

consolidation period. As there exist a variety of issues to be revised and measures to be introduced as compared with the traditional rules and practices and financial constraints, it is likely that a substantial part of the restructuring process would be extended to the next phase of the consolidation period.

During the consolidation period, a focus needs to be placed on the continued restructuring of the transport framework as well as the improvement/development of transport infrastructure and facilities to be integrated with the EC transport system at the minimum acceptable level. In domestic terms, transport infrastructure development will be required at least to ease traffic bottlenecks which are expected to appear mainly within and in the vicinity of urban agglomerations as well as handling new type of transport demand including containers and ferries of international standards. Modernization of the transport systems and industries needs to be furthered to effectively compete in the international transport market, and the rules that govern the relationship between the state and the public transport need to be clearly established.

After the year 2000, a focus will be placed on further improving the transport infrastructure not only in relation with the EC but also in relation with the republics in the east. A focus will also be placed on developing a higher standard of transport services to comply with the quality demand which derives from diversifying industrial development and improving standards of living. Policy issues will gradually shift to satisfying social needs including mitigation of traffic congestion, environment protection, traffic safety and support for the transport poor from the primary concern on the economic efficiency until 2000.

Under the prevailing uncertainties for the future, however, nothing can be stated definitely for the future, time schedule in particular. Under a general guidance of the long term policy, it will be a practical way to prepare a revolving five year planning system to take account of the changing situation of the country and the surrounding international environment.

3.1.3 Construction of the National Transport Plan

The National Transport Plan is consisted of the five components: (1) Policy Formulation and Institutional Reform; (2) Efficiency in Operation and Management; (3) Development of Transport Infrastructure; (4) International Transport Integration; and (5) Environmental Protection and Traffic Safety.

At the same time, Polish transport system comprises various modes of transport including: (1) Railway Transport; (2) Road Transport; (3) Water Transport; (4) Air Transport; and (5) Pipeline Transport. Each of these transport modes has its own issues to be solved from the view point of the above five components although emphases will be placed differently depending on the transport modes. However, pipeline transport is only briefly touched in the context of the National Transport Plan because it is not under the jurisdiction of the Ministry of Transport and Maritime Economy and full of uncertainty of the energy policy of the country.

The National Transport Plan focuses on the nationwide transport system. Due to the worsening situation of urban transport, however, some discussions on urban transport are included in the Plan to show the general directions for improvement.

The National Transport Plan is to be discussed in the following sequences in this report:

- (1) The National Transport Plan is discussed in the following sections of this chapter;

(2) Transport Plans for Each Mode of Transport are discussed in Chapter 4 to 7.

Chapter 4	Railway Transport Plan
Chapter 5	Roads and Road Transport Plan
Chapter 6	Water Transport Plan
Chapter 7	Air Transport Plan

(3) Plan of Action for the Transport Sector is discussed in Chapter 8.

3.2 Development of Transport System from International Aspect

3.2.1 Compliance with the International Surroundings

Dramatic changes have occurred in the international environment surrounding Poland. Poland, Hungary and Czechoslovakia have been undergoing the economic restructuring from the centrally controlled system to a market based economy. The economies of these countries used to be heavily dependent on the former Soviet Union as a supplier of crude oil and natural gas as well as major market for their products. Successful economic transformation of these countries likely depends on the foreign investments from the western countries and privatization of their state enterprises. It is unlikely that Poland will have strong economic ties with these countries in coming years, but it is likely that after the economic transformation of these countries their connections would be steadily strengthened for the future. Transport connection from Poland to Czechoslovakia and Hungary will become important not only for these countries but also for international north-south transit traffic in the future. At the moment, future directions of Romania, Bulgaria and Yugoslavia are still unclear.

The Baltic countries became independent politically. But, they seem to have difficulties in becoming independent in economic terms. Internationalization would be the inevitable way for these countries, particularly the establishment of close economic ties with the Baltic League members. Poland is neighboring Lithuania and therefrom can reach Latvia and Estonia which has ferry links to Finland. Poland constitutes an important part for these countries in terms of land access to the EC countries. The Baltic League nations have initiated talks on the transport development along the Baltic Sea, Poland being a pivot. Although volume of traffic demand will not be great in the near future, Poland needs to develop a better transport links with these countries through the cooperation with other member countries.

In the east, the former Soviet Union was broken down into republics (CIS). Byelorussia and Ukraine border with Poland. Ukraine is likely an economically prospective republic endowed with agricultural as well as mineral resources and its population of 50 million forms a large domestic market. Currently, it is unpredictable how deep and how long the economic decline will continue in these republics, however, it is likely that economic assistance will be provided by the western countries. International transit transport over Poland will gradually be increased in accordance with the assistance. As with the case of the Baltic countries, Poland needs to improve land access to the republics under the collaboration with the EC countries. Immediate attention needs to be addressed to the improvement of border crossings.

In the west, an integrated large market of the European Community is emerging through the removal of non tariff barriers including such physical barriers as border controls, such technical barriers as product and safety standards, and such financial barriers as difference of value added taxes and indirect taxes from country to country. It is envisaged in the future that the EC will further move ahead to economic and monetary union as well as political unification, although it depends on the national vote

of member countries on the Maastricht Treaty. Poland has expressed firm commitment to be a member of the EC in the future with the current status of an associate member. Every efforts need to be made to make the Polish transport system and industry fully compatible with those of the EC.

Poland, in the midst of the dramatically changing international environment, needs to be ready to cooperate with the EC and other surrounding countries for its future economic growth. A focus should, of course, be centered on the integration with the EC in short and medium term perspective. At the same time, it is also necessary for Poland to be prepared for transport development with the other countries in respective directions in medium and long term perspective with due consideration to the possible increase of international transit transport over Poland.

3.2.2 Transport Policy of the European Community

"European Community Transport Policy in the Approach to 1992" by the European Community stipulates that the heads of State or Government of the Twelve undertook to complete the large market by the end of 1992 with an aim which particularly embraces freedom to provide services in the transport sector. Every qualified transporter from a Community country should therefore be able to offer services in the member country or countries of his choice, without having to establish there.

In railways, the Commission and the European Parliament have come out in favor of developing a European high-speed rail network covering the entire Community and enabling present journey times to be reduced by half. The Commission put forward a global plan to put the railways on a sounder footing and enable them to make use of their advantages in the context of the single market:

- (a) clarification of the division of responsibilities in regard to infrastructure and public-services obligations;
- (b) improvement of the financial situation of railway companies, giving the companies complete responsibility for their own commercial operations;
- (c) development of combined transport and high-speed rail;
- (d) promotion of research in rail-traffic control; and
- (e) a first opening-up of borders by facilitating the activities of railway companies outside their national territory.

In road transport, completion of the large market is to be accompanied by the elimination of a range of competition distortions and barriers to trade. The large market will involve not only their disappearance but also the ending of border controls. The Commission proposed:

- (a) to bring basic tax rates more closely into line with each other;
- (b) to adjust charges for the use of infrastructure in the form of fee in accordance with the categories of vehicle;
- (c) to qualify every operator who meets quality criteria to offer international transport services throughout the Community including cabotage; and
- (d) to make border crossings easier by a single document.

In water transport, the Community's efforts are directed at:

- (a) maintaining the fleet and the jobs to cope with competition from countries with low pay and with increased protectionism;
- (b) improving safety at sea;
- (c) the free movement of services - and hence the abolition of national preferences - in traffic between Community countries and with third countries;
- (d) reduction of the operating costs of European ships and to increase their competitiveness;
- (e) improving the monitoring of welfare and safety standards;
- (f) the establishment of a Community register and flag particularly in the areas of cabotage and transportation of Community food aid; and
- (g) extension of mutual recognition of diplomas and qualifications to the maritime sector.

In inland waterways sector, the Council of Ministers agreed to a proposed regulation on structural rehabilitation including coordination on a European scale of programs to scrap excess craft.

In air transport, the Council of Ministers adopted a set of measures providing for:

- (a) greater flexibility in the sharing of capacity and access to routes;
- (b) relaxation of pricing rules; and
- (c) application to air traffic of the Community's competition rules.

The Commission published a new set of proposals setting out a coherent civil aviation policy, dealing with essential questions such as safety measures, air-traffic congestion, recognition of diplomas and qualifications, etc. The Commission also deems it essential to adopt a common approach in dealings with countries outside the Community.

In transport infrastructure, the Commission drew up a program:

- (a) to integrate the various national network;
- (b) to eliminate a number of bottlenecks;
- (c) to serve peripheral areas;
- (d) to improve links between the main urban centers; and
- (e) to improve conditions for transit through Switzerland, Austria and Yugoslavia.

Later the Commission drew up a list of projects which could benefit from Community financial support.

In environment and social dimension, the Council of Ministers adopted anti-pollution standards:

- (a) to limit exhaust emissions from vehicles;
- (b) to prevent sea pollution; and
- (c) to reduce noise from aircraft.

In the field of labor legislation, the Commission intends to generalize the mutual recognition of diplomas and qualifications as well as to re-examine certain subjects such as the length of driving periods and rest periods for drivers of heavy goods vehicles - an area in which compliance checks must be stepped up.

In transport safety, the Community has taken measures in regard to technical checks on commercial vehicles, minimum depth of tire treads, and technical requirements for new vehicles - such as obligatory reductions in lorry noise levels. The Commission has also tabled proposals for the obligatory wearing of seat belts, maximum blood-alcohol levels for drivers, bringing driving license regulations more closely into line, etc. Measures have been taken to improve safety at sea and in ports. In the field of aviation, it is proposing arrangements to ease air-traffic congestion and to guarantee a high level of in-flight safety.

3.2.3 Conformity with the EC Transport Policy

Poland, as an associated member of the EC at present, is going to be fully integrated with the EC by around 2000. The transport sector need to be prepared for this goal by eliminating physical, technical and financial hurdles to clear. Due to the problem structure of the Polish transport sector as discussed earlier including financial constraints, however, it seems to be a very difficult task to complete every aspect of these requirements by the end of this century. It is necessary to prepare a policy guideline which coordinates all the efforts by the government and the transport industry.

As discussed in the above sub-section, the basic principle to be applied in the transport sector is the liberalization of access to the EC transport market including all branches of railway, road, sea and air transport services under competitive environment. In addition to the removal of tariff barriers, all of the non tariff barriers are to be removed in the second phase of the integration.

As an associate member of the EC, Poland will have closer economic interactions with the EC countries, and the Polish economic system is to be integrated into the EC toward the end of this century. In consequence, the Polish transport sector is required to supply reliable and efficient transport services between Poland and the EC countries. Toward the year 2000, the Polish transport system needs to be compatible with the efficiency as well as the rules and practices adopted in the EC. However, there seems to be a variety of issues in this respect.

In railway transport, it will be practical that streamlining and improvement of the existing railways come first prior to any commitment of capital intensive projects like high speed train operation proposed by the EC policy guidelines. However, other proposals stipulated by the EC policy guidelines should be fully taken into account in restructuring the PKP. Due to the lack of reliable cost accounting system in PKP, it is almost impossible to clearly identify the sources of profit and loss. Establishment of cost accounting system is the most urgent issue as being addressed by PKP.

Prior to the "clarification of the division of responsibilities between the state and PKP", rationalization of the enlarged railway system needs to be pursued to the maximum possible extent and financial consequences should be identified based on the new accounting system. Only clear understanding of the financial position of PKP will provide firm ground on which to discuss the division of the responsibilities between the state and PKP. However, various economic regulations imposed on PKP should be liberalized as soon as possible to make them responsible for their commercial activities.

In road transport, the Polish carriers are required to be rationalized and modernized before joining the EC because borders will be lifted for qualified carriers to work in any part of the market. Immediate modernization seems rather difficult owing to a number of small truckers in the Polish market, particularly to comply with "limitation of exhaust emissions from vehicles". Most of the Polish fleet of vehicles has lower standard of exhaust emissions due to a lower regulation norms as well as aged composition of vehicles. Medium to long term program for emission control will be necessary to clear the EC regulation norms. In road network development, introduction of the Community finance would be worth considering where projects are judged viable.

3.2.4 International Connection with Other Countries

To the Scandinavian countries in the north, ferry services need to be further developed to encourage mutual communications between Poland and these countries as well as between these countries and the inland third countries in the south. Good inland connection is essential to facilitate these transport demand. It is quite uncertain at the moment how and when the economic ties between Poland and the Baltic countries as well as the newly emerging republics in the former Soviet Union will develop. It would be a minimum requirement, however, to improve the existing roads, border crossing in particular, and, to a lesser extent, railways with a view to eliminate traffic bottlenecks hindering smooth communications with these countries. The Polish ports might have an opportunity to become core distribution centers in the Baltic area because of its locational advantage as well as no icing problems. To the Central European and some EC countries in the south, the existing railways and roads should also be improved in the future.

To cope with the expected intensification and diversification of international communications, air transport will play an important role especially for passenger movements. Each region of Poland might have direct interactions with neighboring countries instead of through Warsaw. Regional airports need to be retained for the future to this end although most of them are suffering a great loss of passengers at present. International tourism development should be taken into account to encourage airport utilization.

There are many actions needed to prepare for the internationalization of the Polish transport sector including infrastructure development, efficiency improvement, and adjustment to the international rules and practices. It is very important for the Polish transport sector to develop a well structured program for the integration. Development of international motorways needs a substantial amount of investment. The government needs to encourage private participation, foreign investment in particular, in this type of road development. The Polish aged fleet of vehicles needs to be improved not only in terms of efficiency but also in terms of environmental protection. The government initiative becomes significant in these respects.

3.3 Development of Transport System from Regional Aspect

3.3.1 Implication of Spatial Organization on Traffic Demand

Poland had a population of 38.2 million in 1990 and they were distributed over the land of 312,683 square kilometers with a relatively low population density of 122 persons per square kilometer. Katowice urban agglomeration had the largest population of 2,267 thousand (6.0% of total population), followed by Warsaw of 1,655 thousand (4.3%), Lodz of 852 thousand (2.2%), Krakow of 748 thousand (2.0%), Gdansk agglomeration of 716 thousand (1.9%), Wroclaw of 642 thousand (1.7%) and Poznan of 589 thousand (1.5%) in 1989. These figures show that population was evenly distributed across the country.

