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# The Challenge of Rapidly Improving Transport Infrastructure in Poland

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# THE CHALLENGE OF RAPIDLY IMPROVING TRANSPORT INFRASTRUCTURE IN POLAND

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## ABSTRACT/RESUME


### The challenge of rapidly improving transport infrastructure in Poland

Following many years of underinvestment, renovating and building new transport infrastructure is an important policy priority that would increase labour mobility and improve Poland's competitiveness. This goal is all the more feasible given that the country is going to benefit from substantial EU structural and cohesion funds over the programming period 2007-13. On top of the limited timeframe for the absorption of EU funds, the European soccer championship that Poland is going to co-host with Ukraine in 2012 imposes an additional time constraint on many investment projects. The country is heavily reliant on road transport but is lacking an efficient high-speed road network. It needs important renovation investments both in the rolling stock and infrastructure network of the railway sector. It also faces the challenges of revitalising maritime transport as well as extending and upgrading airport facilities to cope with the fastest growing air market in Europe. However, many obstacles remain and hinder the implementation of investment plans and thus need to be resolved rapidly. From the macroeconomic perspective, these are related to rising prices of scarce labour and intermediate inputs, while from the microeconomic standpoint the main difficulties lie in the area of the regulatory framework underlying the provision of physical infrastructure.



*JEL codes*: L91; L92; L93; H54; H57; P20
*Keywords*: OECD; Poland; transport; infrastructure; roads; motorways; railways; seaports; airports; aviation; freight; EU; structural funds; cohesion funds; public-private partnership


*********


### Le défi d'une amélioration rapide des infrastructures de transport en Pologne

Après des années de sous-investissement, la rénovation des infrastructures de transport existantes et la construction d'infrastructures nouvelles représentent une importante priorité d'action en vue d'accroître la mobilité de la main-d'œuvre et d'améliorer la compétitivité de la Pologne. Cet objectif est d'autant plus réalisable que le pays va bénéficier d'un volume substantiel de fonds structurels et de fonds de cohésion de l'UE au cours de la période de programmation 2007-13. Outre que l'utilisation des fonds européens est soumise à un calendrier restreint, le championnat d'Europe de football que la Pologne organisera conjointement avec l'Ukraine en 2012 impose une contrainte temporaire supplémentaire sur de nombreux projets d'investissement. Lourdement tributaire du transport routier, la Pologne est dépourvue d'un réseau autoroutier efficace. Dans le secteur ferroviaire, le matériel roulant comme le réseau d'infrastructure nécessitent d'importants investissements de rénovation. De surcroît, il faut revitaliser les transports maritimes mais aussi agrandir et moderniser les installations aéroportuaires afin de faire face à une croissance du marché des transports aériens sans équivalent en Europe. Cependant, de nombreux obstacles subsistent et entravent la mise en œuvre des plans d'investissement ; il faut donc y porter remède sans tarder. Sur un plan macroéconomique, ces freins résident dans la hausse des prix de ressources limitées en main-d'œuvre et en intrants intermédiaires, tandis que d'un point de vue microéconomique, les principales difficultés tiennent au cadre réglementaire qui sous-tend la fourniture d'infrastructures physiques.



*Classification JEL* : L91 ; L92 ; L93 ; H54 ; H57 ; P20
*Mots-clés* : OCDE ; Pologne ; transport ; infrastructures ; routes ; autoroutes ; chemins de fer ; ports maritimes ; aéroports ; aviation ; fret ; UE ; fonds structurels ; fonds de cohésion ; partenariat public-privé


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# The challenge of rapidly improving transport infrastructure in Poland

By
Rafał Kierzenkowski[1]

## Introduction

Improving transport infrastructure in Poland is a huge challenge for the coming years. It is a key requirement for keeping the economy on a high long-term growth path. All major types of such infrastructure (roads, railways, seaports and airports) are either underdeveloped or in very poor condition and thus need rapid repair, upgrading and extension. While investment outlays in the transport sector typically amount to 1-2% of GDP in developed OECD countries, this ratio never exceeded 0.7% in Poland during the 1990s, thereby leading to a sharp deterioration of the capital stock. In view of this situation and given the prospect of substantial EU funding over the next few years, a National Development Strategy for the 2007-15 period and a National Strategic Reference Framework for the 2007-13 EU programming period, in which public investment in infrastructure plays an important role, have been adopted by the government (Ministry of Regional Development, 2006a and 2006b). Moreover, the challenge of improving infrastructure has become all the more urgent given that Poland has been chosen to co-host the European soccer championships in 2012. As a result, the target dates for completion of many investment projects have been brought forward from the initial schedule. Therefore, the goal is not only to boost the quality and quantity of infrastructure but also to achieve these objectives on time.

A number of obstacles hinder the realisation of investment projects on a fast track. From the macroeconomic perspective, these are related to shortages of skilled workers, rapidly rising prices of building materials, trend exchange-rate appreciation and binding constraints on public finances. From the microeconomic standpoint, the main barriers lie in the area of an inefficient public procurement law, burdensome environmental regulation procedures, the challenge of participating in the Natura 2000 ecological network and a fickle approach to public-private partnerships (PPPs). Yet other difficulties remain, too. It is unclear whether proper evaluations based on cost-benefit analysis of individual projects (which also explicitly consider the substitutability among different modes of transport) have been made in the planning process for needed investments and whether appropriate co-ordination between central and local governments in designing investment plans has taken place. Moreover, it is debatable whether the choice of gearing major spending efforts toward the road sector can be judged sustainable from the point of

1. This paper was originally produced for the *OECD Economic Survey of Poland* (www.oecd.org/eco/surveys/poland) published in June 2008 under the authority of the Economic and Development Review Committee. The author is indebted to Dorothée Allain-Dupré, Sonia Araujo, Andrew Dean, Alain De Serres, Balázs Égert, Peter Jarrett, Val Koromzay, Tomasz Koźluk and Douglas Sutherland for their valuable comments. Special thanks go to Sylvie Foucher-Hantala for technical assistance and to Mee-Lan Frank for editorial support.

view of high and rising energy prices and climate change. Finally, it is essential that existing market regulations and ownership structures promote fair competition in the corresponding sectors.

**The state of transport infrastructure: facts and deficiencies**

***Roads***

Road transport demand has soared since the beginning of economic transition, as a share of transport of both people and merchandise (Figure 1, Panel A, and in absolute terms, Panel B). Poland has become an important transit country in international trade between Western and Eastern Europe, though the sector suffers from major deficiencies. The fundamental problems in road transport are the low level of technical standards of existing roads, an insufficient maintenance of the network and an underdeveloped system of high-capacity roads. These factors have led to chronic road congestion and an accelerated depreciation of the actual network as well as a dramatic decrease in traffic safety when considering both the number of accidents and corresponding fatality rates.[2] The World Economic Forum's Global Competitiveness Report clearly indicates that Poland lags behind all other OECD countries in terms of quality of its road network (Figure 2).

