easier to privatize (primary)
2) To lead to improvements in efficiency, effectiveness and profitability (primary)
3) To reduce subsidies (secondary)
4) To make costs more transparent e.g. real costs / losses are clear (secondary)
5) To bring in new investments e.g. non- government financial sources (secondary)
6) To improve the quality of services (secondary)
7) To reduce the influence of the unions (secondary)
8) Increases the options for competition and private sector involvement (primary)

(2) Lessons from the separations and disposals in the PKP from 1991 to 1995

1) These companies had their own separate internal accounting – units to be separated must have their own separate accounting
2) The separated units now compete against each other – e.g. it is better to separate into several track-laying companies rather than just one monopoly company
3) The exact costs for specific services provided by the separated units is known – services for which exact costs are required should be separated
4) The separated companies sold valuable assets – valuable assets should not be given but only leased to separated units
5) The management of the separated companies is the same – new management should be introduced before / at the time of separation
6) The separated companies had no idea as to their income before their separation – units to be separated should be converted to profit-centers first
7) 100% separation may not be best for both parties - the PKP should maintain some interest in the units to be separated

(3) The PKP Law (1995) on the separation and disposal of assets

1) Allows :Separation and disposal of assets by the PKP
2) Allows :Separation and disposal of organization units or "organized portion of assets" by the MTME [3]

- It is recommended that all separations of organization units or "organized portion of assets"[4] from the PKP be executed by the MTME (see 5.3.2) as the PKP, naturally, would want to keep all functions in-house. The most important separation required of the MTME is that of infrastructure into a new SOE (whose profits will be used to fund the Passenger PSC Fund) before the 31st December 1998 deadline.
- The PKP should set up one or more units in-house for the separation and disposal of individual classes of assets e.g. sales of surplus tracks and scrapping old rolling stock (see 5.3.3).

5.3.2 Recommendations for organization units and "organized portions of assets" (i.e. to be separated and disposed of by the MTME)

(1) Desirable methods for separation / privatization are

- Direct privatization by leasing to employees
- Direct privatization by *leasing* to a strategic investor

Leasing of assets is recommended for the following reasons :

- Employees do not have enough money to buy expensive assets
- Avoids the problem of asset allocation e.g. who will get a particular desirable assets
- If the new company becomes insolvent / goes bankrupt, the assets will not be lost to the PKP

(2) Recommendations for the separation and disposal of Organization Units and "organized portions of assets"

[3] See articles 2 and 44 of the PKP Law (1995)
[4] As defined by article 2 of the PKP Law (1995)

Organization Unit or "organized portions of assets"	Recommended action
Real Estates Vertical	A new subsidiary with PKP majority shareholding
Welfare (Social units) Vertical	Privatize as commercial hotels / give to the Social Fund
Housing Vertical	Convert to Housing Associations
Pensions Vertical	To Government (already pays all costs)
Railway Health Service Vertical	Becomes part of National Health Service
Computerized Data Processing Vertical	A new subsidiary with PKP majority shareholding
Telecommunication Vertical (see below)	A new subsidiary with PKP majority shareholding
Power Engineering Vertical (see below)	A new subsidiary with PKP majority shareholding
Training Vertical	A new subsidiary with PKP majority shareholding or transferred to new operating / maintenance companies
Procurement Vertical	A new subsidiary with PKP majority shareholding
Railway Security Service Vertical	A new subsidiary with PKP majority shareholding
Structural Units Subordinated to the Management Board of PKP Vertical	New subsidiaries with PKP majority shareholding
Electric Feeding Sections	30 companies by direct privatization / strategic investors
Road Sections	43 companies by direct privatization / strategic investors
Mechanized Road Works	8 companies by direct privatization / strategic investors
Automatic and Telecom Sections	30 companies by direct privatization / strategic investors
Rolling Stock Plant	2 companies by direct privatization / strategic investors
Traction and Workshop Sector	35 companies by direct privatization / strategic investors
Railway Scientific-Technical Center "CNTK"	A new subsidiary with PKP majority shareholding
PKP Foreign Settlement Center "CBRZ"	A new subsidiary with PKP majority shareholding
Sale and Purchases Center "FERPOL"	A new subsidiary with PKP majority shareholding
Travelers' Service Center "POLRES"	A new subsidiary with PKP majority shareholding
Income Controlling Office, Lodz	A new subsidiary with PKP majority shareholding or transferred to freight operators
Income Controlling Office, Krakow	A new subsidiary with PKP majority shareholding or transferred to freight operators
Income Controlling Office, Olsztyn	A new subsidiary with PKP majority shareholding or transferred to freight operators
Free Ticket Office	A new subsidiary with PKP majority shareholding
Permanent Way Diagnosing and Welding Center	A new subsidiary with PKP majority shareholding
State Cable Railways "PKL"	A new subsidiary with PKP majority shareholding
Track Machinery Plant, Gdansk	A new subsidiary with PKP majority shareholding
Track Machinery Plant, Krakow	A new subsidiary with PKP majority shareholding
Track Machinery Plant, Wroclaw	A new subsidiary with PKP majority shareholding
Tie (sleeper) Regeneration Plant	A new subsidiary with PKP majority shareholding
Railway Printing Office, Warsaw	A new subsidiary with PKP majority shareholding
Railway Printing Office, Krakow	A new subsidiary with PKP majority shareholding
Railway Printing Office, Poznan	A new subsidiary with PKP majority shareholding