The shape of Poland is like a rectangle with an east-west distance of about 600 kilometers and a north-south distance of about 500 kilometers. Distances from Warsaw to the major cities are within 300 kilometers and distances between neighboring cities are in the range of 100 - 200 kilometers.

The demographic and geographic conditions of the country suggest that road transport is most suitable from regional point of view because of the low population density and relative short distance between cities. As the world experiences show, railway has an advantage in carrying large demand between fixed origins and destinations (OD pairs) on a regular basis. In view of this, Warsaw - Katowice would be the most promising OD pair for railway passenger transport in Poland, followed by the routes between Warsaw or Katowice and other major cities. It is unlikely that railways have any advantage in connecting those cities excluding Warsaw and Katowice. Advantage of the Polish railways can be manifested by connecting regional urban centers with the Warsaw - International trunk lines.

This is also true for the air transport services. Air transport services over 300 kilometer distance in Poland will face difficult competition with land transport, passenger car transport in particular, when total travel time and costs are taken into account. Historically, most of the Polish regions has close social as well as economic ties with the foreign regions across the national border. Convenient air access to these foreign regions will greatly contribute the regional development.

For encouraging inter-regional interactions, first priority should be given to improvement and development of highway network because road traffic dominates short/medium distance trips and is most efficient to serve the areas which have relatively small population and low density. City bypass construction is important to facilitate inter-regional interactions by detouring congested city centers in between.

For accommodating intra-regional transport, maintenance and upgrading of secondary and tertiary roads should not be neglected. Due to a lack of funds of local governments, conditions of local roads have rapidly been deteriorating, not to mention the low rate of paved surface. To cope with the growing motorization, pavement rate should steadily be increased, particularly in the regions along the north sea coast and the eastern national border where pavement rates are extremely low.

3.3.2 Public Transport Services in Regions

From the regional point of view, attention should be paid to urban and rural transport services. Problems of urban transport have been aggravated in accordance with the progress of motorization: traffic congestions, disorderly roadside parking, traffic accidents, deterioration of living environment, and degradation of public transport

services. Doubling motorization by 2005 will intensify the existing problems in major cities and increase the number of cities which have urban traffic problems. Policy measures need to be introduced to ease the traffic problem with a focus on giving priority to public transport services, introducing traffic management system, and restricting private car usage in certain urban areas.

The problem of public transport services in rural areas appears in the form of financial difficulties of public transport enterprises. In the centrally controlled system, public transport services were provided by the government's support in almost every part of rural areas irrespective of management efficiency of public transport enterprises. However, introduction of market principle makes it financially impossible to operate loss making services. Although the motorization rate is currently slow in rural areas, needs for private transport means are much higher in rural areas where public transport service network is limited and service frequency is low. The progress of motorization imposes immediate financial impact on public transport services through the reduction of passengers. However, public transport services need to be supplied as long as local people live there. Consequently, public transport services in rural areas should completely be reviewed and revised to minimize the management and operation expenditures on one hand, and the government responsibility for the public services need to be clarified on the other.

3.3.3 Reform of Local Government Administration on the Transport Sector

Local governments which have a large extent of vested autonomy are responsible for maintaining and developing local roads as well as supplying public transport services in their domain. However, their financial base is very weak and their staff are not well educated of the administration of the transport sector especially in a market economy. Due to these factors, deterioration of road infrastructure and public transport services have been furthered in recent years. The existing transport administration of local governments needs to be reformed in conjunction with the ongoing national tax reform, establishment of funds earmarked for roads, and restructuring of the GDDP administration system.

3.4 Transport Infrastructure

3.4.1 Restructuring of the Existing Transport Infrastructure

Restructuring of the existing transport infrastructure is one of the key issues to be addressed especially on:

- (a) streamlining of the enlarged railway network and selective modernization of important main lines;
- (b) quality improvement of road system including improvement of traffic bottlenecks and development of motorways of international standards;
- (c) modernization of port facilities and inland connection with a focus on improving competitiveness with land transport; and
- (d) modernization of airport facilities and air traffic control system.

Total length of the Polish railway network reaches 26,200 kilometers, consisting of main lines of about 12,000 kilometers and local lines of 14,200 kilometers. In accordance with the growing motorization, a large part of demand on local railway lines which have infrequent train operations have been shifting to cars and trucks. From PKP's operational point of view, unprofitable local lines need to be suspended or

closed to shift the resources to potential market segments. It is necessary for PKP to develop the clear criteria for suspension/closure of local lines based on the new cost accounting system and to prepare the implementation program. The MTME should act as an effective coordinator between the PKP and local governments for the purpose of facilitating the implementation. At the same time PKP needs to prepare a rationalization program of the existing station and marshalling yard systems which are no longer competitive in the motorization era.

Second to the rationalization program, PKP needs to prepare a medium term modernization program of the important main lines. A staged modernization program needs to be developed by taking account of the comparative advantage of railway services, possible contribution to the internationalization of the country, and likely financial constraints. It should be reminded, however, that rationalization needs to precede modernization.

Poland has also an extensive road network comprising national, voivod and commune roads. Due to the sharp decline of budget allocation to roads, maintenance of even national roads has inadequately been carried out. Road financing system needs to be developed; at least in the initial stage, to secure proper maintenance of the existing national road network in view of avoiding additional vehicle operating costs and accidents.

Second problem is a capacity shortage of roads in and in the vicinity of urban areas in accordance with the increase of international and inter-city traffic. Due to the increasing motorization, this situation is likely aggravated in the coming years. Continued observations of traffic are needed to decide when and how capacity increase should be implemented or what type of traffic management system should be introduced. At the same time, construction of city bypasses (in short/medium term) and truck terminals (in medium/long term) should be studied and implemented where viable.

International motorway construction is another important issue for accelerating the Polish integration with the international community as planned by the government. In view of the large scale of the motorway development project, an organization for planning and management should first be established, coupled with the financial system to raise funds including tolls and private participation to the construction and operation. Time consuming border crossings should be improved immediately in short time.

Poland has two port areas of Gdansk / Gdynia and Szczecin / Swinoujscie. These ports are positioned as Class IV ports in European port system, serving mainly as feeder ports to Hamburg or Bremenhafen. The biggest issue of the Polish port system is that it faces keen competition with land transport especially for international container transport from these international major ports to Poland. Modernization of the Polish port and maritime system is an urgent issue to survive the competition. Polish ports should be modernized to comply with the international logistic system of containerization by improving container handling facilities, developing cargo information system, and facilitating inland connections. Polish maritime sector should be modernized by replacing the outmoded vessels. The government involvement is indispensable to this sector in the above modernization programs as well as encouraging real competition in the port and maritime businesses.

For the air transport sector, modernization of air traffic control system and replacement of the Soviet made aircraft are two major issues in terms of infrastructure and facilities. Instead, the biggest issue of the sector is the confusion and chaos among MTME, GICA, PPL, local governments and private sector caused by the lack of clear policy for the sector.

3.4.2 Transport Infrastructure for New Demand

During the old regime, Polish transport infrastructure was developed with an emphasis on carrying mineral resources and heavy industrial materials and products between the CMEA countries by railways and shipping. However, the ongoing national economic transformation focuses on strengthening the economic ties with the western countries to boost consumer oriented economy. The former emphasis needs to be redirected to the development of transport systems adopted in the international logistics, namely, containerization.

Currently, most of containers are transported by road hauliers one by one even to and from Germany and Netherlands. This is mainly because of: (a) low level and volume of container transport in Poland; (b) flexibility and reliance of road transport services though costly; and (c) under-development of container transport services by railway and maritime transport. Due to the drastic decrease of bulky cargo transport by railway and maritime transport in recent years, both transport sectors are in urgent need to develop new services so as to cope with the progressing containerization.

PKP has initiated a weekly operation of container trains between Hamburg and Warsaw, and established an international forwarder to engage in container transport, both of which are under a joint venture with international forwarders and related agencies. Although, at the moment, it is still uncertain when these undertakings will obtain good results, these attempts are timely and will greatly contribute to PKP in acquiring expertise of the business and preparing for the further extension of the international services. A study on railway container terminal should be initiated for the efficient transshipment with road transport, for example, either in Warsaw or Poznan area.

In contrast to railways, the port and maritime sector seems to have taken rather limited actions in this regard though Gdynia port has been handling containers. In the case of this sector, it seems more difficult than railways to establish the combined transport system because of a variety of participants of different interest in the services: (a) shipping companies; (b) port authorities; (c) various kinds of companies and government agencies in port areas; (d) land hauliers including truckers and railways; and (e) local and central governments to develop inland transport network. During the period when container handling volume is not great, it is particularly difficult to coordinate their interests to develop an effective business chain of combined transport. Initiatives of shipping companies and port authorities are expected to this end.

3.4.3 Project Evaluation

During the old regime, investment decisions seem to have been made mainly based on the perceived necessity at those times within the limit of funds available without particular attention to financial efficiencies. In the new regime, however, the efficient use of capital needs to be addressed every time investment decision is made. Investing capital in some particular project means that an opportunity to invest the capital in other investments is lost, which could produce higher return on investment.

For investment decision making, there are several methods to evaluate the efficiency of investments which are widely used in international financial community as was extensively studied by the MTME in the past. These are: (a) net present value (NPV); (b) benefit cost ratio (B/C); and (c) internal rate of return (IRR) in both economic and financial terms. The principle idea of these methods are to compare the project cost (investment, operation and maintenance costs) with the expected benefits accruing to the project (mainly cost and time saving) at the discounted present value. While costs are tangible under the stable inflation and exchange rates, benefits are rather intangible

and complicated in a sense of what kinds of direct and indirect benefits need to be counted. The Polish traditional way of project evaluation put a partial emphasis on technical evaluation (cost estimation), leaving benefit estimation on wishful thinking. In order to utilize the limited resources efficiently, it is necessary to force every agency to carry out project evaluation.

In addition to the individual project evaluation, it is imperative to screen the projects which are revealed viable through project evaluation in terms of the availability of financial resources in the transport sector. This screening process tend to involve political judgement to maximize the sub-sectoral interests. A long term national transport policy and a medium term transport development program can play an important role in avoiding arbitrary decision making. Another machinery for this purpose will be the reorganization of the MTME to comprise modal and functional departments as proposed by this study. Repeated discussions and close coordination between modal and functional departments as well as between modal departments in MTME could lead to a more desirable solutions.

3.5 Efficiency Improvement of Transport Industry

3.5.1 Enhancement of Efficiency in the Transport Sector

1) Pricing

Efficiency in a market economy can be sustained by the organizational capability to create and maintain a level of economic activity where both economic and technical efficiencies are best combined, in other words, a synthesized ability to produce a high quality commodity at a low unit cost, aided by technical know-how and organizational effort. From the customer's point of view, an efficient transport service is a quality service at reasonable cost. In a market of growing and diversifying demand, entrepreneurs will seek quality transport services to achieve maximal gains. They will naturally wish to reduce their indirect transport costs as much as possible. Therefore, transport agents who cannot provide a good service at an appropriate price will be squeezed out of the market.

The transport sector is made up of a variety of modes differing widely in function, facilities, and operating characteristics. In Poland, as in many other countries, the railway system, PKP, is of particular importance in restructuring the transport sector to conform with the requirements of a market-based economy, because of its enormous size and resultant significant socio-economic impact. If the railway system is unable to improve its financial and operating efficiency, the financial burden it places on the government will not be reduced. Therefore PKP has a crucial position in the determination of the future direction that transport in Poland will take. The fact that railway and road transport are in close competition underlines the need for proper and consistent pricing of both modes. The following discussion largely focuses on the Polish railway and road pricing.

Pricing issues in transport are complicated by the existence of several modes which have different cost structures. Nevertheless, it is crucially important to adhere to the basic principle of economically efficient pricing. With regard to the appropriate level of prices, to ensure the most efficient use of the resources the price of any product should equal the marginal cost of producing the last unit sold. A competitive market is expected to achieve the desired result of bringing prices into line with marginal costs. In other words, changes in supply and demand will result in changes in prices and thus in profitability--so resources are attracted to an expanding sector away from a stable or declining sector. Price changes accordingly induce efficiency in the allocation of

resources within an economy. However, the application of this principle varies among different transport modes.

For a long period of time, PKP generally used a system of administered prices which were more or less unrelated to production costs, without adopting a policy of charging what the transport of goods and passengers actually cost. The administered prices were determined as a function of socio-political objectives. Certainly, there are circumstances where administered prices are necessary, but they should not be implemented to the extent of distorting many other prices, which should as far as possible conform to market-based prices. Today, the steadily growing intense competition with road transport limits PKP's freedom in setting its own tariff levels.

The starting point for the efficient pricing of railway services should be the marginal cost of shipping goods. However average costs tend to exceed marginal costs. The theory of "optimal pricing" is of little real relevance in the transport sector. The complexity of the technical and administered conditions of railway management justifies the case for the practical application of marginal cost pricing. Therefore it is essential for PKP to adopt long-term variable costs for use in pricing decisions. Long-term variable costs are defined as those costs that vary with traffic, i.e. volume changes over a 5 to 10 year time horizon. Thus, long-term variable costs can be interpreted as a practical modification of marginal costs. In practice, long-term variable costs are a cost floor, to be used as a guide for setting a price on a traffic movement. Actual prices should be set as high as necessary to recover other costs, however, price levels will be strongly influenced by competitiveness in the transport market.

Therefore, PKP's development of costing is a prerequisite of setting prices and profit measurement capability. First of all, economic costs should be accurately calculated. This includes the concepts of long-term variable costs, fixed costs, and unit costs. The unit cost methodology which is at present in place in PKP is still based on system average data. PKP needs to refine its methodology in order to obtain more specific units costs. This is because well-developed pricing is good price differentiation. PKP's ability to differentiate between different types of users is crucial to its profit measurement capability. The better PKP is able to differentiate, the more nearly it will be able to relate its actual revenue to what the market will bear. To take an example: the ability to distinguish between cost of passenger services travelling from different origins to different destinations and the ability to differentiate between different quality levels of service.

The trucking industry is normally very competitive. Given freedom of entry, the market will function to bring prices in line with costs. If the cost of truck and bus operations is to reflect the value of all the resources used in them, the costs arising out of their use of infrastructure must be included. The marginal cost of using a highway includes the cost of maintaining the road, which can be measured by the cost of maintaining the road or restoring it to its earlier condition.