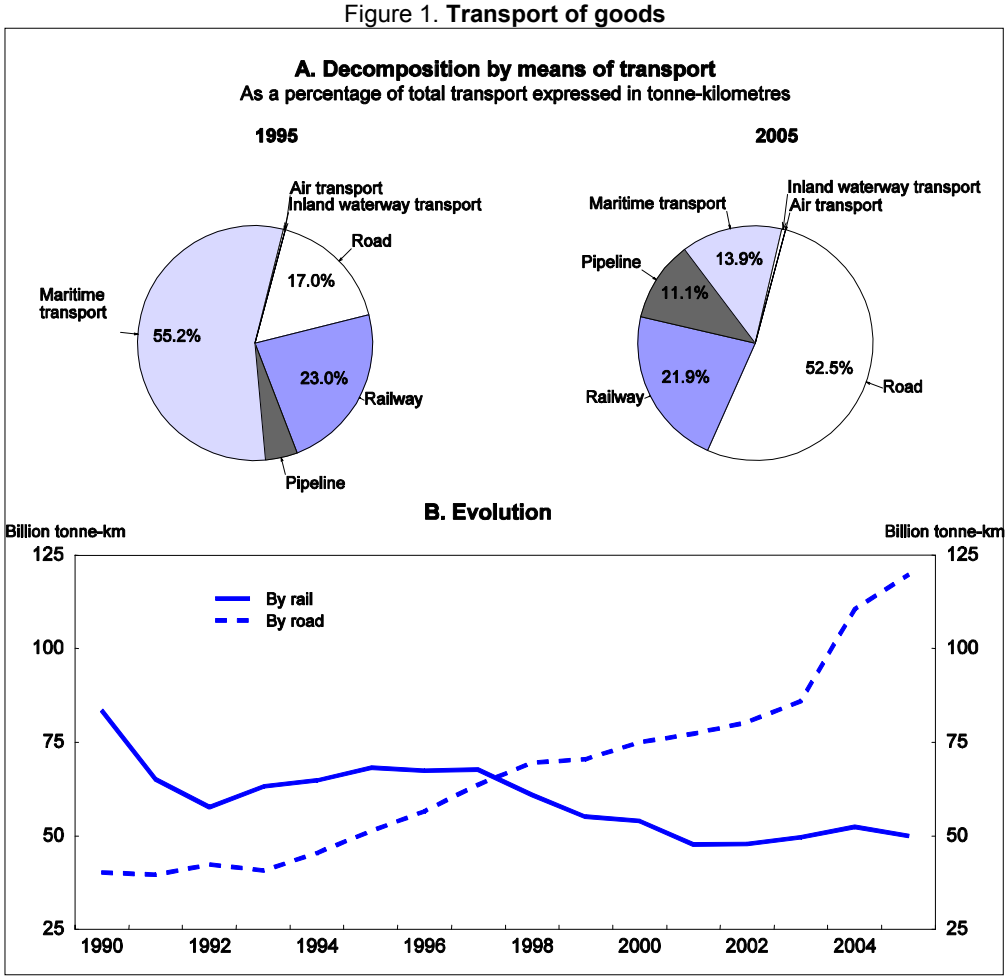
There were 377 974 km of public roads in Poland in 2007. In 2004, their development and maintenance was decentralised, with regional and local governments looking after all but national roads and overseeing 95% of the network.[3] National roads (including motorways and expressways), which are under the responsibility of the central government, account for only 5% of all routes and generate close to 40% of overall traffic, but a cohesive high-speed network is strikingly lacking (Figure 3). It is insufficient in length, does not allow traffic continuity throughout the country on any of the international transit routes, lacks major connections between the main urban centres (especially in eastern Poland) and is underdeveloped or nonexistent on their peripheries. In 2007, the length of the motorway and expressway roads amounted to 674 km and 294 km, respectively, and together represented as little as 5.7% of national roads and barely 0.3% of public roads. As a result, there is high traffic intensity, including lorry traffic, through built-up areas. The absence of ring roads around both smaller and bigger cities leads to negative externalities (in the form of noise, safety and pollution) for their residents.

While road maintenance is poor – more than half of all national roads need to be repaired immediately or in the near future according to the General Directorate for National Roads and Motorways (GDDKiA) – further deterioration has been stopped and the situation started to improve gradually as from 2003, mainly because of inflows of EU funds and higher earmarking of public resources. An important obstacle to faster renovation is that most of the roads have a load capacity of only 8 or 10 tonnes per axle, whereas 11.5 tonnes per axle is the international standard that complies with EU regulations. Therefore, the free passage of international heavy lorries has been causing rapid deterioration of the main transit routes. The decentralisation of the management process of public roads has led to a concentration of central resources on the development of national roads, while local governments deal mainly with the maintenance of existing routes. More generally, in its medium-term investment strategy Poland appears to have made a

2. Road traffic accident-related mortality per 100 000 population amounted to 13.7 persons per 100 000 inhabitants in 2006, which is 2.3 times more than in the best performing EU countries; road traffic accident-related mortality per 100 accidents is also very high: 11.2 deaths for 100 accidents, while the EU average is 2.7 (Ministry of Transport, 2007a).

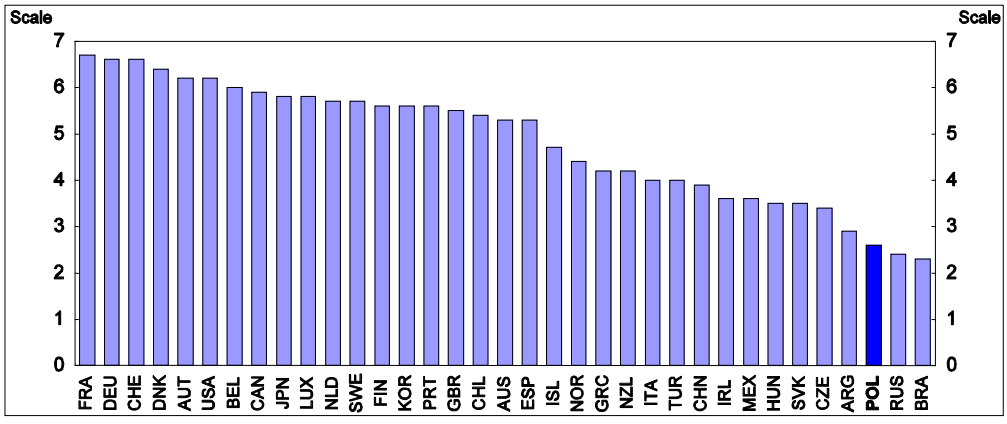
3. In 2007, 8%, 34% and 53% of public roads were under the responsibility of voivodeships, counties and communes, respectively.

Figure 1. **Transport of goods**




*Source*: GUS (2006), *Concise Statistical Yearbook of Poland*; OECD (2006), *Trends in the Transport Sector database*.

Figure 2. **Road infrastructure quality**[1]