5.3.3 Recommendation for Individual classes of assets

(i.e. to be separated and disposed of by the PKP)

(1) Surpus Rolling Stock

It is recommended that the rolling stock be cut up and sold for the scrap metal value of about US$100 per ton[5].

(2) Land Buildings

It is recommended that all properties should be given to a new SOE which could rent properties back to various sectors and verticals. This new SOE should be managed by property management & development specialists (chosen by tender) on behalf of the State[6].

(3) Light density lines (see chapter 5.4).

5.3.4 Staff Investment Fund

One of the basic problems is to get the support of the employees in privatization by separating units from the PKP that can be privatized.

It is recommended that the PKP in conjunction with the MTME (and supported by other Ministries as well) should

- Set up a Staff Investment Fund (SIF) possibly in the Social Fund.
- Issue shares (certificates/vouchers) in the SIF to all employees as soon as possible
- As and when any unit or asset is separated or disposed of, transfer 15% of the proceeds to the SIF
- This plan for a SIF should be put to a vote of all PKP staff for approval

It is expected that the result of setting up an SIF will be

- Increased interest of PKP staff in separations / disposals /privatization's
- Demands from staff for separations / disposals /privatisations to be speeded up

[5] Average advertised price for scrap metal

[6] This SOE would treat all properties as investment / development properties i.e. leasing for rental income and developing for capital growth. A "disposals section" on the other hand would only sell the property for a one-time cash inflow.

5.3.5 Separation & disposals by phases

A possible time-table is shown in the following table :

Separation & disposals by phases

Phase	
Phase 1 (1997-1998)	- New SOE's e.g. Infrastructure - Organization units and "organized portions of assets - Rolling stock
Phase 2 (1999-2000)	- Welfare, Housing, Pensions & Railway Health Service Verticals
Phase 3 (2001-2002)	- New subsidiaries with PKP majority shareholding
Phase 4 (2003-2005)	- Companies by direct privatization / strategic investors
Phase 5 (2006 -)	

5.4 MANAGEMENT OF LIGHT DENSITY LINE

5.4.1 Criteria of Line Liquidation

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. Since the travel distance for passenger and the transport distance for freight are not considered in these criteria, the quantitative estimate will be difficult. In place of these criteria, the criteria of line liquidation mentioned below was set up for this study.

(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:

Comparing the operating expenses between PKP and PKS(one of national bus companies), it is easily understood 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). 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.

(3) Other Items to be considered

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

1) The line to be liquidated should not be designated as a line of national importance.
2) The alternative transport system should be provided.
3) 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.
4) The line to be liquidated is not the key link line connecting each trunk line.
5) There should be few days of suspending the road traffic through snowing.
6) The approval for the line liquidation must be obtained from the local government concerned.
7) The line to be liquidated should be unimportant in military terms.

8) 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 total number and length of the lines to be liquidated are 154 lines and 5,047.9 km, respectively. The results are shown in Table 5.4.1.

Table 5.4.1 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 lines identified are shown in Fig. 5.4.1

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.