Polish road pricing should include adequate financial and institutional provision for road maintenance, thereby allowing rational planning of road investment. Poland should also be able to establish a practical and efficient scheme of user charges. This is because uneconomic charges have adverse effects on the way the roads are used, on the choice of vehicles and on the resources generated for financing maintenance and new construction.

The costs of the road system can be defined as non-renewable construction costs (legal costs of land purchase, demolition, earthworks, soil stabilization, etc.), renewable construction and other capital costs (bridges, fly-overs, viaducts, etc. with a physical

life), maintenance costs, interest (that paid on capital investment in roads), and costs of ancillary services and facilities. These can be categorized as internal costs.

On the other hand, external costs of the road system should be added, such as the economic cost of road congestion, accidents and environmental pollution. There is a wide range of opinion on what constitutes external costs. However, on a worldwide scale, more and more economists and transport specialists believe that the prevalent level of user charges and car-related taxes does not cover true costs. They argue that society at large pays for air pollution, noise and road accidents. If drivers had to pay all these external costs, they would be discouraged from making journeys where the benefits of travelling are less than the costs. Under-pricing road use charges simply draws people away from trains, buses and other public transport.

The recovery of these costs requires an appropriate system of user charges. User charges in the form of taxes on fuel and tires have the desirable feature of varying in accordance with the extent that vehicle operators use the roads. Attention needs to be paid to the structure of such charges: for example, diesel fuel taxes should be raised from the present level, due to the greater degree of air pollution caused. Policy can include congestion pricing, the use of parking meters and a variety of traffic management techniques so as to discourage peak-hour use and raise funds for developing alternative transport services. Road tolls are another way of charging users for the costs of particular parts of a road system. However, the cost of a toll collection system can be high unless efficiently managed.

Revenues collected from highway users are often insufficient to cover the full costs of adequately maintaining the roads. It is more advisable to raise highway charges to cover these costs rather imposing the burden on general taxpayers, on the grounds that services should be paid for by the beneficiaries. Charges that do not vary with road use, such as those for vehicle registration should be set at adequate levels, so as to be able to contribute to needed revenues.

2) Operation and Management

In principle, transport activities should be operated wherever possible on a competitive basis. Although the Polish government is making efforts to restructure the transport sector to be more responsive to the needs of a market-based economy, a socialistic corporate culture appears to be stubbornly persisting as can be seen in the overall organizational rigidities, vertically fragmented structure, excessively engineering-oriented and capital-intensive decision-making, all of which lead to limited understanding of cost performance. It is essential to introduce more efficient internal management systems and maintenance procedures.

As PKP, of all the transport modes, is the structural backbone of transport in Poland, PKP must play a leading role in developing the Polish economy. Therefore it is critical to the economy to have an efficient transport network, and it is an obligation of PKP to provide timely and economic service through active competition with passenger and freight road transport.

Over the years, PKP has built up a military-style management structure, under which management has become accustomed to giving orders. Innovation is blocked by fixed attitudes, habits and perceptions, and unwritten rules. This type of management model is now too bureaucratic, inflexible, costly and inefficient to be effective in a competitive, market-driven economy. The present transitional process in the Polish economy requires PKP to make drastic changes in order to improve its economic, financial and operating efficiency.

A complete reorganization, restructuring and cultural change is needed. If PKP does not rise to this challenge, it will lose the opportunity to restructure its productively. Instead, losing out to other transport modes, this gigantic entity will become a big burden, creating enormous costs for a struggling Polish economy, instead of assisting in the development of Poland.

PKP management should start identifying organizational barriers and focussing its attention and efforts to begin making the required changes toward a customer-oriented, high standard, cost-effective railway business. PKP management appears to lack an understanding of the basic principles of business based on cost performance. Many departments and divisions of PKP still tend to make decisions without consideration of financial viability. To streamline the over-sized organization of PKP, a rationalization of redundant employment and facilities should be continued. Because most of PKP's costs are fixed costs (of which payroll amounts to one-third of total expenditure), organizational reforms are prerequisite for an introduction of costing and accounting procedures.

Similar discussions can be applicable to other transport sub-sectors including air and urban transport in spite of their different features. LOT need to address itself to curtailment of over staffing in the face of declining demand as well as to improvement of aircraft utilization through providing domestic and international combination services. Urban transport enterprises have been facing difficult management issues of obsolescent and inefficient buses and trams, redundant employment, and low rates of cost recovery. In the face of rapidly increasing private cars, management rationalization and modernization are highly needed to survive in the urban transport market.

3.5.2 Privatization and Deregulation

1) Privatization

The privatization of the public sector is undoubtedly the most structurally significant aspect of the transformation of the economic system. Privatization is the central issue for Poland which has to replace inefficient, money-losing state enterprises with more modern industrial plants that will better meet demand as well as relieve financial pressures on the government. Privatization should not be considered an end in itself, but a means to the establishment of an efficient and stable market economy in Poland.

One of the principal driving forces behind privatization is the perceived failure of nationalization. In effect, the following conviction is growing worldwide: (a) privatization is a means to increase output, improve quality, and reduce unit costs; (b) it will curb the growth of public spending and raise cash to reduce government debt; and (c) it can generally stimulate private initiative and private markets as the most successful route to economic growth and human development.

Privatization is the transfer of assets and service functions from public to private hands. Hence, it includes selling state-owned enterprises and contracting out public services to private contractors. For many activities, it is often possible to use management contracts and leasing as intermediate steps in that direction. Major state enterprises, especially those providing a public service, e.g. a railway, tend to remain under public ownership. However, if these state enterprises are to contribute to development rather than burden public finance, strengthened accounting and rigorous investment appraisal are essential.

A central element of any reform plan is to give a commercial orientation to management of all transport agencies, and put competition on a businesslike basis. Thus, the immediate concern is to promote vigorous rationalization and streamlining of the entities. This may include partial privatization, viz. a separation of subsidiaries, and their exposure to the outside market. At the same time, these ex-subsidiaries should be encouraged to become competitive through enterprise efforts, in order to be fully independent.

Despite political and practical difficulties, various initiatives have been already taken in the transport sector, for example:

- (a) About 70 subsidiary companies under PKP have been separated from PKP to MTME as a first step to be independent private companies;
- (b) PKS has carried out separation of its local offices into independent entities, and has established joint enterprises with private capital;
- (c) to promote commercialization, the port authorities have been reorganized into state-owned stock companies, as a step towards privatization; and
- (d) for civil aviation, ancillary services have been separated to eliminate unprofitable activities.

However, most of the separated firms are still owned by the government, and their privatization remains to be seen. To make them stand on their own, further efforts by the government are expected. The program must be directed towards improving the efficiency, productivity, capacity utilization and business diversification of the concerned ex-subsidiaries. Such programs may entail mergers, or the reorganization and closing of individual firms. It should be noted that the prerequisite of privatization is potentially profitable operation.

In the first stage of privatization, a preliminary valuation of the firm must be made. The capitalization of expected earnings, confronted with alternative possibilities of investing savings is of primary significance. In Poland, however, owing to the pricing system which used to be detached from international markets, and due to the economically suboptimal assets structure, a valuation based on book value and replacement costs still seems not to be easy.

In order to facilitate privatization, internal reform of state enterprises should be promoted by shifting government supervision from control of financial transactions to the evaluation and stimulation of results, coupled with management autonomy. In addition, a critical element of successful reform is higher incentives for managers. ("Public Enterprise Reform" by Economic Development Institute of the World Bank).

At the same time, the following external elements need to be developed ("Development the Private Sector" by the World Bank):

- (a) a supportive business framework consisting of a stable macroeconomic setting, economic incentives that promote efficient resource allocation by the private sector, and laws and regulations that protect the public interest but do not unnecessarily interfere with private initiative;
- (b) the services in infrastructure and human resource development necessary to permit private enterprises to function effectively; and

- (c) a financial system that provides the incentives and institutions needed to mobilize and allocate financial resources efficiently.

In addition to partial privatization, it is an urgent issue to promote the private provision of transport and related services. Private provision means the production, provision or delivery of services by the private sector in various ways. Private provision can include contracts from public agencies, monopoly franchises and management contracts.

- (a) contracts from public agents; even where one government agency is responsible for a whole sector, such as roads, some activities of the concerned sector, for example, designing, construction and maintenance, can be contracted out to private firms.
- (b) monopoly franchises; wherever a "natural monopoly" or "economies of scale" require that an area should be supplied by a single organization, a private company can be appointed by a public authority to provide those services, possibly on a monopoly basis, at specified standards and tariffs. In the case of monopoly franchises, it is customary for the company awarded the franchise to make the required investments. A BOT concession for motorways road can be included under this category.
- (c) management contracts; the public agency can retain responsibility for a particular service but arrange for its private management. Unlike the franchises, the company contracted usually does not make the required investment. In many countries, urban bus companies are municipally owned but managed by private management firms.

In Poland in fact, several contract-out schemes have been started, particularly in repair and maintenance, some manufacturing construction and various sundry activities of Polish transport modes, and this should be further promoted. Competitive contract procedures should also be established.

A kind of management contract, a BOT concession, is applicable to motorway networks. Management contracts and the formation of transport authorities are also worth considering for urban transport services.

2) Deregulation

Government regulation in the transport sector, such as limiting the number of enfranchised operators, fixing passenger fares and freight rates, and establishing standards for safety and environmental protection, is common worldwide. However, it should be noted that excessive regulations can prevent efficient transport operation. In general, where efficient competitive markets exist, efficient operations and sound investment can be achieved best by allowing the supply of transport services to be matched to demand through the price mechanism. Next, when governments restrict entry of competitors into an activity and set prices for services, they interfere with the normal adjustment mechanism without having a valid economic basis. The regulatory instruments by the government, therefore, require prudent management and regular analysis, and the use of regulatory measures has constantly to be adjusted through careful monitoring of the development of the sector.

The following activities must fall within the normal functions of the government:

- (a) Maintaining public safety and protecting the environment;

- (b) Creating a policy closely with broader issues, e.g. land use or industrial development maintenance of public safety;
- (c) Reflecting real economic costs in transport, e.g. social costs, and establishing taxation to cover these costs;
- (d) Issuing business licenses; and
- (e) Providing uneconomic services (specified subsidies can be provided for uneconomic lines or services under a strict practical and budgetary justification).

However, during the transition period of Poland from the regulated to the deregulated regimes, the government involvement should not be limited to the above activities but extended to every part of the transport market through the fine-tuning functions with a medium to long term view to developing free and fair competitive market. In the railway sector, deregulation or economic autonomy of PKP should be promoted particularly in the fare level setting to effectively compete with road transport. In road transport sector, rules and practices for fair competition should be established between public and private passenger transport services. In port and maritime transport sector, actual competition should be encouraged through further demonopolization policy measures. In air transport sector, regulatory regime should be established to avoid unexpected emergence of private airports.

3.6 Environment Protection and Traffic Safety

3.6.1 Environment Protection

Environmental protection is a growing concern of every country. Development of transport infrastructure tends to invade into precious natural environment to cause environmental deterioration through construction and maintenance works as well as vehicle operations. Procedures for environmental impact assessment should be established in compliance with those adopted in the international community.

The biggest issue in environmental protection is the exhaust emissions by road vehicles. At present, Polish regulations are similar to those which existed in the EC countries in the past, and are considerably below the current EC regulations. It is likely that the Polish norms will fall even further behind when the new EC proposals come into force. The government should develop a program to clear the EC norms by the year 2000 through a close cooperation with car manufacturers and users. At the same time, it will be necessary to improve public transport services to discourage private car use particularly in urban areas. It is often discussed that the environment costs incurred by road users should be borne by them. However, it is still unclear of the relationship between exhaust emissions and environmental deterioration and the penalties that road users should bear. Scientific research might be needed in this regard.

To protect the environment from vehicle transport, many policy measures have been implemented in the world. The following measures could be suitable for Poland in view of the expected effects, social acceptance, and financial as well as administrative constraints:

- (a) **Enforcement of Emission Standards and Vehicle Maintenance:** The standards of exhaust gas emission for used cars must be strengthened on a step by step basis because of a large number of aged vehicles in use. Inspection of used cars should strictly follow the testing procedure, especially for the aged cars of, for example, 10 years and over.

- (b) **Traffic Management:** Inspection by police on site greatly contribute to the environmental protection as well as traffic safety through inspecting certificates of vehicles' road worthiness and actual conditions of vehicles. Steady driving of vehicles has less exhaust gas emission and noise than stop and go. Traffic signals should be coordinated to reduce stop and go through observation of traffic flow.
- (c) **Establishment of Environment Assessment System:** The Ministry of Environment has announced a general guideline for environment protection. However, GDDP has prepared neither manuals for protecting the environment nor environmental assessment system consisting of monitoring, enforcement, inspection, and evaluation. GDDP needs to develop a manual for guiding planning and designing of highways from environmental point of view.
- (d) **Economic Control:** Selective tax privilege and penalty are effective economic measures to promote popularity of anti-pollution vehicles. Vehicles of high environment standards can enjoy, for example, lower rate of road tax while those of low environment standards are required to bear higher road tax as well as to be obliged to have more frequent vehicle inspection with relevant level of charges. Leaded fuel should be taxed at higher rate than unleaded fuel.

Council of Ministers (COM), Ministry of Environment (MOE), MTME, GDDP, Police, and local governments are the primary agencies who are responsible for environmental problems to be caused by the transport sector including air and noise pollution. However, coordination among these agencies are lacking. MTME should play a central role in coordinating transport related agencies under the general policy guidelines and legislation prepared by the MOE. Participation of local government is critically important for improvement of environment especially monitoring the environmental deterioration and finding local solutions.

Currently, environmental problems caused by the other modes of transport is not significant. However, due attention should be paid to improving the present situation: measures for noise, vibration, passenger waste effluent, and draining and spillage of fuel and oil for the railway sector; fence against oil spillage, waste treatment facilities, and other measures stipulated by the international conventions for the port and maritime sector; and measures for noise and shock waves for the air transport sector.

All the efforts to mitigate environmental deterioration should be directed to satisfy the EC norms for the Polish integration with the EC in the future. Environment improvement program needs to be developed by taking account of the target EC norms, present Polish situation and various constraints impeding the improvement including financial and technical issues.