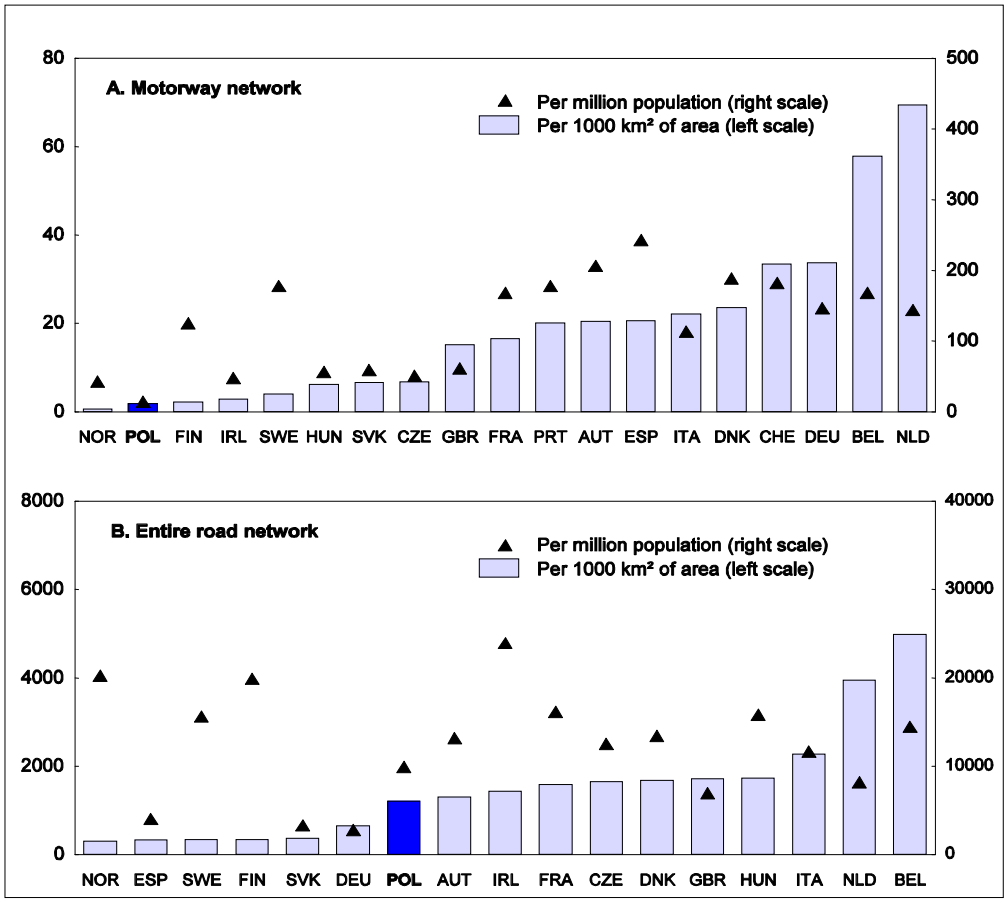



1. Scale from 1 (underdeveloped) to 7 (extensive and as efficient as the world's best).

*Source*: World Economic Forum (2007), The Global Competitiveness Report 2007-2008.

Figure 3. **The road network is fairly sparse**

Kilometres, 2004 or latest available year




*Source*: European Commission (2007), Panorama of transport and New Chronos database.

choice in favour of national roads (with priority given to high-capacity roads) and put less emphasis on local/regional roads. A time limit for spending EU grants of 2015[4] and the European soccer championships that Poland will co-host with Ukraine in 2012 together impose important time constraints on many investment projects, and have spurred development of an ambitious building plan of national roads over the next few years (Box 1) (Ministry of Transport, 2007a).

4. EU structural and cohesion funds must be used by the end of the second year following the year in which they are allocated (N+2 rule). This means that over the programming period 2007-13, EU grants have to be disbursed by the end of 2015 at the latest. Otherwise, the remaining money must be returned.

Box 1. **Construction programme of national roads in 2008-12**

At the end of September 2007, the government adopted an ambitious Programme of construction of national roads for the period 2008-12. Priority investments include completion or further extension of three key motorways crossing the country:

- A1 motorway (from Gdansk in the North to Gorzyczki and the Czech border in the South);
- A2 motorway (from the German border and Świecko in the West to Warsaw);
- A4 motorway (from the German border and Jędrzychowice in the West to Korczowa and the eastern border with Ukraine); and
- Two North-South expressways, S3 and S19, along the western and eastern borders, respectively, as well as high-capacity roads connecting regional capitals that are going to host the European soccer championships in 2012 (Warsaw, Gdansk, Wroclaw, Poznan and Krakow).

Altogether, 632 km of motorways, 1980 km of expressways and 58 ring roads of a total length of 428 km are to be built. Moreover, an additional 1 560 km of national roads are planned to be reinforced or modernised so as to achieve a ratio of 75% of national roads in good condition and a further 10% with a satisfactory standard. It has been decided that the Programme will be implemented by both the public regulator and investor (the GDDKiA), through traditional public undertakings, and by state-owned special-purpose road companies established in January 2007 under the supervision of the Ministry of Transport (Infrastructure). The programme is estimated to cost PLN 121 billion (EUR 33.6 billion), that is PLN 24 billion a year (EUR 6.7 billion) as compared with PLN 10.1 billion (EUR 2.8 billion) spent in 2007 and PLN 6.8 billion (EUR 1.8 billion) spent on average over 2004-06. It will involve EU grants of a value of PLN 35 billion (EUR 9.7 billion) from the EU financial perspectives 2004-06 and 2007-13 and PLN 86 billion (EUR 23.9 billion) of national public funds, of which PLN 36 billion (EUR 10 billion) are for projects not related to EU funding. The Programme also allows for an involvement of the private sector, though to a smaller extent. 473 km of motorways are projected to be financed, built and operated through Public-Private Partnerships, including a concession of around 181 km of the A1 motorway (Strykόw to Pyrzowice), and two stretches of the A2 motorway (95 km from Strykόw to Konotopa and 104 km from Nowy Tomyśl to Świecko). Additionally, the construction of another section the A1 motorway (62 km from Nowe Marzy to Toruń), should result in a total of 535 km of motorways built under the PPP mechanism.

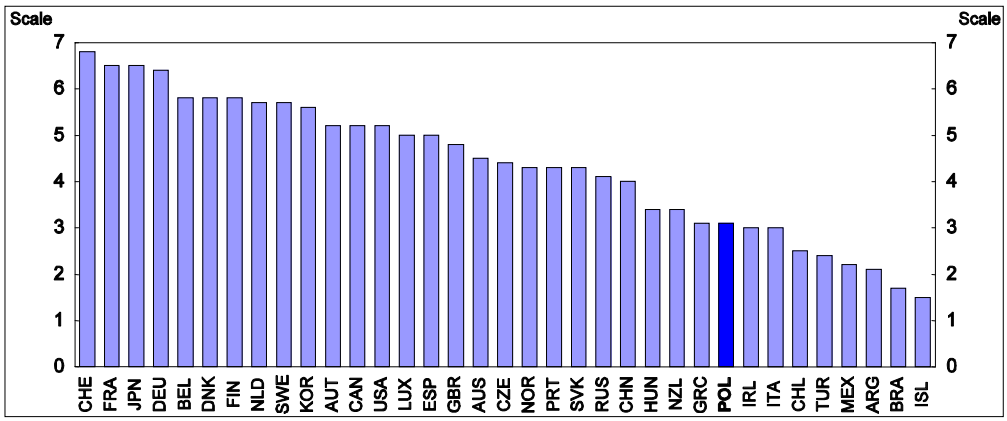
*Source:* Ministry of Transport (2007a) and Ministry of Infrastructure.

### *Railways*

Although Poland's rail system is the third largest in Europe, the sector's key problem is the obsolescence of the capital stock.[5] Much has to be done to bridge the gap with best performing countries, such as Switzerland, France and Japan (Figure 4). The infrastructure is in very poor technical condition and often fails to fulfil safety requirements (only 30% of the network is of good quality and thus requires only maintenance work), while the bulk of the rolling stock is out-dated and/or worn out. This leads to important speed limits as the maximum speed on 40% of the operating network is less than 80 km/h. The lack of investment in the railway sector has led to an insufficient quality of service provision, which when combined with the falling demand for coal and metallurgical products, has generated a constant decline in rail passenger and freight traffic since the beginning of the 1990s (Figures 1 and 5). The resulting low competitiveness of rail transport compared with road transport has led to a significant modification of respective modal shares in transportation. In absolute terms, rail passenger traffic decreased by two-thirds between 1990 and 2004. However, rail freight transport still plays an important role in Poland's economy, as almost half of it (by tonnage) is represented by coal.

5. By end-2007, there were 23 428 km of railroads, with 17 000 km having primary importance, around 2 800 km with a local significance and approximately 3 700 km unused.