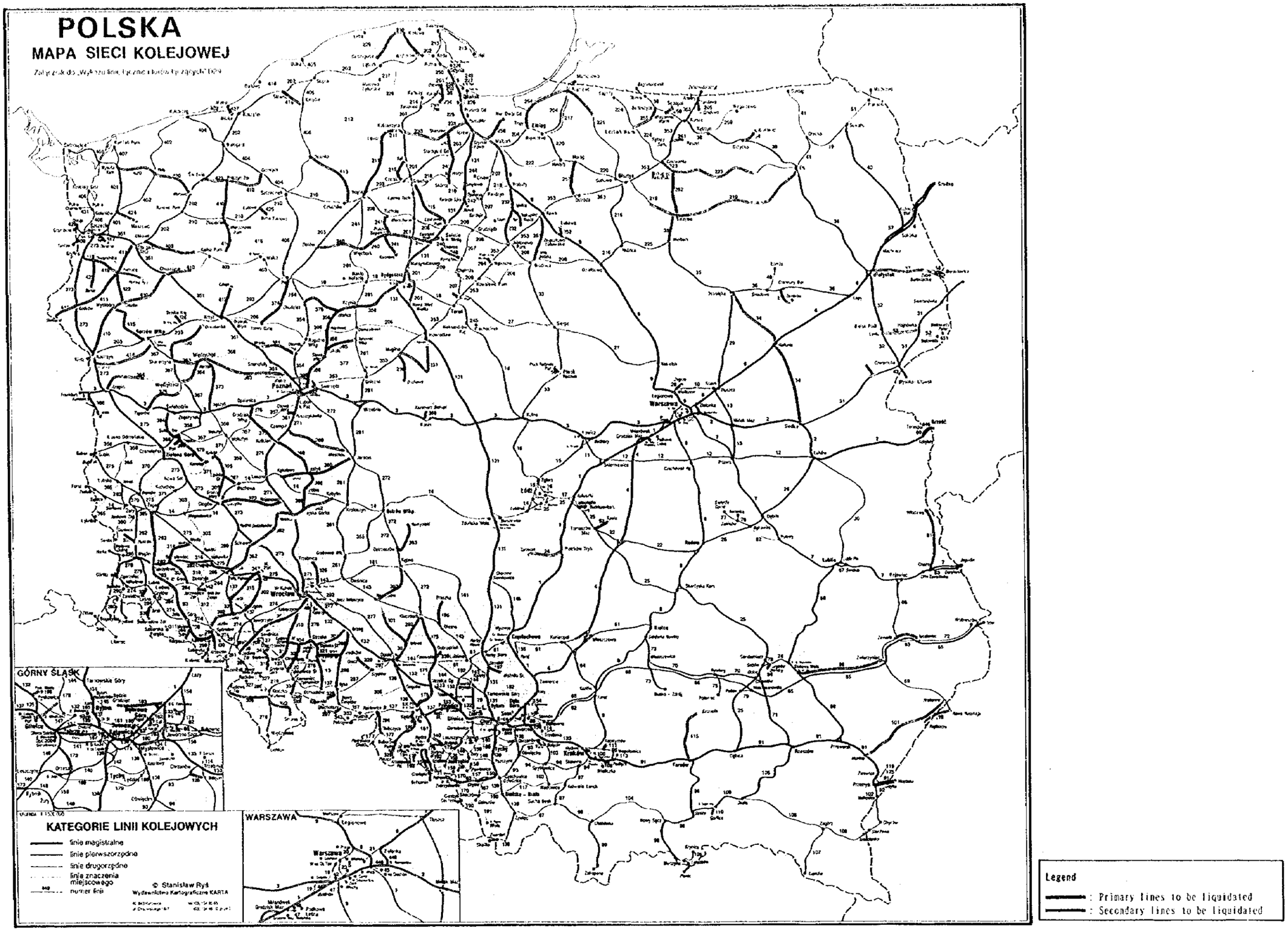


Fig.5.4.1 Lines to be liquidated

Table 5.4.2 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. The liquidation of the light density line is also 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 traffic volume of passenger transport and freight transport on the line, if necessary.

(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.

(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.

(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. 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. These matters are prescribed in Article VI, Chapter I of "Railway Transport Law" in July, 1997.

5.4.4 Alternative Transport System

In this chapter, the alternative transport system in relation with the line liquidation is introduced.

(1) Operating Organization

When the alternative transport is considered from the view point of the management, the operating organization is classified into 1) Localization (Public Service Obligation) and 2) Private Company.

The system of the localization is 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. The local government will be aided some financial support such as government subsidies.

(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)
2) Large Size Bus
3) Tram Car
4) Medium Size Bus
5) Others (Subsidy System for the Taxi Fare)

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.

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. 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.

(3) Alternative Medium for Freight Transport

On the other hand, the alternative proposals for freight transport are 1) Railway Transport by a Private Company and 2) Truck Transport. Different from the case of the passenger transport, it is difficult to operate the railway lines to be liquidated by the local government or the private company.

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 5.4.3 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 5.4.4. Transferees of the right-of-way should bear the expenses of earthwork or re-cultivation for their land use.