3.6.2 Traffic Safety

The statistics between 1988 and 1991 show a 44.0% (14.7% annual) increase in accidents, a 62.9% (21.0% annual) rise in total casualties, and 49.5 (16.5% annual) increase in other injuries. However, according to the recent data, the increasing trend was changed to decreasing or levelling trend. Comparing the 4th quarter of 1990 and 1991, the data shows minus 8% in number of accidents, 9% in fatal casualties and 7% in other injuries. For the first quarter of 1991 and 1992 these figures are plus 1%, minus 10% and plus 2.6%, respectively. This might be attributable to the safety measures of seat belt wearing, lighting and enforcement of maximum speed limit introduced recently.

To cope with the increasing vehicle ownership and traffic increase, safety measures should be further strengthened for the future in spite of the slight decline of accidents in the latest months.

- (a) Strengthening of Roles of Police: Police needs to be more deeply involved in traffic control and law enforcement to reduce traffic accidents.
- (b) Complete Test for Road Worthiness: The average age of vehicles in Poland is quite old compared with those in west European countries, however, certificates of vehicles' road worthiness are issued more leniently. The testing method and equipment of voivodship are in lack of quality standard. These should be improved.
- (c) Research on Traffic Safety: Traffic accidents are caused by combination of various factors, which makes it difficult to identify the real causes and introduce effective safety measures. However, at the moment, there is no such institute in Poland specializing in traffic safety. Poland needs its research to work out safety measures to comply with locally specific conditions.
- (d) Improvement of Road Conditions: Polish design standards for new roads are as high as those adopted in Western European countries. However, there is only a very low proportion of the national road network made up of motorways and express roads. The majority of the network is made up of single carriageway roads which have various consequences to road safety. These roads should be improved step by step to eliminate causes of traffic accidents.
- (e) Education of Traffic Safety: Safety education should be strengthened not only to drivers but also to the general public and manufacturers through close cooperation among MTME, Ministry of Internal Affairs, Police, Ministry of Education, Ministry of Justice, Ministry of Industry and so on.
- (f) Strengthening of Inter-Ministerial Cooperation: Policy measures to improve traffic safety need to be coordinated among government agencies so as to make those measures really effective for that purpose.

The MTME and Police are expected to play a main role in improving traffic safety. MTME is expected to promote traffic safety through further elaborating road traffic laws and standardizing and monitoring vehicle inspection system of voivodship by taking account of: (a) revision of road traffic laws and requirements for driver's licenses, as required, in cooperation with police; (b) stricter enforcement of vehicle inspection and issue of worthiness certificate in cooperation with voivodship; (c) supervision over vehicle manufacturers based on new ordinances expecting to be effective in 1992; and (d) to advise the Ministry of Finance on revising import tax for used vehicles and spare parts. Traffic safety measures should be improved in view of the international harmonization, continuity and easy understanding.

For the purpose of improving environment and traffic safety, roles and functions of the Institute of Automotive Transport (ITS) should be augmented.

3.7 Development of Financial System for the Transport Sector

3.7.1 Needs for Financing System of the Transport Sector

Due to the tight fiscal conditions of Poland, budget allocation to the transport sector has been decreasing in real terms. Even on a yearly basis, though 14,738 billion zloty was originally budgeted to the transport sector at the beginning of 1991, the actual budget disbursement during the year was retrenched to 10,759 billion zloty (73% of original budget). This makes it impossible to implement routine and periodic maintenance, not to mention new investments.

Recurrent subsidies for the State Owned Enterprises (SOEs) were the biggest expenditure item accounting for 41% of the total MTME budget expenditure in 1991, out of which almost 80% was disbursed to PKP. Financial performance by PKP has a decisive influence on the transport sector. If PKP continues to absorb the same portion of the subsidies for the future, the remaining transport sectors will continue to be in a chronic shortage of finance.

The remaining transport sectors have strong financial demand as well with a view to: (1) rationalizing management and operation so as to be competent in a market economy; (2) replacing outdated vehicles, vessels and aircraft; (3) modernizing transport infrastructure to the international standards; and (4) adjusting existing systems to the level acceptable by the EC norms. Government support is essential for achieving these objectives, particularly in a transition period from the centrally controlled system in a closed world to a market economy in an international scene.

Each mode of transport needs efforts to rationalize its redundancies and raise fare levels which used to be regulated at lower than costs. At the same time, however, both new and replacement investments are required to comply with the demand seeking for transport services of higher quality. To cope with these requirements, a financial scheme is needed for the transport sector.

3.7.2 Development of Financial System for the Transport Sector

Transport system is one of the important national infrastructure to support economic activities and peoples' lives. From this point of view, many countries supported and regulated the transport sector. However, due to the inefficiencies fostered in the regulatory regime, it has become a common policy to introduce market principles to the sector through deregulation and privatization.

However, it is obvious that market principles cannot solve everything, particularly the initial modernization investments of outmoded facilities and systems inherited from the old regime. A government supported financial scheme is needed to secure continuity and consistency of their programmed modernization.

It is proposed to establish special funds earmarked for the transport sector to avoid great downward fluctuation of the available funds which are entirely dependent on the general budget at present. This should basically be based on the user pay principle by each mode of transport excluding railways which needs strict government supervision over the rationalization of management and operation for the years to come. However, it is most likely that additional funds from the government will be needed especially in the initial stage of funding.

Conditions for establishing special funds for the transport sector are that:

- (a) the government needs to reinforce general revenue bases, for example, through imposition of proper charges on various public services
- (b) current level of fares and fees should be reviewed and revised to recoup the costs incurred including discontinuance of discounting
- (c) projects and programs to be supported by the fund in a particular transport system should be scrutinized through economic and financial evaluation
- (d) any regulations prohibiting or discouraging private participation (domestic and foreign) should be lifted to encourage inflow of private capital.

3.7.3 Special Funds Earmarked for Roads

Insufficient and deteriorated road network and facilities incur higher transport cost on the society through increasing travel time and vehicle operating costs. Absence of international standard motorways might impede the Polish integration with the international community, the EC in particular, and put an obstacle to international transit between the east and the west as well as between the north and the south. Improvement of border crossings, environmental protection, and traffic safety measures are also needed for the integration.

In addition, the Polish road network needs to be improved and developed to cope with the increasing international as well as domestic traffic demand. However, budget allocation to roads under the jurisdiction of GDDP has continuously been declining: road budget in 1992 is almost 25% that of 1986, or 38% of that of 1990. The situation is further worsened for communal/local roads.

However, due to the repeated rise of registration and fuel turnover taxes since 1990, government revenue from road user charges has substantially been increased. It is estimated that the revenue from road user charges will far exceed the budget allocated for road maintenance and development by as much as 3.8 times in 1992. This infers that a substantial part of road user charges is allocated to other expenditures.

Under the circumstances, it is proposed to establish a special fund earmarked for roads with a view to achieving efficient allocation of resources and to securing stable availability of funds to the roads and road transport sector. Scale of the funds should gradually be increased by taking account of the general fiscal constraints of the country as well as investment requirements for the Polish integration with the EC. The minimum scale in the initial stage, however, should be large enough to cover at least routine and periodic maintenance and small improvements.

3.7.4 Diversification of Financing System

Quality improvement of road networks, especially construction of motorways, is needed for the Polish integration with the international community as well as stimulation of regional development. However, the quality improvement needs large capital investment which is extremely constrained by the government's fiscal conditions. Private capital (domestic and foreign) needs to be invited to road infrastructure development including motorways, bypasses and bridges, coupled with toll charges.

Due to the existence of various competing projects in surrounding countries as well as the uncertainties for the future of Poland, it would not be easy to attract private investors to road development in the form of "Build, Operate and Transfer (BOT)", "Build and Operate (BO)", "Build, Operate and Own (BOO)" and the like. The government, therefore, needs to take substantial part of project risks to relieve investors' burdens which would include change in design, delay in land acquisition, inflation, interest and foreign exchange risks, and resultant cost overrun of projects.

Level of tolls greatly influence financial viability of projects. However, upper limits of tolls exist because of users' willingness to pay and existence of the alternative routes along motorway corridors. If toll revenue is not sufficient to make projects feasible, additional revenue sources need to be found including value capture along the motorways, especially development benefits in the motorway corridors.

A toll road agency should be established aiming at overall management and operation of the toll road network in terms of standards, network planning, construction scheduling and terms and conditions of concessions.

3.8 Restructuring of Transport Administration

3.8.1 The Role of the MTME in the Transition Period

1) The Changing Roles of the MTME

The role of the Central Planning Commission (CPC) in economic decision making was, under the former centrally planned and command economic system, very intensive and influential. Economic inputs and outputs, volume of trade, investment, and regional distribution were all planned, controlled, and commanded by the CPC. All performances of the economy and society were monitored and assessed by the CPC; the future direction of the economy was concurrently planned and directed by the same office. The role of the MTME was to allocate transport demands to appropriate transport means. If demands exceeded capacity, the MTME intervened and coordinated solutions.

Since the introduction of the market economy, however, the roles of the Central Planning Office (CPO) and the MTME have changed substantially. It is no longer necessary for the CPO to plan, control and command the production and the allocation of resources, nor for the MTME to allocate demands of transport to certain operators since demands of passengers and freight can now be received directly by individual operators.

However, the transport services have certain characteristics which are not appropriate to be decided solely by market forces. There are many kinds of transport systems which provide different kinds of services, but many are, by definition, public in nature. Transport systems are used by many general public and economic units, and are obliged to indiscriminately provide services to every customer based upon reasonable fares and charges.

Poland is now accelerating the transformation of its economic structure and its decision making process from the former centrally planned and command economic system to a market oriented economic structure. Major roles of the MTME would consequently include:

- (a) The central government has, even under the decentralized decision making system of the market economy, influential power to lead the future direction through administrative decisions and/or budget allocations. The MTME is urged to collect needed information, assess them on the impacts to the transport sector, and indicate the future direction of transport development by formulating medium and long term comprehensive transport plans. These would reflect the MTME's transport policies, and, being indicative in nature, would functionally be completely different from the command plans issued under the former regime. This type of planning activity is seen as one of MTME's major roles.
- (b) The indicative plans represent the future direction of transport sector development as formulated by the MTME. Once accepted by the general public, details of the plans should be formulated and budgeted in the annual implementation program. This budgeting function is another fundamental role of the MTME.
- (c) The State Owned Enterprises (SOEs) are now in the process of restructuring. As is evidenced in the case of PKS, all restructuring has taken place at once regardless of the handling capacity of the MTME. The change of legal status is only one aspect of restructuring. It is necessary for the MTME to monitor progress of the restructuring process carefully, since the Ministry is responsible to the general public for providing adequate services. If the restructuring of transport enterprises were to deviate from the anticipated course, the MTME must intervene. The MTME is therefore required to monitor traffic and financial performances of transport enterprises, in order to safeguard the public nature of transport services.
- (d) The monitoring function will also assist other aspects of transport sector management. Transport services can be monopolistic; in some cases, users have no alternative means but to use a specific transport system. If this monopolistic nature of transport services were to be abused (e.g. shortage or reduction of services, a sudden raise in tariff rates, etc.), it would not be possible to maintain normal economic and social activities.

One of the major roles of the MTME under the market economic system is to ensure that the public nature of transport services is maintained and that monopolistic powers are not abused. If this occurs, the MTME should intervene. The MTME must also have a function to monitor whether sufficient services are being provided for reasonable price and quality. This function is particularly important in the near term since the transport sector as a whole is transforming and restructuring.

2) Major Revisions to be Introduced

In order to adapt and realign the MTME to new roles in the market economic system, three key functions: (a) policy formulation and planning; (b) budgeting; and (c) monitoring must be further strengthened. The Study Team therefore recommends that following items be considered as major points of revisions of the MTME.

- (a) Formulation and periodical revision of the medium and long term comprehensive transport sector plans which incorporate transport policies, development policies and programs of MTME and other ministries and agencies of central and of local governments. Requirements and investment programs of transport operators, and needs of users should also be clarified;
- (b) The establishment of an advisory body to the Minister of Transport and Maritime Economy, "Transport Policy Council", is advisable in order to disseminate information and interact with the general public, transport operators, private enterprises and local governments;
- (c) The publication of an annual "White Paper" on transport sector issues, which includes major topics in the transport sector, the MTME's assessment of transport sector's performance in the last year and recent trends, as well as the presentation of the MTME's transport policies;
- (d) The present budget seems oriented toward covering incurred expenses. It is necessary to change this approach to one of implementing transport policies. For this purpose, it is necessary to establish close links among departments in charge of transport policy formulation, investment planning, budgeting, and monitoring;
- (e) In order to improve the planning, budgeting and monitoring process, proper information related to the performances of economy and transport sectors is indispensable. Economic and transport data from the Central Statistics Office (GUS) is good but is not supplied to the MTME except as related to subsidized enterprises. The present flow of information on transport sector performance should be changed; and
- (f) Presently, the organizational structure of the MTME is mainly based on the functional division of departments except Departments of Land Traffic, Sea and Inland Waterway Administration, and Shipping and Sea Ports. Other sub-sectors such as railways, roads and highways, air transport, and urban transport need to be administered by modal departments since modal evolution and guidance should be implemented in a comprehensive manner by a single entity.

3.8.2 Formulation of Transport Policies and Plans

1) Basic Principles for Formulating Transport Policies and Plans

As mentioned above, one of the fundamental functions of the MTME is to formulate transport policies and plans which will, from a long-term perspective, foster efficient and effective transport services. The MTME cannot provide transport service directly, instead, these are provided by many independent public and private transport operators. The MTME's role is to create an environment under which transport operators will provide efficient and effective services, consistent with emerging needs of a reorganized economy and society.

MTME's initiatives in this regard should take the form of transport policies and plans, based on four principles:

(a) To provide services based on user needs

Transport services are basic requirements for quality of life and economic activity. Since the Polish economy and society are now in transition, transportation needs of users are also dynamically changing including progressive motorization. The MTME's transport policy must be flexible to absorb such patterns and indicate potential actions to transport operators as well as the general public.