Figure 4. **Rail infrastructure quality**[1]

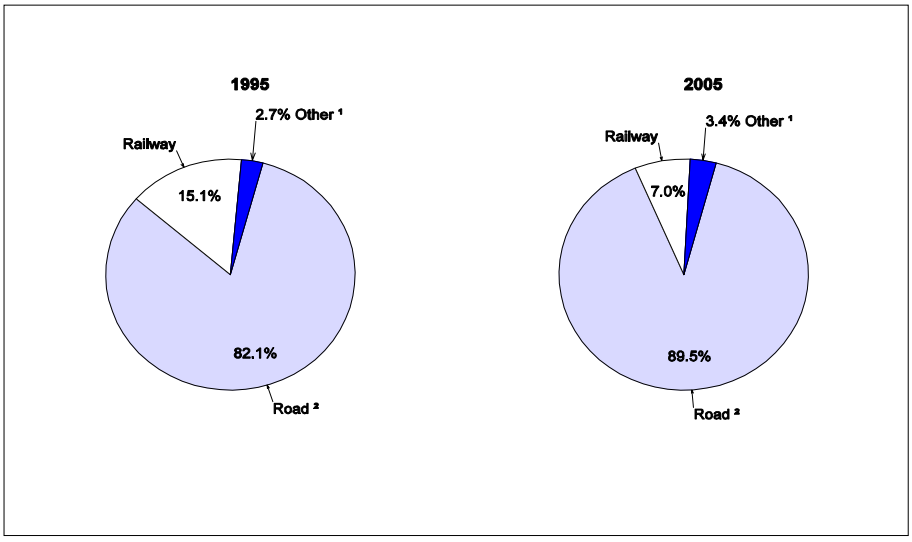



1. Scale from 1 (underdeveloped) to 7 (extensive and as efficient as the world's best).

*Source*: World Economic Forum (2007), The Global Competitiveness Report 2007-2008.

Figure 5. **Passengers by means of transport**

As a percentage of total transport expressed in passenger-kilometres




1. Maritime, inland waterway and air transport.
2. Including individual cars.

*Source*: GUS (2006), *Concise Statistical Yearbook of Poland*; OECD (2006), *Trends in the Transport Sector database*.

Since 2000, several programmes have been implemented to increase the efficiency of the state railway company (PKP). The company was first transformed into a joint stock company (with the State as the sole shareholder) and then reorganised into a conglomerate of 42 companies (named the PKP Group), with the aim of restructuring those that were in bad financial condition and then of privatising some selected members of the Group. So far, these efforts have failed to deliver intended outcomes: to stem the decline of rail passenger and freight traffic, adequately prepare companies for privatisation, reduce the debt of and liquidate payment arrears within the PKP Group, regulate property issues and make a clear separation between the main infrastructure manager and the companies using the network (Ministry of Transport, 2007b).

In view of this situation, the government adopted a new strategic plan in April 2007 entitled "Strategy for railway transport until 2013". It allocates the role of co-ordinating the process of railway transformation to the State, with only limited involvement of the private sector. The infrastructure manager (PKP PLK) will remain a non-profit, publicly owned company financially backed by different sources (central and local governments' budgets, EU funds, bank loans). Two profitable companies of the PKP Group, that is, the freight (PKP Cargo) and the transnational passenger (PKP Intercity) rail companies, will be partially privatised by 2010, but the State will retain a controlling stake in each case.

According to the plan, ownership of the company in charge of regional transport services (PKP PR) is to be transferred to regional governments. Nevertheless, local authorities are reluctant to take it over, notably due to their own insufficient financial means for upgrading the rolling stock. Moreover, a recent report of the Supreme Chamber of Control (NIK) revealed that their performance in organising regional rail transport is poor. Given the objectives of improving the quality of regional service provision, reducing costs and boosting productivity, two improvements could be made. It would be more efficient to create independent system operators in charge of planning the traffic and rail connections and to promote the organisation of competitive tendering procedures, instead of pushing regional authorities to take over PKP PR.[6] Moreover, with competing bidders, efficiency gains within PKP PR would be spurred. The example of the Kujawsko-Pomorskie region reveals that encouraging competition in this area can lead to significant cost reductions: in 2007 a private operator (Ariva PCC) won the tender with a 30% cheaper offer than that of PKP PR. However, when organising railway transport on a regional basis by different companies, it is important to ensure traffic continuity throughout the country by avoiding vertical integration and possible anti-competitive behaviour by concession holders as occurred in Mexico (OECD, 2007a). On that ground, the intention of the authorities to create a one-ticket system along with a full co-ordination of traffic schedules at interchanging stations appears appropriate. Also, it is important to ensure that once the liberalisation of rail passenger traffic occurs in 2010 (in accordance with EU legislation), competition in the market is not blocked and can effectively thrive.

The liberalisation of rail freight and passenger transportation occurred already in 2003, while it was enforced for freight at the European level only in 2007. By the end of July 2007, there were 87 railway operators having 152 licences[7] allocated by the regulator (the Office of Railway Transport: UTK) for different activities: 28 for passenger operations (including 13 licences for narrow-gauge railway operators), 75 licences for freight operations and 49 for leasing of the rolling stock. Finally, there were eight infrastructure managers on the market, the state-owned company PKP PLK being the biggest.

There has been a sharp decline in prices of rail freight transportation (some operators have referred to a "price war"), a wider supply of services (notably through the development of container cargo transport) and a reduction in the market share of the state-owned historical operator (PKP Cargo). Accordingly, Poland could be viewed at first sight as having the most liberal market in Europe and even in the OECD area, and this also seems to be confirmed by the OECD's Product Market Regulation Indicators for 2003 (Conway and Nicoletti, 2006) (Figure 6). Yet, the state-owned operator still had a very high 82% share of the freight market at end-2006. This is no doubt in no small way attributable to the fact that the company belongs to the same group as the main infrastructure manager and therefore has privileged access to the network (Taylor and Ciechanski, 2006). Currently, PKP Cargo is in a privileged situation with regard to the allotment of routes by PKP PLK, while independent carriers encounter problems in accessing certain elements of the infrastructure (like marshalling yards, tracks to ports, container and trans-shipment terminals) that are owned by the public freight operator. Therefore, to reap all the benefits of the liberalisation process and in accordance with EU requirements, it is important to avoid vertical integration

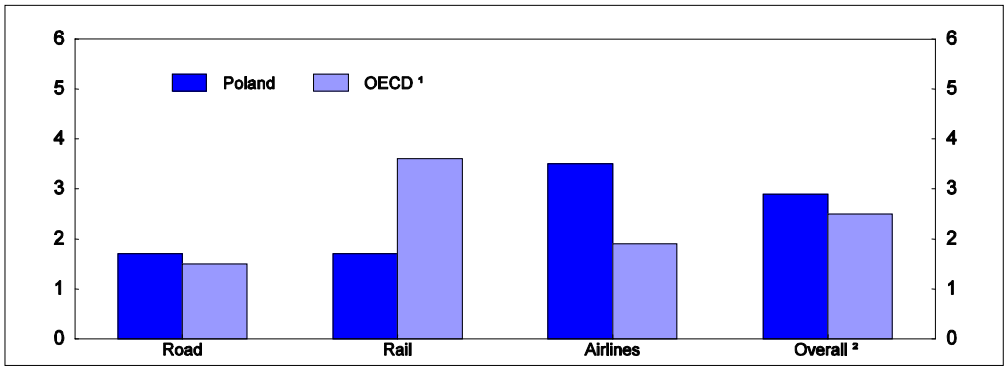
6. Nevertheless, should regional governments not be able or willing to operate the part of the company going to them, there are additional plans to allow them to sell shares to other local authorities.