Table 5.4.4 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

5.5 TARGET STAFFING LEVELS AT PKP

5.5.1 Factors determining Target Staffing Levels

(1) *Traffic Split.* The ratio of ton-kms versus passenger-kms is approximately 3:1 suggests the relative importance of freight for staff allocation,

(2) *Core Railway Growth Areas.* The greatest potential for railway profits lies the growth of combined transport and unit-train service

(3) *Revenue.* In 1996, approximately 80 percent of PKP income came from freight revenues while the passenger business required substantial subsidy

(4) *Staff Split.* In 1996, passenger sales staff numbered over 18,000 employees while freight sales numbering over 9,000 staff, a 2:1 ratio in favor of passenger.

(5) *Subsidy.* Passenger operations receive heavy (yet declining) subsidy

Given these relationships, core railway staffing levels were calculated for the years to the year 2005.

5.5.2 Key Labor Challenges

(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

(3) Inflexible work rules and practices leading to decreased productivity

(4) No relationship between wages and company profitability

(5) Steadily rising wages (45% costs in 1994 rising to nearly 60% in 1996)

5.5.3 Target Staff numbers

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

The table 5.5.1 shows the target staff levels and reductions for the year 2005 based on traffic employment units (TUE) for major UIC classification of railway sectors. This bench-marking analysis shows the target staff number to be approximately 160,000 employees by 2005 from the 231,361 staff in 1996 (Note : Mercer recommended that staff numbers should be 115,000 in 2005).

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%

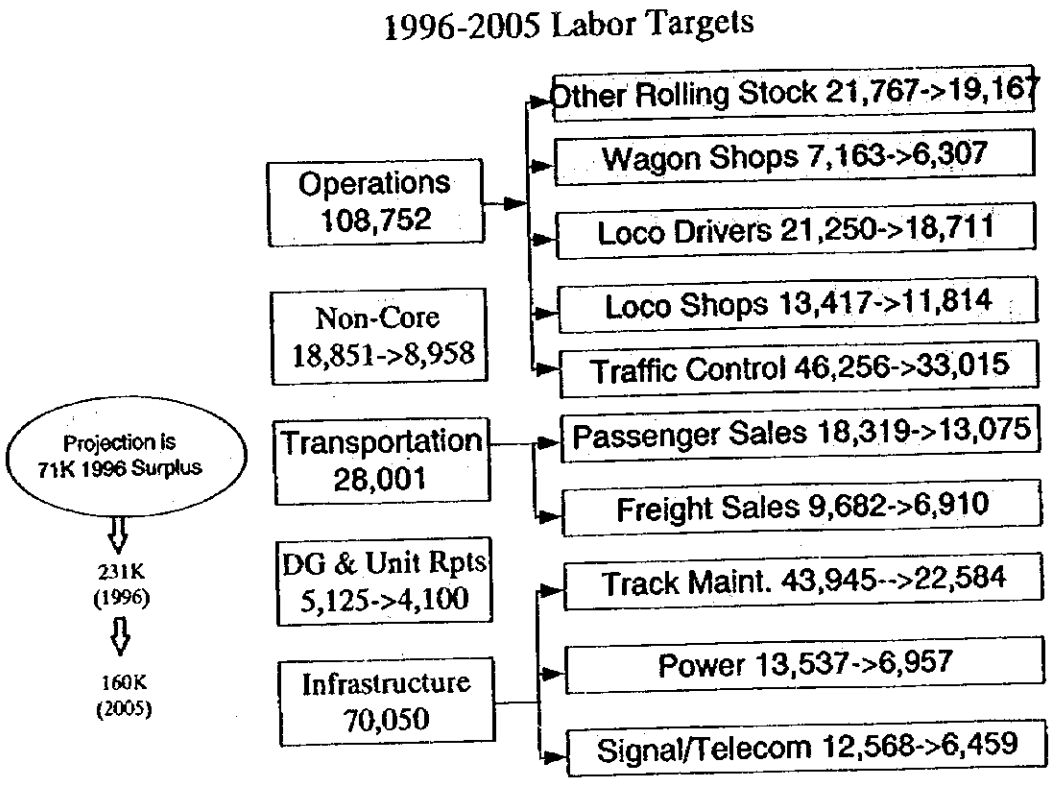
(2) Target staff numbers by PKP classification

Following the bench-marking analysis, these sector level allocations were applied to the PKP classification and 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 :



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

- Hiring Policy is somewhat ambiguous because PKP management state that there is a hiring freeze yet hired more than 4,000 new staff in 1996
- Staff are reluctant to leave their posts in the PKP so net attrition is low.