(b) To secure a balance between efficiency and social equity

Transport, an important input to any economic activity, affects the competitiveness of products in domestic and international markets. The transport systems should, therefore, operate efficiently, and the MTME's transport policy should encourage evolution in such a direction. At the same time, transport services are indispensable to daily life. Therefore, the MTME is also urged to minimize regional imbalances in transport services. In summary, MTME's transport policy must balance the sometimes contradictory efficiency and equity aspects of transport systems.

(c) To establish transport systems consistent with international requirements

Poland is situated in the central part of Europe. Thus, its transport systems will be used by Polish as well as foreign and transit passengers and freight. The globalization of social and economic activities will further this tendency, hence the volume of international movements of passengers and cargo to/from and through Poland will significantly increase.

To establish transport networks is very time consuming and requires huge amounts of investment funds. It is, therefore, necessary to prepare a master plan as early as possible to improve the network gradually. In this regard, conformity with international requirements, particularly those of the EC, is indispensable. This aspect must be guided by MTME's policies and plans.

(d) To be consistent with national socio-economic development policies

Transport systems and services must be based on needs of users. But, at the same time, transport systems can lead users. The new provision of a transport system and its services means new opportunities of economic and social activities for the users of the system. In many cases types of socio-economic development and national land use are greatly influenced by the transport network. A country which would like to develop its national land with many dispersed economic centers and another with a few concentrated economic centers must establish the completely different network of transport systems. To this end, the development of transport systems must be consistent with the national socio-economic development policy or, preferably, be formulated simultaneously with the policy.

2) Preparation of Transport Policies and Plans

Transport policies and plans must be inter-related and comprehensive in the sense that they address all modes of transport. Concurrently, each is composed of components which, in some cases, reflect distinct mode-specific approaches. Details of relevant plans and policies, as well as modal orientation, are presented in subsequent chapters for rail, road, maritime and air transport sectors.

3) Institutional Aspects

Presently, the MTME Department of Transport Systems is responsible for the formulation of transport policies and plans. A shortage of Department staff is apparent as is the need for employees to acquaint themselves with transport policy formulation and planning procedures employed in western countries. This is important and necessary not only for the Department of Transport Systems, but also for all transport administrations in Poland, since they have been educated under the old regime and naturally have very limited transport planning experience under free market conditions.

Following institutional issues, which have been reviewed with officials of the MTME, should therefore be improved.

- (1) The Department of Transport Systems should, for the formulation of transport policies and plans, hold detailed discussions with other departments in the Ministry as well as with transport enterprises within and outside of its jurisdiction. Existing linkages among transport policies prepared by the Department, investment programs prepared by the Department of Technology and annual budgets prepared by the Department of Economy and Finance seem not to be consistent. Transport policies must be reflected in the investment program and annual budget of the MTME.
- (2) Discussions are also needed with other ministries as well as the Central Planning Office in order to integrate sectorial development policies and strategies. Through these inter-ministry discussions, the importance of transport improvements, modernization and periodical renewal of obsolete facilities, whose neglect can adversely impact all sectors of the economy, can clearly be understood by concerned ministries and agencies.
- (3) Implementation of the formulated transport policies and plans must be understood and supported by the general public. Publication of an annual "White Paper on the Transport Sector" by the MTME is advisable for this purpose. The paper should contain analysis of major transport issues and performances over the last year, and MTME's consequent assessments or actions. It should also contain clarifications of MTME's transport policies which will be useful for the private sector, particularly individual entrepreneurs. If analyses and proposals contained in the paper are reasonable and realistic, readers will understand and support MTME policies.
- (4) Finally, the Study Team recommends establishment of a "Transport Policy Council" as an advisory body to the Minister of Transport and Maritime Economies. The outline of the Council is as follows:

Objectives: To organize a council composed of members from the wide range of the society in order to seek the counsel of people on important policy matters and strategic issues in the transport sector, which are commissioned by the Minister of Transport and Maritime Economies to the Council.

Organization: Composed of about 30 members, appointed by the Minister, including academics on the transport problems, general transport users, representatives of transport workers, representatives from the economic and financial circles, representatives of transport operators, representatives from local governments, etc.

The chairman of the Council is elected by and from members of the Council.

Term of appointments of the chairman and members of the Council is 2 years but reappointment is allowed.

It is possible to organize special committee(s) under the Council in order to analyse particular topics in detail.

Activities: In accordance with the commission of the Minister of Transport and Maritime Economy, the Council studies, analyzes and discusses the basic policies and strategies on the establishment of comprehensive transport systems and recommends to the Minister of necessary policy measures to be adopted.

Secretariat: Department of Transport Systems, Ministry of Transport and Maritime Economy

Cost of Operation: To be budgeted in the MTME annual budget

Examples of issues to be addressed by the Council:

- (a) Basic direction of transport policies in the 1990's with a view toward 21st century economic development
- (b) Prioritization of necessary transport improvements and modernization under limited fiscal availability
- (c) Division of roles between public and private sectors for operation of transport activities

Discussions among council members on important transport issues will certainly assist the general public and particularly influential members of society in understanding transport policies and plans. The counsel of best informed people in the society will also be a useful approach to obtain consensus for long-term transport improvement strategies.

3.8.3 Improvements in the MTME's Budgeting Process

Summaries of key aspects and recommendations for improvement of the MTME budget formulation process are as follows:

- (1) Table 3.8.1 shows various phases of the MTME 1991 budget: the original budget, changes at the end of the first half of fiscal year 1991, the amended budget, and expenditures at the end of fiscal year (December 1991). The table indicates that the total budgeted expenditure of 14,738 billion zloty in the 1991 budget act was curtailed by 27.4% to 10,697 billion zloty in the amended budget. This is too big in the usual sense of budget, and shows the present difficulty of the Polish fiscal situation, which was caused by the shortage of government revenue. This situation was further caused by the recession of Polish industry and other productive sectors. While the necessity of budgetary reductions is understood, negative impacts upon the transport sector will nevertheless result.
- (2) The budget seems to be founded on expenditure replenishment for transport units under the authority or supervision of MTME, not on implementation and realization of transport policies. The budget is a very useful and powerful means by which to guide transport policies into reality, the pursuit of this line will eventually transform MTME into a policy-oriented and strategy-based entity. Therefore, close collaboration and internal policy discussions among departments of the MTME, particularly between Departments of Transport Systems, Technology, and Economy and Finance, are essential during the course of budget preparation and formulation.
- (3) The shortage of government revenue reflected in Table 3.8.1 catalyses serious problems for transport sector administration. This regrettably results in the postponement or cancellation of maintenance and modernization projects. Such actions will further deteriorate the existing infrastructure and potentially generate a need for even larger "catch of" expenditures in future. Funds of necessary transport improvements and modernization are, in many countries, supplied not only by the general budget, but also via a number of alternative sources:
 - (a) establishment of unique financial institutions to develop and finance long term and low interest funds for basic infrastructure and strategic industries;
 - (b) supply of funds to supplement repaying interests of loans;
 - (c) build-operate-transfer (BOT) financing;
 - (d) introduction of tax, a certain percentage of which will preferentially be supplied to specific modes, projects or organizations;
 - (e) funding infrastructure via user charges; and
 - (f) financial assistance from international and bilateral aid agencies.

It is advisable for the MTME to seek financing through introducing such schemes, but in close collaboration with financial institutions and the Ministry of Finance.

- (4) In order to utilize limited resources efficiently, it is necessary to conduct economic appraisal of potential transport projects. Such methods are already established and widely used in many countries, particularly for projects financed by international and bilateral aid agencies. It is advisable for the MTME to set up a unit responsible for project appraisals. Assistance from aid agencies is available in this regard.

Table 3.8.1 1991 Budget in the Ministry of Transport and Maritime Economy

(Unit: Billion ZL)

Contents	Budget Act for 1991		Budget after Changes (End of 1st Half)		Amended Budget (Aug. 1991)		Final Results (End of 1991)	
	Total	Recurrent Investment	Total	Recurrent Investment	Total	Recurrent Investment	Total	Recurrent Investment
Budget Revenue	24.7	-	24.9	-	34.4	-	67.8	-
Budget Expenditure	14,737.9	12,508.9	14,310.6	12,278.2	10,696.8	9,174.7	10,759.4	9,241.5
1. Industry	93.8	-	93.8	-	87.9	-	87.9	-
2. Transport	6,411.9	4,485.0	6,384.3	4,506.5	4,700.7	3,306.2	4,637.1	3,246.9
(Dom. Pub. Road Unit)	(4,389.2)	(4,015.0)	(4,400.5)	(4,026.4)	(3,326.8)	(2,987.2)	(3,242.1)	(2,909.4)
3. Communal	422.0	260.0	14.5	-	-	-	873.0	-
4. Ed. & Upbringing	213.4	210.2	213.4	210.2	215.3	213.3	202.8	200.8
5. Higher Education	86.2	80.0	91.7	91.7	77.0	77.2	77.0	74.2
6. Culture & Art	2.5	1.8	2.7	2.7	2.3	1.9	2.3	1.9
7. Health Protection	875.3	840.7	875.3	875.3	935.8	901.8	1,066.4	1,032.5
8. Various Activ's	22.9	22.9	23.0	23.0	13.3	13.3	13.2	13.2
9. State Adm.	37.9	36.2	33.9	38.3	32.8	32.3	30.8	30.3
10. Social Security	172.0	172.0	172.0	172.0	169.8	169.8	179.7	179.7
11. Subsidies	6,400.0	6,400.0	6,400.0	6,400.0	4,462.0	4,462.0	4,462.0	4,462.0
(Activity-related)	(3,600.0)	(3,600.0)	(3,600.0)	(3,600.0)	(2,900.0)	(2,900.0)	(2,900.0)	(2,900.0)
(Subject-related)	(2,800.0)	(2,800.0)	(2,800.0)	(2,800.0)	(1,568.0)	(1,568.0)	(1,562.0)	(1,568.0)

Source: Dept. of Economy and Finance, MTME.

3.8.4 Strengthening of the MTME's Monitoring Function

1) Monitoring of Transport Enterprises under Restructuring

The current functions of the MTME, such as (a) formulation of short, medium and long term transport policy; (b) preparation of budget proposals; (c) allocation of investment funds and subsidies; (d) supervision of transport activities; (e) setting of tariff rates; and (f) safety regulations; are all handled by functional departments, whose organizational structure is shown in Fig. 3.8.1. In other words, no department is organizationally able to have an overview of each sub-sector.

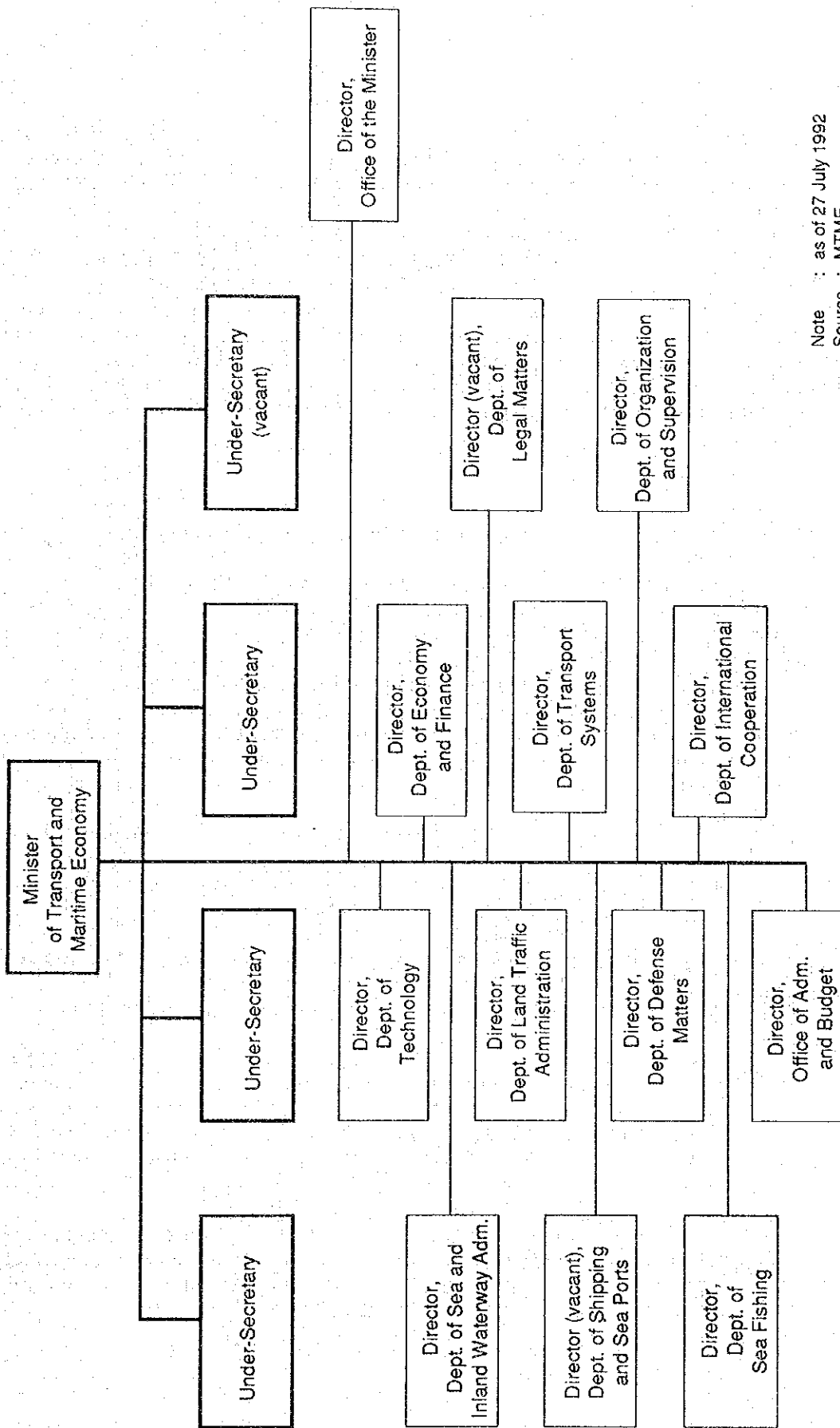
However, the Study Team is of the view that the transition from the former system to a market oriented structure will be a rather lengthy process, and the restructuring of transport enterprises will not be successfully completed by a mere change of legal status. In order to give effective support from the MTME to each restructuring transport enterprise and to secure the sufficient transport services by those transport enterprises even under the restructuring process, which are certainly a MTME's sphere of responsibility, each process of transition and the performance of each transport enterprise must be closely monitored by the MTME.