7. According to Polish regulations, an operator can hold different types of licences at the same time.

between activities and to ensure a level playing field between public and private cargo carriers in accessing key facilities.

Figure 6. **Extent of restrictive regulation in network industries, 2003**

The scale of indicators is 0 to 6, from least to most restrictive




1. Unweighted averages. The OECD coverage varies from 21 to 29 countries, depending on the sector.
2. Overall indicator covers airlines, telecom, electricity, gas, post, rail and road networks.

*Source*: *OECD International Regulation Database* and OECD estimates.

Another impediment that undermines further development of the market is one of the highest nominal access charges to infrastructure in Europe with, as a consequence, much lower competitiveness of the rail sector as compared with its road counterpart. This situation reflects to some extent infrastructure under-investment, costly and poor traffic-management facilities and very low public subsidies received by the sector. However, the organisation of the market appears to be an additional explanatory factor. The fact that the main public infrastructure manager (PKP PLK) belongs to the same group as the main rail operating company, which has debt of PLN 5.6 billion, has made the determination of access charges non-transparent[8] and may have encouraged cross-subsidisation. The argument invoked by the authorities, according to which high costs for infrastructure use do not preclude competition, does not mean that the situation is satisfactory and cannot be improved.[9]

In fact, clearly disentangling the infrastructure manager (PKP PLK) from the PKP Group would not only improve third party access to the network, but also allow more competitive and transparent pricing policies. In this respect, it is significant that in early drafts of the "Strategy for railway transport", there were plans to separate the main state-owned infrastructure manager (PKP PLK) from the PKP Group (Ministry of Transport and Construction, 2006), but this proposition was dropped from subsequent versions (Ministry of Transport, 2007b), officially because of unsettled property rights and a complex cross-holding structure within the state-owned conglomerate.[10] Yet, for the unbundling of infrastructure and operation to deliver expected results, it should be based on ownership separation, instead of only accounting and legal separation. Moreover, UTK does not seem to have a strong position with regard to the state conglomerate and often approves price increases requested by PKP PLK with little discussion. Therefore, strengthening the role of UTK as an independent market regulator would also help to improve the objectivity of pricing

8. International experience suggests that operators prefer transparent and predictable tariffs (Australian Bureau of Transport and Regional Economics, 2003).

9. There is evidence that in spite of higher fees in the freight than in passenger segment of the rail market, the penetration of and the competition from private operators is more intense in the former than in the latter.

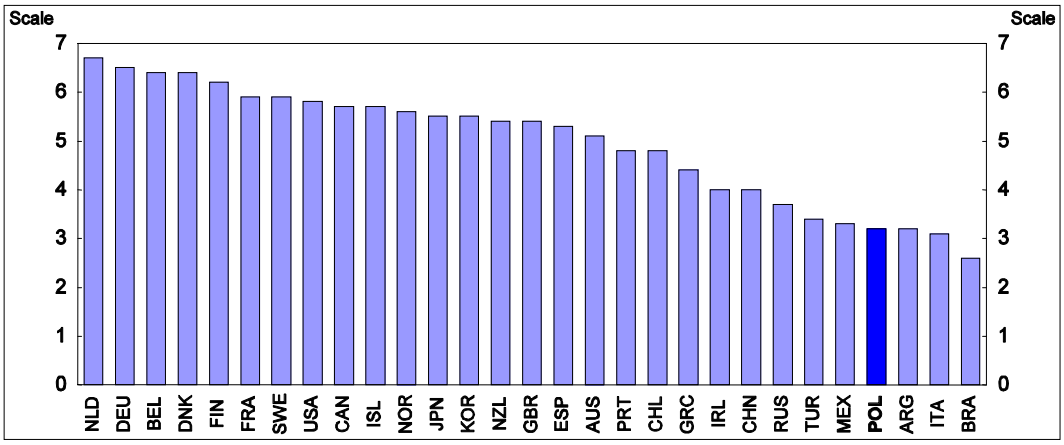
10. It has been decided nevertheless that PKP PLK should eventually be owned directly by the State only.

decisions. It should be noted that access pricing policies as such can vary in the railway sector as there is no internationally settled approach (ECMT, 2005). Policies can be based either on full-cost-recovery approaches or fixing prices no higher than marginal cost with subsidies covering the fixed costs. However, if the objective is to achieve a better balance among different transport modes by increasing the competitiveness of rail against road traffic, then fees set below full-cost-recovery levels can generate increased traffic volumes and by spreading fixed costs over higher traffic flows allow a reduction in average costs over the whole network.

***Seaports***

There are four main ports that are crucial for Poland's economy: Gdańsk, Gdynia, Szczecin and Świnoujście. The main challenge for maritime transport is to improve the international competitiveness of the major ports on the Baltic Sea (Figure 7), in particular relative to Germany (Table 1). *First*, port infrastructure is out-dated. The share of obsolete capital stock is very high, ranging from 40 to 70%. *Second*, port access from both land and sea is poor. The lack of adequate road and rail infrastructure leading to ports lengthens delivery times, raises freight costs and limits the range of available services. *Third*, modern port facilities are underdeveloped, in particular as to specialised terminals for packaged and container cargo transport, while Polish ports handle mainly raw materials (Figure 8). Also, the quality and speed of cargo and vessel services delivered in ports lag behind international standards. The effectiveness of specialised control and supervision agencies (customs, border control, food-quality inspection) is low and the procedures cumbersome, reducing the cost competitiveness of port service provision. *Finally*, undercapitalisation and weak finances are important concerns.

Figure 7. **Port infrastructure quality**[1]




1. Scale from 1 (underdeveloped) to 7 (extensive and as efficient as the world's best).

*Source*: World Economic Forum (2007), The Global Competitiveness Report 2007-2008.