5.5.4 analysis of Labor Surplus and Shortages by region and function

(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

	∑ TU	*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
Shortag e/Year					574				

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

Target Average TUE (2005): 2.73

(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

	∑TU	*Regional Traffic Units (TU)*							
	26.6	6.77	1.73	2.84	3.07	4.66	2.75	2.40	2.39
Year	*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

(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

	∑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

(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

	∑TU 95.7	Regional Traffic Units (TU)							
		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

(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

	∑TU 95.7	Regional Traffic Units (TU)							
		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	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

5.5.5 Evaluation of Overtime Hours by Function

A combination of labor shortages and work rules contributed to 3,483,636 total hours of overtime as follows :

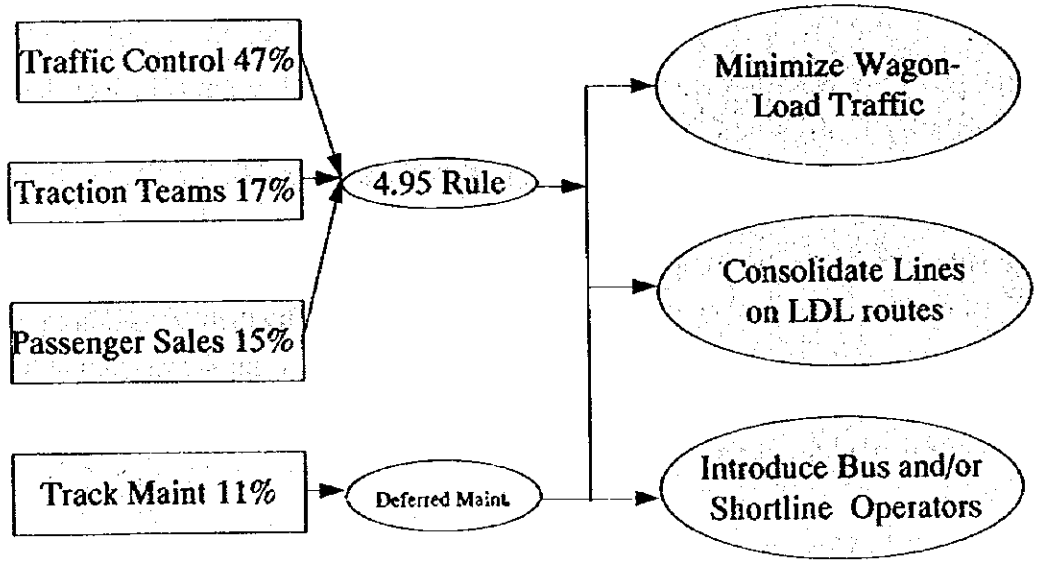
Function	%
Traffic control	47%
Traction teams	17%
Passenger sales	15%
Track maintenance	11%
Others	10%

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



5.5.6 Buy-Out Strategy

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

(2) Amount for Buy-out. Management should set the amount for the buy-out to achieve the largest number who voluntarily accept the plan, We recommend starting out with a modest amount, three months on average as the top payout, and increasing the amount in years two and three.

(3) 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.

(4) Give Surplus Staff as Many Benefits as Possible During the Transition. If PKP offers, for example, two years of additional discounted train travel to its employees who opt for the buyout.

(5) 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.

(6) PKP is Free to Terminate Employees after the Buy-out is Closed. In this case, they will collect state provided unemployment insurance only during their transition to new careers or towards retirement. Without this clause in the buy-out provision, the buy-out will fail because surplus staff will believe that they can stay on at PKP regardless of whether their services are needed.

The following buy-out plan is recommended :

- Start Buyout 1999. The sooner the better
- Buyout Year 1- Start a 12 month buyout program offering three months of wages
- Buyout Year 2 - Double the buy-out amount to six months wages
- 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.

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.

(7) Since the age distribution for PKP employees was not available, we estimated the future net natural attrition based on actual data for the past 2 years as follows :

- there was a net reduction of 8,125 staff in 1995 and 7,609 staff in 1996 (in-spite of the fact that approximately 4,000 people were hired in each of those years)
- the average net reduction for 1995 & 1996 is thus 7,867 staff
- over 9 years (till 2005), the net reduction could be 7,867 x 9 = 70,803 staff
- current staff (1996 – 233,183 staff) minus 70,803 = 162,380
- we estimate that due to a growing Polish economy, additional staff (say 2,380) will leave
- the actual reduction in 1997 (to about 226,000 staff) is similar to our assumption (227,052)

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 -)	