For this purpose, a modal department system is more appropriate, since the effective guidance and support from the Ministry cannot be secured if a responsible department is not informed of the whole shape of the sub-sector, at least during the transition period until the management and operation of restructured enterprises will be stabilized. Because all transport problems, whether they are technical, managerial or financial in their nature, are in many cases closely inter-linked each other and are difficult to find solutions if sub-sectoral considerations are not made. If the problem at issue requires the sectoral considerations, then it would be sent to the meeting attended by representatives of concerned modal and functional department of the MTME.

2) Needs for Staff Training

However, the MTME's organizational changes does not in itself guarantee effective monitoring. In order to proceed with the effective monitoring for activities of transport enterprises and to give sufficient guidance and support from the Ministry to transport enterprises, the MTME must have competent staff who have knowledge about the principle of transport operation and management in the market economic system and possess the attitude of devotion to the assigned job. For this purpose, MTME must train existing staff and induce competent people to join the civil service.

One of possible and effective way of training MTME staff for understanding transport administration in the market economic principle would be a dispatch of them to Ministries of Transport in member countries of the European Community if those governments would accept the on-the-job training. It will require at least two years for them to understand fully the mechanism and philosophy of transport administration in market principle, and short term visits would not be effective for this purpose of staff training.



Note : as of 27 July 1992
 Source : MTME.

Fig. 3.8.1 Organization of the Ministry of Transport and Maritime Economy

3) Obtaining Necessary Information

Another requirement is to obtain necessary information on traffic and financial performance of each transport enterprises under the jurisdiction of MTME. Otherwise, it is impossible to conduct effective monitoring of each enterprise and sub-sector and to give appropriate guidance. Presently, data are reported to and collected by the Central Statistical Office (GUS). But these data are not forwarded from GUS to MTME except in statistical and summary form. Such statistical information is, of course, useful to MTME, but not good enough to foster implementation of effective supervision of each restructured enterprise. The Study Team is of the view that the present procedure should be changed as soon as possible so that traffic and financial performance data of each enterprise is either reported via MTME to GUS or at least that a copy of data is directed to MTME. This is urgent since the timely supply of accurate data is indispensable for daily monitoring and administration of the transport sector and its restructuring.

3.8.5 Reorganization of the MTME

The recommended actions for MTME reorganization include, in summary:

- (1) As is mentioned above, all transport problems require the comprehensive sub-sectoral consideration. If technical problem would arise in certain mode of transport, then the solution for the problem be sought in the first place from purely technical consideration, its repercussion for future modal development plan, and the necessity for budgetary arrangement: solution to the problem is prepared through the comprehensive and modal consideration of the issue. In order to implement this kind of modal consideration in any mode of transport, addition of modal departments in the present functional structure based on the following stratification is recommended:

Department of Railways	to transfer and divide certain function of PKP
Department of Road Transport	to reorganize the existing Department of Land Traffic Administration
Department of Air Transport	to internalize and reorganize the existing GICA
Department of Local Transport	to handle local and urban transport problems

Concerning the issues on roads and highways, the reorganized GDDP seems to be competent enough to handle those issues. It does not require the establishment of a separate department since General Director of GDDP represents the roads and highways sub-sector at the MTME's leadership meeting and the concerned division of GDDP will represent the sub-sector at the lower level meetings with other departments of MTME.

In addition to above departments, existing Department of Shipping and Sea Ports and Department of Sea and Inland Waterway Administration might be amalgamated into Department of Sea Transport and Inland Waterway Administration, depending on the results of on-going process for creation of a Ports Authority.

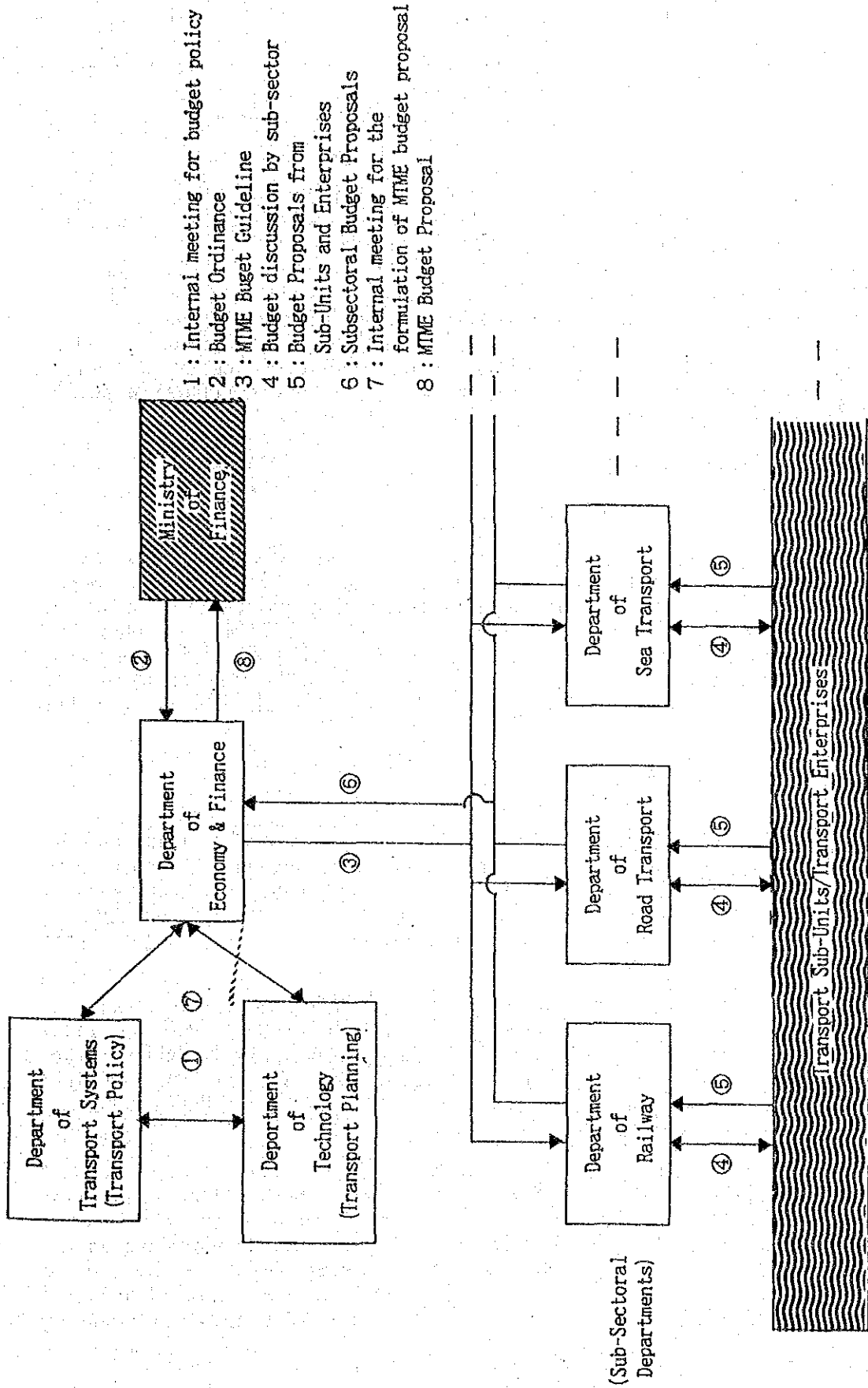


Fig. 3.8.2 Schematic Process of Budget Formulation

(2) The division of roles between functional and modal departments is as follows:

Modal departments	monitoring and administration of each responsible sub-sector
Functional departments	inter-sectoral considerations on transport issues and coordination on inter-sectoral problems

In any case, the close collaboration between functional and modal departments is indispensable. Fig. 3.8.2 indicates the case of such collaboration between modal and functional departments in the course of budget formulation.

(3) At the time of the Bielecki Government, Secretary of State and First Vice Minister directly supervised the activities of three departments concerning maritime issues since his major roles should be: (1) coordinate decisions made by under-secretaries, each of whom supervises several departments; and (2) offer policy related advice to the Minister. It is recommended that the Secretary of State should not directly supervise departmental activities.

3.9 Transport Policy Guidelines

3.9.1 Policy Guidelines for Each Mode of Transport

Each mode of transport is competing in a market based economy with a focus on meeting market demand. Each of them has specific characteristics of services in terms of speed, price, frequency and carrying capacity at a time. Customers in the market select a mode of transport each time depending on their criteria for their best satisfaction. At the same time, they also have an alternative option not to use public transport services but rely on their own private means of transport including cars and trucks. In this sense, market demand cannot be controlled by the government as used to be in the old regime.

1) Railway Transport

Railway transport is characterized by the existence of scale of economy and the predominance in the transport market during the pre-motorization era. Because of these characteristics, railways were usually owned and operated by the public sector with the entry regulation for the purpose of protecting scale of economy on one hand and with the fare regulation for the purpose of prohibiting profit maximization motivation of the railway enterprise on the other hand.

In accordance with the progress of motorization, market share of the railway transport has followed a constant decreasing trend especially in short and gradually to medium distance cargo transport as well as local passenger transport. The shrinking market share can be attributable to: (a) flexibility and convenience of road transport; (b) rigid regulatory regime imposed on railway transport; and (c) inefficient management and operation systems fostered by the protection for railways.

The former predominant role of railways in the transport market has disappeared and the scale of economy has been diminishing due to the wide availability of transport services. Complete restructuring of the railway system is urgently needed so as to make it responsive to market demand with lessened financial burdens on the government. In consequence, the first policy priority should be given to the rationalization of the existing railway system including separation of affiliated companies, reduction of redundant employment, and withdrawal from loss making businesses.

From the operational point of view, railway transport has an advantage in repeatedly carrying large demand at a time from fixed origins to destinations. In terms of cargo transport, railway transport has a competitiveness in carrying large volume of standardized cargoes over a long distance by excluding or economizing cargo handling and train formations as much as possible. Prospective market can be found in international container transport as well as bulky cargo transport domestically or internationally. In terms of passenger transport, railway transport can have a competitiveness in high speed operation and large carrying capacity. Prospective market can be found in international and/or domestic high speed services over a medium to long distance as well as commuter transport in large urban agglomerations based on large carrying capacity which can hardly be found in Poland unfortunately. The second policy priority should be given to the identification of prospective market segments for railways and the modernization of the railway systems corresponding to the demand of each segment particularly from international point of view.

Rationalization and modernization of the existing railway systems are inevitably accompanied with restructuring of the legal institutions of railways as well as management structure and new requirements for railway employees. Ongoing discussions concentrated on these institutional and managerial matters by the Council of Ministers should be furthered to establish concrete policies and action programs. The MTME should play a key role in guiding PKP to an entity more flexible to the market.

2) Road Transport

In spite of the depressing economic conditions of the country, car ownership rate of Poland has been showing a strong increasing trend in recent years. As can be seen in the western countries, it is likely that a higher level of car ownership will exacerbate various problems that already can be noticed in Poland: traffic congestions in urban areas, traffic accidents, environmental deterioration and so forth. Yearly constant increase of traffic tended to outstrip the intermittent capacity increase of road infrastructure in a long run while it tended to worsen the public transport services through the intensifying traffic congestion. The government needs to develop policy measures from a long term aspect to cope with the serious impacts to be caused by increasing car ownership instead of mere resorting to infrastructure development. Less capital intensive measures need to be sought including traffic management system, improvement of public transport services, area licensing system, urban transport taxation system, and environment taxes. At the same time, the government needs to intensify the vehicle inspection and enforcement system so as to force vehicle owners of the full compliance with higher environment protection standards.

Major issue of the truck cargo transport is that there are too many small owner operator truckers of low efficiency while there are only a limited number of large sized truck companies which have international service network. In almost every country, market forces prevail in the trucking industry and it is very usual that marginal truckers repeat entry to and exit from the market depending on business circumstances. However, the government of Poland needs to introduce a modernization program of a majority of the small truckers through encouraging formulation of voluntary associations for their productivity improvement. The government also needs to encourage Polish truckers' joint venture with international forwarders and/or carriers to further improve and extend international service network. On the other hand, the government needs to strengthen the regulations of trucks on their exhaust gas emission, safety measures and heavy loading with a reference to the international rules and practices.

In terms of road infrastructure, the existing roads should be well maintained together with removal of serious traffic bottlenecks so as to best use the existing assets. However, at the same time, development of motorway network should be expedited,

coupled with improvement of border crossings, for the purpose of securing good international connections. The biggest issue of maintenance and development of road infrastructure is the short and unstable provision of road budget. The government needs to establish a special fund earmarked for roads principally based on road user charges. In order to comply with the increasing capital requirements for motorway construction, legal institutions should be revised to encourage domestic as well as foreign private participation in road infrastructure development including toll collection and build-operate-transfer (BOT) schemes.

3) Port and Maritime Transport

Maritime transport has an advantage in carrying a large volume of cargoes over a long distance, particularly ocean crossing carriage. However, due to the costly and time consuming cargo handling for transshipment, the advantage is inclined to be lost when speedy land transport systems are available on the competing routes. In the case of the Polish ports, the situation is aggravated, especially for the route between major ports on the North Sea coast and Poland, by infrequent liner calls to the ports, underdevelopment of container handling systems, and inconvenient inland connections. Unless any active measures are taken by the government, the role of the Polish ports in the international logistic network will further decline. Initiation of the container transport services by PKP on this route likely accelerate the tendency.

The government needs to take a lead in developing efficient container transport chains through the Polish ports in cooperation with the Polish shipping companies, port authorities and land transport carriers. Because of the strategic location, the Polish ports could be distribution and/or trade centers in the Baltic Sea region. The government role is vitally important in realizing the potential.

Port management and operation should be further rationalized to streamline the redundancies cultivated in the old regime. At the same time, efforts need to be focused on stimulating real competition in and between ports. Demonopolization seems to have not achieved its original goal.

4) Inland Water Transport

Inland water transport plays a minimal role in Poland, accounting for less than 1% of total cargo transport. Major commodities transported are sand and gravel, coal and iron ore on a local basis. Maintenance and investment have been neglected for many years, resulting in fragmented navigable channels.