Table 1. **Assessment of seaports' competitiveness**

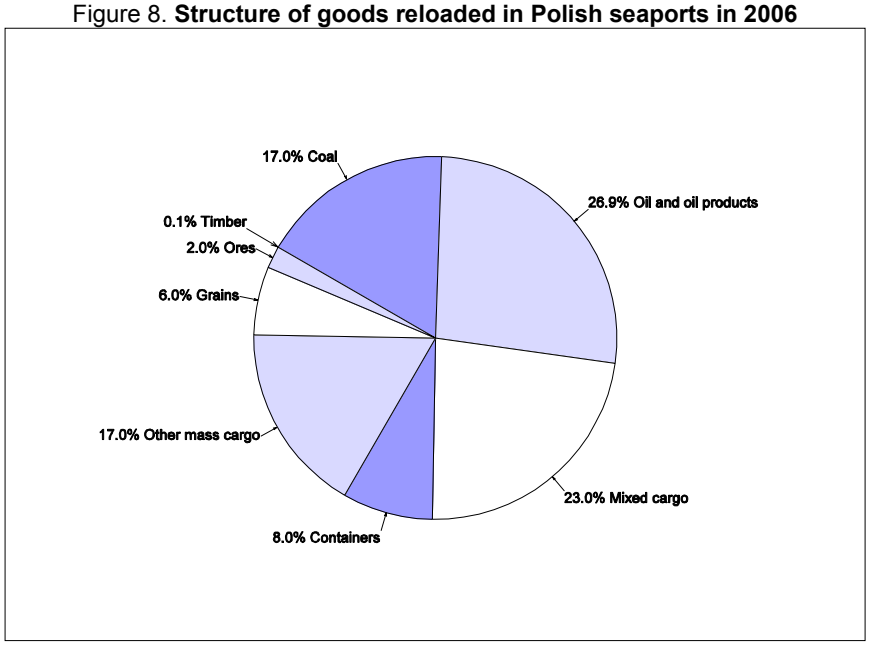
| Competitive factors of seaports | Germany | | **Poland** | | | Russia | Lithuania | Weight |
|---|---|---|---|---|---|---|---|---|
| | Lübeck | Rostock | Szczecin-Świnoujście | Gdynia | Gdansk | Kaliningrad | Klaipeda | |
| Port location | | | | | | | | |
| Area | 1 | 4 | 4 | 2 | 4 | 2 | 3 | 0.07 |
| Length of piers | 3 | 1 | 4 | 4 | 3 | 1 | 4 | 0.07 |
| Acceptable vessel parameters | 2 | 3 | 3 | 3 | 5 | 2 | 3 | 0.11 |
| Increase in share in reloading activity of south Baltic seaports in 2001-06 | 3 | 3 | 1 | 4 | 4 | 5 | 4 | 0.05 |
| Development of modern reloading facilities | | | | | | | | |
| Container reloading | 2 | 0 | 1 | 5 | 2 | 2 | 3 | 0.08 |
| Ferry and ro-ro cargo reloading | 5 | 5 | 5 | 4 | 2 | 2 | 5 | 0.08 |
| Cruise ship service | 3 | 5 | 1 | 4 | 3 | 1 | 3 | 0.05 |
| Port connections to sea and land transport | | | | | | | | |
| Line navigation | 5 | 4 | 2 | 5 | 5 | 4 | 5 | 0.10 |
| Ferry navigation | 5 | 5 | 4 | 3 | 2 | 2 | 3 | 0.10 |
| International connections | 5 | 5 | 2 | 4 | 1 | 2 | 2 | 0.10 |
| Port access infrastructure | | | | | | | | |
| Road infrastructure | 5 | 4 | 3 | 3 | 3 | 2 | 2 | 0.11 |
| Inland navigation | 3 | 0 | 4 | 0 | 2 | 0 | 0 | 0.08 |
| **Average grade** | **3.65** | **3.32** | **2.92** | **3.40** | **3.00** | **2.07** | **3.03** | **Σ = 1** |

*Note*: 0 = nil competitive position; 5 = high competitive position.

*Source*: Ministry of Maritime Economy (2007), Seaports development strategy until 2015.

The situation has nevertheless started to improve recently, as all ports are now expanding their handling and storage capabilities. *First*, with the worldwide recovery in sea transport, activity in and profitability of the sector have increased. *Second*, the privatisation process has gained momentum, and changes in ownership have led to higher investment outlays and renewal of the capital stock, with private investors acquiring specific companies created within existing port facilities and building new container terminals. Moreover, effective competition among Polish ports has increased, in particular between the ports of Gdańsk and Gdynia. *Third*, with the help of EU funds as well as budgetary financing, the central government has launched various upgrading projects mainly improving the access to seaports from land side. *Fourth*, corporate income and real-estate tax exemptions for all port management entities have been granted by the Polish government, but the beneficiaries need to reinvest their profits in return. This decision was approved by the European Commission in July 2007, as it was not viewed as falling within the ambit of the State-aid rules. However, a less favourable treatment in other fields of taxation than in the rest of the European Union harms the competitiveness of Polish ports. For instance, the time allowed for VAT payment after customs clearance is 10 days in Poland, whereas in Germany it is 45 days. Therefore, the authorities should consider phasing out existing tax exemptions for investment neutrality reasons and aligning on the most advantageous European tax practices on VAT payment delays in order to avoid hampering port competitiveness.

Figure 8. **Structure of goods reloaded in Polish seaports in 2006**



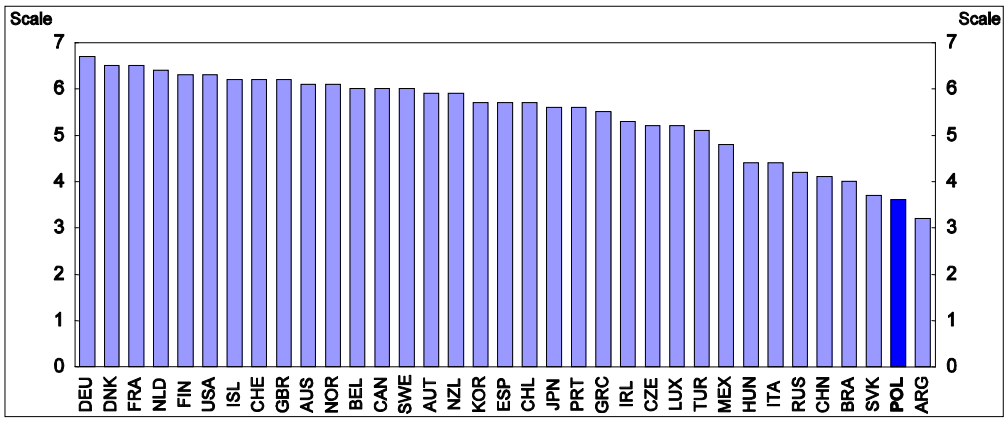

*Source*: Ministry of Maritime Economy (2007), Seaports development strategy until 2015

### *Aviation*

Poland has one central airport located in Warsaw and 11 regional airports. Air transport has been growing very rapidly in recent years as a consequence of sustained demand spurred by the liberalisation of the market due to Poland's EU accession and the entry of low-cost companies. More vigorous competition among carriers as well as airports has led to a drop in ticket prices. Despite dynamic growth in the number of Polish air passengers since 2004, air-transport mobility indicator is still very low as compared with the EU15 countries or even regional comparators like Hungary or the Czech Republic. Moreover, the role of air cargo is marginal. There is therefore considerable scope for further development of the air transport industry in the future, as the number of travellers using Polish airports is expected to grow by three and a half times by the year 2020, while air traffic over Poland is supposed to increase nearly two and a half times by 2015 (Ministry of Regional Development, 2006b). Hence, the main challenges for the air-transport sector are related to new infrastructure investment programmes so as to put in place adequate supply capacity aimed at meeting strong and steady demand growth over the medium term.

More specifically, the main challenges ahead for the sector are numerous, with Poland having among the lowest quality of airport infrastructure among the developed economies (Figure 9). There is a need to build new and expand existing passenger terminals, runways and other airport facilities. Another priority is the development of quick and efficient road and railway connections between airports and nearby urban centres and national road and railway networks, as most of them are in bad shape. There is growing congestion at the central airport at Warsaw; thus, the building of new infrastructure is vital. Finally, the expansion of regional airports requires major capital investments too.

Figure 9. **Airport infrastructure quality**[1]




1. Scale from 1 (underdeveloped) to 7 (extensive and as efficient as the world's best).

*Source*: World Economic Forum (2007), The Global Competitiveness Report 2007-2008.

The national airline company (LOT) has been confronted with the liberalisation of the European market in recent years, but its financial position improved in 2007, and a new market strategy has been developed for the coming years. The State is a majority shareholder, but there are plans to make a 45% Initial Public Offering in 2008, though existing law requires the State Treasury to retain at least 51% of the equity capital. However, the Ministry of the Treasury foresees the possibility of changing the law to allow selling the majority of shares. Privatisation of the company is all the more warranted, since corporate governance has been very poor heretofore (Rewiński, 2006). Thus, large efficiency gains could be made by restructuring the company through a strengthening of ownership rights.

A restructuring of the Polish Airports' State Enterprise (PPL) is yet another challenge. The company owns the Warsaw airport, two regional airports and from 18.9% to 76.0% of eight other regional airports, though it does not possess any shares of the Łódź airport. Therefore, it has strong market power, limiting competition among different regional airports and imposing high prices for service provision. As a result, even though the penetration of low-cost companies is relatively high in comparison with other European countries, further improvements could be made. One of the solutions would be to split the PPL company into multiple entities in a first step, followed by privatisation. More importantly, given the regional market power of airports, an introduction of price caps on take-off and landing fees appears necessary in order to increase the efficiency of service provision. For the time being, the Civil Aviation Office (ULC) determines the relevant cost-based price limits, which are calculated on the basis of costs with a certain rate of return. Yet genuine price-cap regulation would imply the use of a transparent formula based not only on modifications in input prices, but measures to wring out efficiency gains and take into account possible quality improvements.[11]

## The challenge of efficiently allocating and absorbing EU funds

### *The planned allocation*

The European dimension in building and upgrading transport infrastructure in Poland is an important issue. Poland is crossed by four out of ten Pan-European transport corridors, defined in 1994 and 1997 as routes in Central and Eastern Europe that required major investment over the following 10 to 15 years.

11. Only the Warsaw airport will have to comply with the draft EU regulation on harmonised airport fees, though EU authorities do not plan to introduce any form of price caps on airport charges in Europe.

Moreover, to spur regional economic development by stimulating the exchange of goods and people across Europe, one of the pillars of the Commission's cohesion policy has been the promotion of transport infrastructure development in Europe as a whole. To this end, a set of existing Trans-European Transport Networks (TEN-T) crucial for providing high-speed and long-distance routes for the movement of people and freight throughout Europe has been defined.[12] Finally, 30 additional priority projects were identified in 2003 to be achieved by 2020, based on co-ordinated improvements to primary roads, railways, airports, seaports, inland waterways, inland ports and traffic-management systems. In this respect, Poland is involved in three TEN-T projects, with two related to railroads and one involving a motorway connection.

A sizeable amount of EU funds will be devoted to transport infrastructure in the coming years and thus pave the way for the largest investment programme in Poland's recent history (Box 2).[13] EUR 24.4 billion of EU structural and cohesion funds for the transport sector have been allocated through different programmes from which Poland is going to benefit over the 2007-13 programming period. EUR 14.9 billion (61%) will be devoted to the road sector, EUR 5.5 billion (nearly 23%) to railways and as little as EUR 0.7 billion (3%) to maritime and inland waterways transport and EUR 0.2 billion (0.8%) to intermodal facilities. Although EU transport policy based on TEN-T has played an influential role in designing the overall programme, it appears that the orientation of funds is somewhat skewed toward road development. Indeed, out of the EUR 14.9 billion earmarked for road development, 50% of the envelope will not be related to the TEN-T network. Moreover, on top of public funds linked to co-financing, the road sector will also benefit from an additional EUR 10 billion support from the budget linked to the construction programme of national roads in 2008-12 (see Box 1). This might raise concerns from the sustainability and environmental points of view. At any rate, the allocation is at variance with the document "State transport policy 2006-25", which stresses the need to achieve a balanced development of transport infrastructure in Poland, notably by promoting and enhancing the competitiveness of other transport modes as compared to the road network (Ministry of Infrastructure, 2005). As a result, it appears that the improvement of the road network has been assigned a high priority, while efforts to upgrade other means of transport are being delayed.

12. The TEN-T road network covers 4 816 km of roads, which represents 28.5% of national roads and 1.3% of the overall network in Poland. The TEN-T rail network has 5 106 km, handles 60% of all rail transport and amounts to 30% of the main connections and 21.8% of the overall network. Finally, among the central and 11 regional airports, eight of them belong to the TEN-T.

13. The focus on road investment is also the main priority for the use of EU funds in other CEE countries.

Box 2. **EU grants and transport development in Poland over the programming period 2007-13**

As part of EU regional policy over the period 2007-13, Poland has been allocated EUR 67.3 billion, two-thirds of which are structural funds (EUR 34.1 billion from the European Regional Development Fund, EUR 9.7 billion from the European Social Fund and EUR 1.3 billion from a performance reserve) and the rest (EUR 22.2 billion) from the Cohesion Fund. It is the largest beneficiary in the European Union of this type of financial support. These amounts should be added to EUR 18.3 billion that the country is going to receive as part of the Common Agricultural Policy as well as rural-development and fishery policies. However, the use of EU grants is subject to the co-financing principle, which requires that at least 15% of the value of a project is financed from national resources. Altogether, including co-financing from public and private funds, the overall envelope that Poland is going to spend will reach EUR 108 billion (approximately 5% of GDP per year on average), out of which EUR 85.6 billion (nearly 80%) will come from EU resources.

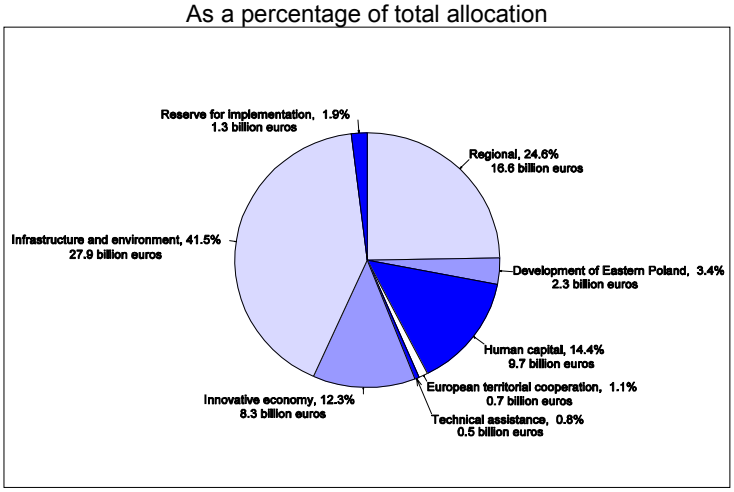
The broad priorities that require funding have been described in the *National Strategic Reference Framework 2007-2013* and subsequently translated into 21 operational programmes (OPs): 5 national programmes and 16 regional programmes (ROPs) for all 16 Polish regions. The largest and most important one is OP "Infrastructure and Environment", which includes investments to be financed from EU resources, with a value of EUR 27.9 billion (Figure 10); 71% of that amount or EUR 19.4 billion will be devoted to the transport sector (Figure 11). However, including the additional EUR 8.5 billion worth of co-financing resources (public funds, private funds and EIB loans), some EUR 27.8 billion will be spent on different transport modes within the framework of this programme (Table 2). The most important amounts will be channelled to road infrastructure (51.8%), followed by railways (27.6%), urban transport (13.9%), seaports (2.6%), airports (2.4%), intermodal transport (0.8%), intelligent transport systems (0.6%) and finally inland waterways (0.3%).

However, the OP "Infrastructure and Environment" is not supposed to be the only source of funds allotted to the construction and modernisation of transport infrastructure. Out of the EUR 16.6 billion of EU grants supplying the 16 ROPs, EUR 4.4 billion will be earmarked for local/regional transport facilities, the biggest percentage going to roads (69.8%), followed by railways (13.3%), air (6.0%) and municipal (4.7%) transport, intelligent transport systems (2.5%), intermodal transport (1.5%), cycle tracks (1.3%) and an equal contribution for seaports and inland waterways (0.4% each). Finally, in addition to the OP "Infrastructure and Environment" and the ROPs, there are plans to allocate around EUR 0.6 billion of funds to regional roads within the framework of an operational programme aimed at the development of Eastern Poland.