Historically, inland water transport has been losing its *raison d'être* as merits of land transport evolves. Inland water transport in a market economy could attract customers only if it can compete with other modes of transport in terms of cost, reliability and flexibility. High costs of transshipment greatly lower the competitiveness of inland water transport. Currently, there seems to be no positive prospect for revitalizing inland water transport in Poland.

In the long future, some reasons might necessitate revitalization of inland water transport in some heavy land traffic corridors, for example: (1) limitation of land availability for land transport could necessitate inland waterways; and (2) environmental criterion might surpass economic criterion. However, it is quite uncertain when and where such necessities arise. It would be most reasonable, under the severe fiscal constraints on the transport sector as a whole, to keep the inland waterways as they are until specific needs arise in the long future to restore the role of the inland transport.

The projects worthy of studying would be maintenance of waterways between ports of Szczecin and Berlin in a short term perspective as well as connection of the Oder with the Rhine - Mein - Danube system in a long term perspective.

5) Internationalization of Air Transport

Air transport service is vital for promoting the internationalization of Poland. Comings and goings of business persons on a global basis should be facilitated for economic revitalization of the country while those of people should also be facilitated for mutual understanding of culture and society. Polish air transport system should be geared to this end through close coordination among airports, airlines and air space control under the leadership of civil aviation administration.

The Polish air transport sector, however, has undergone drastic and chaotic changes since the introduction of the Economic Transformation Program in January 1990. Major issue seems to have stemmed from a radical swing from rigidly controlled to decentralized administrative framework under a deficiency of funds to support the institutional change. Sharp decline of air passengers exacerbated the situation.

First of all, air transport administration system needs to be regained with a view to converging dispersed interest and activities of the participants into a unified policy direction. The MTME needs to establish a unit to fulfill the responsibilities of planning, budgeting, supervising and monitoring of national civil aviation. At the same time, it is recommended to create a new civil aviation authority ("Polish Civil Aviation Bureau (PCAB)") by restructuring the existing GICA and PPL. Rationalization and modernization of the air transport sector could not be achieved by mere "decentralization policy" without relevant government leadership, particularly in a chaotic transition period. MTME needs to establish and officially announce a national air transport plan which comprises airport, air space, airlines and administration.

It is proposed that the national airports be classified into five categories, for instance:

- (1) Class 1 Airport: state owned international airport (Warsaw, Krakow and Gdansk)
- (2) Class 2 Airport: state owned regional/international airport (Katowice, Poznan, Rzeszon, Szczecin and Wroclaw)
- (3) Class 3 Airport: domestic/regional airport jointly owned by state and local government (Koszalin, Slupsk, Zielona Gora, Bialystock, Bydgoszcz, Lodz, Lublin and Olstzyn)
- (4) Class 4 Airport: general aviation airport owned by local government
- (5) Class 5 Airport: privately owned airports administered by local government

Air space control system needs to be improved with a view to complying with the requirements of the European Air Traffic Control Harmonization Program (EATCHP). Revenue from air space control should be used for improving its equipment as well as cross subsidizing the improvement of airports at least during the transition period.

Long term strategies on airline development should also be worked out by taking possible strategic alliance with foreign carriers into account so as to survive keen competition among international airlines. Replacement of the Soviet made aircraft with the Western made now undertaken by LOT should be reviewed from this aspect. Existing restrictions on regional flights (domestic and international combined) need to

be revised to encourage better communications with neighboring countries. Participation of private airlines should be encouraged to the domestic routes where small aircraft is more suitable for the demand.

6) Pipeline Transport

Due to the declining oil production in Russia as well as the revised pricing and settlement system of Russian oil, the government is in need of developing the new national energy strategy with a focus on diversifying sources of supply. However, at the moment, such a national plan has not been prepared. In consequence, it is quite uncertain of the roles of pipeline transport to carry oil and oil products.

It is very likely that oil import through the North Port of Gdansk will increase for the future and that most of the import will be sent to Plock for refinery as used to be in the past. However, as long as the pipeline between the North Port of Gdansk and Plock refinery is concerned, there will be no capacity constraints in the foreseeable future because the pipeline has a capacity of 26-30 million tons when equipped with boosters.

It is likely that oil products from Plock to every party of the country can be efficiently distributed through a combined network of main line system by railways and feeder system by lorries. Because of the Polish spatial organization of evenly distributed cities and settlements, it will be more economical to use the existing railway network which connects every city. In addition, if Poland liberalize the import of oil products from foreign countries, dual distribution system will become necessary: distribution networks of domestically produced oil products and imported oil products. This will lessen the necessity of developing product pipeline network.

3.9.2 Policy Guidelines for Major Transport Market

1) Cargo Transport Market

Cargo transport market of Poland comprises closely knitted international and domestic markets. International cargo transport market has international and domestic participants of maritime, railway and truck transport while in the domestic market truck and railway transport are competing with each other. Maritime transport has a distinctive market of carrying bulky cargoes such as coal/coke, oil and ore for export and import. Railway transport, on the other hand, has a distinctive market of carrying bulky cargoes such as coal/coke, metals and stones in the domestic market. When these cargoes are excluded, every mode of transport is competing in the market especially for general cargo transport.

Basic characteristic of cargo transport is that transport services required by customers are considerably different depending on kind of commodities, transport volume, purpose of transport and so forth. If customers find transport services supplied are not satisfactory, they can carry their cargoes by their own means of transport (trucks). At the same time, cargo transport demand is significantly influenced by business cycle in a short run, and changes of industrial structure and location in a long run. Due to these factors, cargo transporters are required to diversify and improve their services to comply with different type of demand as well as adjust and develop their services responding to the development of market demand.

Regulation on cargo transport market tends to suppress the responsiveness of carriers to the changing market demand. Prevailing economic regulations on railways are one of the reasons for a decline of railway share in cargo transport market relative to trucks while regulations on trucks for long distance haulage tended to be a serious obstacle to the national economy. As a rule, any economic regulations on the cargo transport

market needs to be lifted, excluding regulations on qualification and safety standards to mitigate possible social damages.

As the national economy diversifies and advances, it would be a general tendency that the demand for truck transport increases while that for railway transport decline (Table 3.9.1). Truck transport of increasing cost structure over distance even invade into the long distance haulage which is considered advantageous for railway transport of decreasing cost structure. For the sake of the national economic efficiency, railways should make their best efforts to modernize the process of loading/unloading and feeder transport services which incur extra costs relative to line haulage. Development of international forwarders who organize all the transport services from origin to destination is vital for revitalization of railways.

Table 3.9.1 Change of Market Share in Cargo Transport

	unit: %									
	-100km		101-200km		201-300km		301-500km		501km-	
	Rail	Road	Rail	Road	Rail	Road	Rail	Road	Rail	Road
1966	3	97	37	64	59	41	71	29	79	21
1976	1	99	15	85	22	78	21	79	29	71
1986	1	99	4	96	5	95	3	97	3	97

Source: "Statistics of Transport Economy of Japan"

Free competition among transport means should be encouraged to force every mode of transport to improve their services through rationalization and modernization. International cooperation including joint venture operation should also be encouraged to facilitate the introduction of new technologies and management in the international logistic system. The government needs to accelerate the rationalization and modernization program of PKP. At the same time, the government needs to improve the border crossing procedures particularly on the western border and introduce a modernization program of truckers.

2) Inter-City Passenger Transport

Railways, buses, airlines and private cars are competing in the inter-city passenger transport market. General characteristics observed in the western countries are that the share of railways has decreased because passengers have shifted partly to private cars and buses as motorways are developed and partly to airlines as time value increases. In the inter-city passenger transport market, market forces generally dominate over artificial policy guidance.

In the future, motorization will further progress, accompanied by increasing average travel distances. Improvement of highways and development of motorways will encourage inter-city bus services. LOT has resumed domestic air services by adopting new aircraft. These factors infer that railways will face further decline of passengers unless the services are improved. Market share of railways will largely depend on modernization and introduction of higher train operations on the lines between major urban centers. In order to compete with other modes of transport on these routes, fares need to be further deregulated, coupled with thorough rationalization of PKP management and local lines.

Inter-city bus services are provided by regional PKS bus companies. They have an extensive service network connecting their regional terminals with other major cities and/or local towns. Currently, their inter-city services do not necessarily concentrate on trunk lines but include local lines. This type of operation needs to be divided into express buses on trunk lines and local buses on feeder lines so as to improve the

efficiency of bus operations. Improvement of highways and development of motorways will improve the competitiveness of inter-city bus services. According to the Japanese experience, while length of motorways increased by 2.46 times during 14 years, inter-city bus passengers increased by 4.51 times, most of which shifted from railways. In the medium/long term perspective, capacity of bus terminals needs to be increased.

LOT has resumed domestic air services in 1992 by providing new aircraft. It is likely, however, that LOT's business performance will become better if the domestic services are extended to cities in the neighboring countries. Domestic air services, excluding some exceptional routes, seem to be less competitive with other competing modes because of medium distance of 300-400 kilometers, additional time and costs at airport and for access/egress, and costly new aircraft. Small aircraft by private airlines would result in better business performance on the air routes of limited number of passengers.

As stated in the beginning, free competition should prevail in this market segment. Experiences of western countries and Japan suggest that any policy measures to protect railways from competition in this segment have ended with progressive financial deterioration of railways.

3) Rural Transport

According to the Japanese experience, modal share of rural transport (excluding urban transport) has dramatically changed in 18 years from 1970 to 1988: (1) share of bus decreased from 47.1% to 12.4%; (2) marginal share of railways decreased from 10.8% to 5.9%; and (3) share of private cars increased from 20.7% to 71.0%. This tendency corresponds with experiences of the western countries in that the share of private cars steadily increased in rural transport market while the share of public transport deteriorated in accordance with the progress of motorization.

Public transport in local transport market is generally characterized by "inconvenience" from users' viewpoint and "unprofitability" from suppliers' viewpoint. Decrease of passengers forces public transport to lower their service levels by reducing service network and operation frequencies while users' requirement for quality improvement rises as their income increases. This accelerates the shift from public to private transport means. However, it is obvious that there remains a group of people who have no transport means other than public transport. The role of the government is very important in this market.

Among other things, the government initiative is required to establish clear distinction of responsibilities between the government and PKP for train operations on unprofitable local lines and then to provide alternative public transport services in place of railways when they are suspended.

Local bus services are also making losses. Rationalization of public transport enterprises and revision of bus fares would be the first step toward financial improvement of local bus services. However, it is likely that operation losses will continue because of a small number of passengers and that the situation will be worsened as motorization progresses. It will be necessary to introduce new type of public or semi-public transport services as applied in other countries. They include: purpose oriented public services like school and hospital buses; shared taxis and public use of private cars; and membership services based on the theory of clubs. The existing laws likely contradict with these type of new services. The government needs to revise them to be adaptable to these requirements, coupled with full support for their implementation.

4) Urban Transport

(1) Major Issues

a) Experience in other countries

The evolution of urban areas into major national activity precincts has been a common world-wide phenomena. Intensification of city centers, expansion of urban functions into suburban areas and shifting residential patterns have typically accompanied this trend.

The impacts upon urban transport services have been pronounced. The role of the private car in meeting urban trips has dramatically increased, fueled in part by the perceived (comfort, convenience, speed) and indirect (extensive road construction projects) modal advantages, but also by real growth in gross disposable incomes. Public transport operations have suffered as a consequence of this transition in that patronage levels have increasingly declined.

This locks the public transport industry into a vicious cycle in which reduced patronage translates to decreased revenue and, subsequently, service reductions and/or increasing requests for subsidies to local and national governments. The problem is compounded in that public transport costs are increasing, fueled by labor and inflation costs, at a time when revenues are decreasing.

These global changes in transport behavior are fostered by policies and administrative programs. Thus, during the 1950's, 1960's and 1970's, extensive construction of urban freeways, coupled with the dismantling of urban rail transport systems, combined to convert America to a very car-oriented society. Similar patterns can be noted in other industrialized nations in Western Europe and Japan, although the metamorphosis has not been as dramatic as in the United States.

In recent decades, the vehicle-intensive approach to solving urban transport problems has been brought into question spurred not only by signs of inadequacy such as increasing congestion, pollution and accidents, but also due to fundamental concerns related to the provision of a specific mode (roads) whose construction and maintenance costs are heavily subsidized for its (relatively) affluent users. Public transport patrons, in turn, are forced to pay fares which are designed to recoup outlays incurred by the operator.

The result has been a renaissance of public transport in larger urban areas. These include the provision of higher-order public transport systems such as light rail transit (LRT), heavy rail transit (HRT), suburban rail services and bus services. Such programs are often accompanied by attempts to optimize and, in some cases, control use of the private car particularly in central business districts. Such measures can be supply side, which relates to the provision of road and parking facilities, or demand side, which relates to the imposition of user fees taxes, or similar mechanisms to limit car use. Demand side actions can be a contentious subject, and only in Singapore has a form of road pricing been successfully introduced.

Perhaps one of the most important lessons to be drawn from historical precedence is that the approach to solving urban transport problems must be based on an integrated system; that is, a harmonious blending of available modes which maximizes their relative advantages and optimizes their application. Capital intensive projects must be subject to detailed feasibility studies which seek answers to four basic questions:

- (a) What path of development does the city (region) wish to pursue;
- (b) What financial resources will likely to be available now and in the future;
- (c) How important is the project compared to other needs (transport and non-transport); and
- (d) Could lower cost options achieve similar objectives more cost effectively?

These considerations should form the basis of future urban transport analysis in Poland.

b) Urban transport issues in Poland

Reconstruction after World War focused on preservation or re-creation of city environments as they existed before the war. The urban road systems were generally intended to link national roads (unfortunately, in most cases, via the urban centers) and to provide corridors of intra-urban movement commensurate with then-existing aesthetic standards and anticipated levels of motorization. However, recently, car ownership in Warsaw has exceeded 300 passenger cars per 1,000 population, more than twice the national average. Further increases in motorization are expected in the future. Many of the problems which have appeared, including congestion in central areas and limitations in available parking supply, can be expected to intensify in the future.

The urban public transport systems reflect then-expected limitations in motorization and the objective that good mobility for urban residents is a communal obligation. Generally speaking, existing systems are extensive, offer frequent service and, relative to other nations, are reasonable in price. However, the principal problem experienced by public transport is extent and revenue shortfalls. Urban transport services are provided in 274 of 822 cities by city/state transport enterprises, most of which suffer financial losses. Income from ticket sales recovered only some 36 percent of 1989 and 55% in 1991 operating and maintenance costs, with shortfalls subsidized by government. It can be expected that without a re-focusing of operations, this deficit will continue to grow and subsidies from government will grow increasingly smaller.

The resolution of these current and future problems is complex in that both the technical and administrative apparatus is burdened by inherited legacies of the previous political system. Administrative overlaps occur in that, at the regional level, many bodies are involved including MTME, Central Planning Board, Ministry of Physical Planning and Construction, Voivodship Offices and local government. Within Warsaw, for example, transport management is in even greater need of streamlining (Table 3.9.2).

Table 3.9.2 Transport Management in Warsaw

		MANAGING AGENCY				
		Roads and Streets				
MODE	FIELD	Railways	Long-distance & suburban coach transport	Communal transport in Warsaw (local)	National & Voivodship	Communal & local urban
Management		Minister of Trans.	Minister of Transport	President of Warsaw	Voivodships X ₄	Mayor of the District Commune X ₂
Planning & Financing of Construction, Modernization, & maintenance of infrastructure		DG PKP	PKS	Technical Dept. of Management of Warsaw X ₅	Communication Dept. of Voivodship X ₃	District Office (commune)
Construction & Maintenance of Infrastructure		CDOKP X ₈	PKS X ₈	MZK with supervision of WT X ₇	Voivodship Directorate of Urban Roads X ₄	VDUR or other enterprise on order of District Office X ₅
Managing the Traffic		CDOKP with supervision of DG PKP X ₈	PKS X ₈	MZK with supervision of WT X ₇	Communication Dept. of Voivodship X ₃	Communication Dept. of Voivodship X ₃
Managing the Traffic		CDOKP with supervision of DG PKP X ₈	PKS X ₈	MZK with supervision of WT X ₇	---	---

NOTATIONS

X ₁	- since 1.01.92 -	President of Warsaw (in agreement with the voivodeship)
X ₂	- " -	President of Warsaw (in agreement with the mayor)
X ₃	- " -	Department of Transport of Warsaw Metropolitan Authority
X ₄	- " -	Companies (Enterprises) - Subcontractors commissioned by President (Metropolitan Authority)
X ₅	- " -	Manager (Board) of Public Transport in Warsaw
X ₆	- " -	Companies - Subcontractors commissioned by a burgermaster (mayor)
X ₇	- " -	With control by manager of Public Transport in Warsaw (Agencies of Warsaw Metropolitan Authority)
X ₈	- " -	In agreement with the manager of Public Transport in Warsaw
DG PKP	----	PKP Head Office
CDOKP	----	Central Railways District Direction of State Rail (i.e. in Warsaw)
PKS	----	Enterprise for State Bus Transport
MZK	----	Municipal Transport Enterprise
WT	----	Department of Warsaw Metropolitan Authority

Technical concerns relate to major infrastructure commitments made by the previous regime which, in many cases, were based on technic-political, rather than needs, considerations. Furthermore, capital intensive projects such as construction of the Warsaw metro have become major economic burdens to the new administration. Implementation of major projects has not kept pace with earlier forecasts and now government is faced with decisions regarding how to best proceed with expensive, partially completed projects whose actual need is, in some cases, dubious. Examples can be found in many cities including the Poznan LRT and the Silesia Regional Railway (SKR). In Warsaw, lagging implementation of large scale transport projects is obvious.

Major issues of urban public transport can therefore be summarized as follows:

- (a) Uncoordinated urban transport policy fragmented among various governmental agencies;
- (b) Commitments to transport projects by the previous regime which may be inappropriate under the new economic system and to future transport strategies;
- (c) Increasing car traffic in urban areas causing congestion, environmental damage and worsening parking conditions;
- (d) Gradual deterioration of public transport services due to declining subsidies from government; and
- (e) A need to segregate, from functional perspectives, transport system utilization by inter-urban and intra-urban users.

(2) The Role of Transport Management

The importance of Transportation Systems Management (TSM) has significantly increased as it has been recognized that many transport problems can be resolved without large scale investment in transport infrastructure. The approach to planning transport improvements is management intensive rather than capital intensive with a view to reducing inefficiencies in the existing transport system. TSM achieves this through the planning, design, implementation, maintenance and monitoring of physical and policy measures which promote the efficient and safe flow of passengers, vehicles and pedestrians. The schemes are low cost, being principally concerned with minor road works, traffic control equipment and the introduction of regulations. In many cases, the success of a scheme depends on good inter-agency coordination and strong enforcement by the police of accompanying traffic regulations.

This switch in emphasis from "capital" solutions to "management" solutions is gaining momentum as the harsh realities of the current economic climate are being felt. The major obstacle in the development of this approach is a lack of trained and experienced professionals. Luckily, in Poland, there exist strong civil and highway engineering resources, professionals which only need to be trained in traffic engineering and management skills. There is, of course, also a need to develop an institutional environment that fosters the use, development and growth of transport management and planning skills.

The objectives of an urban TSM program can be summarized as:

- (a) to reduce capital investment in roads by promoting low cost solutions to traffic and transport problems;
- (b) to increase the capacity of the urban road network in terms of the movement of people and goods;
- (c) to improve the enforcement of traffic regulations;
- (d) to improve road safety; and
- (e) to improve transport efficiency and the standard of service of public transport.

In transport projects, these objectives are achieved through the implementation of a series of inter-related sub-components covering:

- (a) development of institutional capacity;
- (b) implementation of policy measures;
- (c) improvement of physical facilities;
- (d) procurement of equipment.

Transport management is an on-going process primarily concerned with the engineering and enforcement of traffic control and safety measures in urban areas. For these measures to be successful there is a need for a two-level hierarchy of responsibility:

- (a) a national level responsible for general policies, standards, specifications, laws and overall monitoring; and
- (b) a local level responsible for specific planning, design, implementation, maintenance, local monitoring, regulations and enforcement.

In Poland, a clear national/local demarcation does not yet exist in that urban transport responsibilities frequently overlap or are duplicated among several agencies. Thus, modifications should take place. It must be remembered, however, that one of the most important features of any derived institutional framework is a clear, effective mode of communication between the bodies or agencies which assume them. The responsibility of the decision-makers is to develop policy and priority frameworks within which the technical agency operates. The responsibility of the technical agency is to provide the decision-makers with the information and data necessary for the formulation of policies and priorities and to implement and enforce the decisions that are made.

(3) A View to the Future

a) Administration Restructuring

The essence of successful administration is a sound national-local partnership. Modification of the "local" component, that is, urban area/region administration, is recommended. At this juncture, proposed actions are as follows:

Activities related to road infrastructure (with the possible exception of national roads) should be centralized within a single urban government entity. Responsibility for urban public transport services should be vested with urban/regional transport authorities.

In the case of road facilities, operation should be consolidated within a single agency within urban government, possibly the Department of Transportation (DOT). Thus the DOT would compete with other departments for city revenues received from taxes, fees and other resident levies. Vertical coordination with the central government would require that national funds for the DOT are made available on a project specific basis, or as a part of general revenue sharing programs. It is likely that new national-local agreements regarding revenue sharing will be required.

The formation of public transport authorities implies that local government will "get out" of the public transport business. Future involvement would mainly be for coordination purpose and, in some instances, implementation of major projects.

An authority can exist in many forms, with its ultimate configuration dependent upon the tasks entrusted to its care. Responsibility may extend over an urban/metropolitan area, which is typical if the authority principally serves a large, urban agglomeration such as Warsaw. The authority would be responsible for all public transport activities, that is, the provision and operation of all forms of transport to include buses, LRT, heavy rail and commuter rail operations.

An authority needs to be designated an independent legal entity. The Parliamentary charter would also contain guidelines on how various existing transport operators would be absorbed into the authority (including land, properties and staff). Once operational, it is expected that the authority would assume all responsibility for provision of designated services.

The requirement of a balanced annual authority budget is critical; that is, income must equal expenditures since subsidies from government will not be forthcoming. The most important aspect in this regard is designation of a revenue source that is stable, inflation-proof, and of sufficient magnitude to cover sizable portions of the authorities budget.

A number of options exist in this regard, however, previous experience has shown that a sales tax, perhaps 1 to 2 percent of general purchases made within the designated authority area, is suitable for this purpose. Care must therefore be taken that the Parliamentary Charter permits the levying of a tax dedicated exclusively to the operation of the authority. Other potential sources of revenue include:

- (a) Income from transport operations (fares, advertising, special services);
- (b) Developer assessments, that is, the developer of a major shopping center would be expected to financially contribute toward upgrading, for example, public transport systems near the project in order to off-set expected increases in activity;
- (c) The authority could issue a public debt such as a bond with repayment guaranteed by revenues derived from a fixed fiscal source;
- (d) The sale of land no longer in active use by the authority such as old depots or abandoned rail lines, or generation of a revenue stream based on leasing arrangements or participates in joint development ventures with the private sector;
- (e) A cost sharing agreement in capital intensive projects with normal channels of government, foreign funding sources or international aid agencies is acceptable on a negotiated, case-by-case basis; and
- (f) Reduction of operating expenses by tendering, for example, money-losing bus routes to private companies for operation. A subsidy from the authority to the operator would still, in effect, be required to permit realization of a profit.

b) Technical Considerations

There is a need to initiate a series of programs and projects which will ensure a logical and sound approach to mitigating current and future technical problems. While perceived transport problems in urban areas have not yet reached a critical stage it is nevertheless necessary to proceed at the earliest opportunity in order to construct procedural bases.

The need to develop comprehensive urban transport planning processes, supported by computerized models, is a pressing requirement. Strategic medium and longer-term investigations, which assess the structure of road and public transport systems, land-use and transport interactions, as well as balancing demand with supply, can then proceed. Warsaw, given its size and strategic importance to the nation, is a logical candidate for strengthening this process. Transport planning should proceed in a hierarchial, nested manner (Fig. 3.9.1).

Development of a Transport Systems Management (TSM) plan is another preferred area of focus. TSM places considerable stock in effective management of existing transport resources. Likely candidate projects include:

- (a) Channelization, signage and markings at intersections;
- (b) Upgrading of outdated signal systems to include, in heavily-used corridors signal interconnection;
- (c) Parking controls with a view toward limiting portions of the parking supply to short-term duration.
- (d) Effective and on-going enforcement; and
- (e) Development of uniform criteria and guidelines similar in format to a national "Manual on Uniform Traffic Control Devices".

Planning for major capital intensive improvements, including decisions as to the status of previously committed projects, should only proceed as part of a comprehensive urban transport study.

Measures to improve public transport services range over a wide spectrum including modification of route structure, improvement of management efficiencies, autonomy to set fare structures, system expansions and the implementation of higher-order forms of transport among them priority bus treatments, exclusive bus facilities, LRT (or extensions thereof) and completion of previously committed HRT projects such as the Warsaw metro.

Resolution is, as with major road projects, contingent upon initiation of a multi-modal urban transport study. In the interim, a likely focus for TSM near-term actions could include:

- (a) Implementation of an accounting and record-keeping system which allocates public transport costs into distance-related, time-related and fixed categories. Breakdowns to the individual route level should be possible;
- (b) Authority to optimize fare structures. Fares should, in general, move towards full cost recovery, be related to types, distance and standard of service provided and be revised in line with changing conditions, particularly costs and patronage; and
- (c) Surveys to monitor passenger preference, trip patterns, and route demand. This is an essential prerequisite which provides information vital to optimizing services.

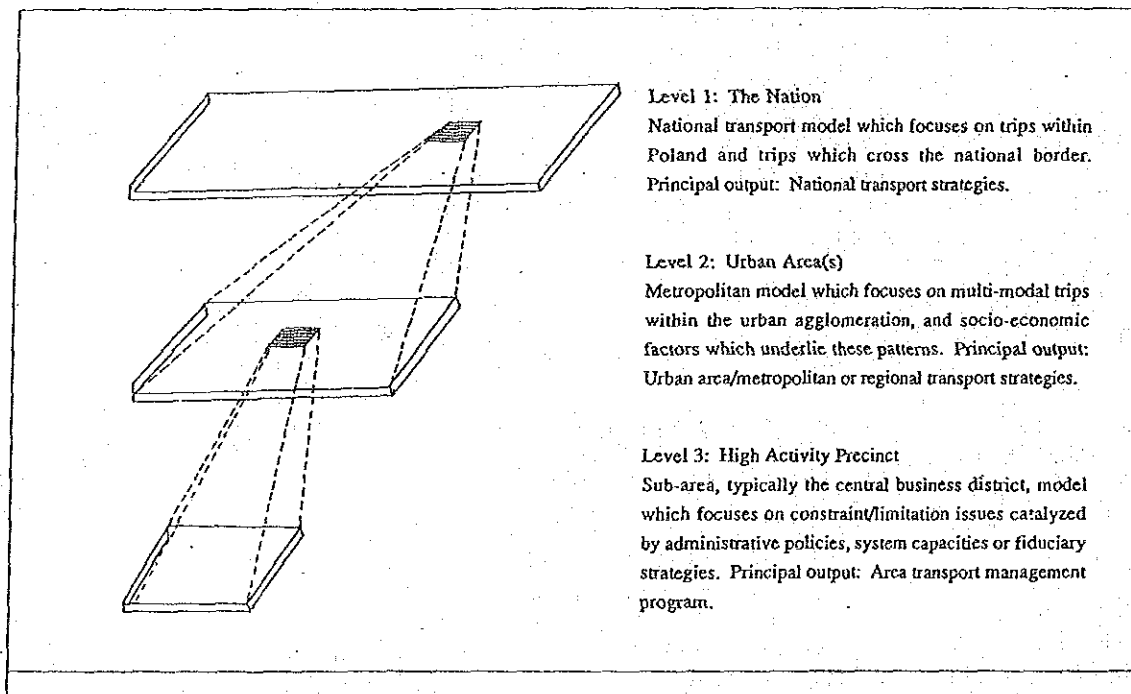


Fig. 3.9.1 Nested Approach to Urban Transport Planning