To put the scale of EU funds that are going to be spent into perspective, it should be recalled that over the previous programming period (2004-06), Poland was granted EUR 4 billion of EU cohesion and structural funds for the transport sector (EUR 1.3 billion per year), while in the next programming period it will have to absorb EUR 24.4 billion, which corresponds to nearly EUR 3.5 billion per year.

Figure 10. **Distribution of EU resources among operational programmes, 2007-13**[1]

As a percentage of total allocation



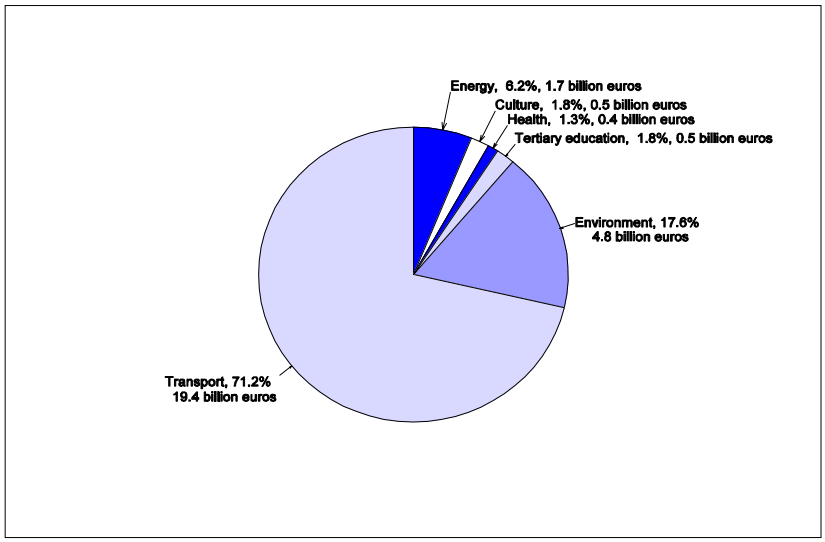

1. Total represents EUR 67.3 billion.

*Source*: Ministry of Regional Development.

Box 2. **EU grants and transport development in Poland over the EU programming period 2007-13** (*cont'd*)

Figure 11. **Allocation of EU resources to OP "Infrastructure and Environment", 2007-13**

As a percentage of total allocation




*Source*: Ministry of Regional Development.

Table 2. **Funding details of operational programme "Infrastructure and Environment", 2007-13**

EUR billions, per cent

| | Overall | | EU funds | | Public funds | | Private funds | | EIB loans | | Co-financing rate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Amount | % | Amount | % | Amount | % | Amount | % | Amount | % | |
| Road transport | 14.38 | 51.78 | 11.20 | 57.68 | 1.98 | 33.53 | 0.00 | 0.00 | 1.20 | 70.59 | 22.1 |
| Rail transport | 7.67 | 27.60 | 4.86 | 25.04 | 1.90 | 32.28 | 0.40 | 53.06 | 0.50 | 29.41 | 36.6 |
| Sea transport | 0.71 | 2.57 | 0.61 | 3.12 | 0.11 | 1.82 | 0.00 | 0.00 | 0.00 | 0.00 | 15.0 |
| Air transport | 0.67 | 2.40 | 0.40 | 2.08 | 0.02 | 0.36 | 0.24 | 32.19 | 0.00 | 0.00 | 39.5 |
| Urban transport | 3.86 | 13.91 | 2.01 | 10.37 | 1.85 | 31.36 | 0.00 | 0.00 | 0.00 | 0.00 | 47.9 |
| Intermodal transport | 0.22 | 0.80 | 0.11 | 0.57 | 0.00 | 0.00 | 0.11 | 14.76 | 0.00 | 0.00 | 50.0 |
| Intelligent transport systems | 0.16 | 0.59 | 0.14 | 0.72 | 0.02 | 0.42 | 0.00 | 0.00 | 0.00 | 0.00 | 15.0 |
| Inland waterways | 0.10 | 0.34 | 0.08 | 0.42 | 0.01 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 15.0 |
| **Total** | **27.8** | **100.0** | **19.4** | **100.0** | **5.9** | **100.0** | **0.8** | **100.0** | **1.7** | **100.0** | **30.1** |

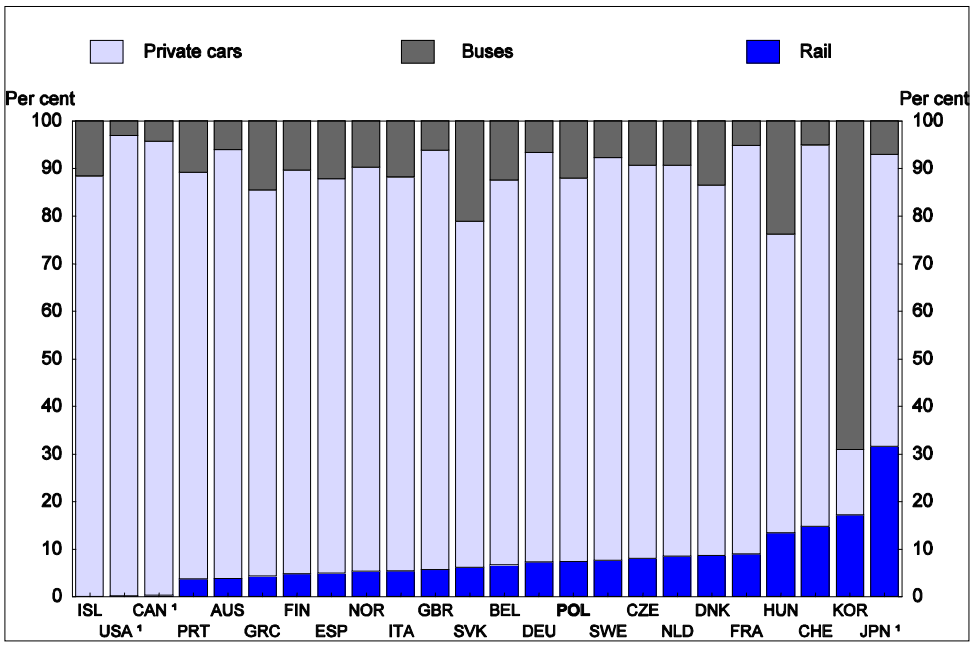
*Source*: Ministry of Transport.

The 2001 EU White Paper on Transport stressed the importance of shifting economic activity from roads to rail in building a sustainable transportation system. This recommendation appears all the more relevant given the very high current price of oil. Relative to other OECD countries, the use of public transportation in Poland remains well above levels reached in Western European countries. Moreover, that

of rail is also not marginal, in particular in the area of freight transport (Figures 12 and 13). Yet there is nevertheless scope for further improvements, in view of the importance of coal. Although railways might sometimes exhibit lower price competitiveness as compared with road transport, short sea shipping can be viewed as an efficient alternative to land transportation, allowing for both higher fuel economy and lower emissions of harmful pollutants (Mulligan and Lombardo, 2006).[14] The development of inland waterways could yield similar gains, provided that certain conditions about the structure and organisation of the sector are met (ECMT, 2002). Poland is the EU's third-largest carbon dioxide producer, as it relies on coal to generate almost all of its electricity, while at the same time it has to meet the challenge of complying with EU environmental laws related to air quality and the reduction of greenhouse gas emissions (GHGs). In 2007, the EU Commission requested a 26.7% cut in $CO_2$ emissions quotas as compared with what was requested by Poland for the period 2008-12, thus spurring concern over possible negative consequence on GDP growth and the development of the construction sector. In such a context, a heavily overbuilt road sector would only reinforce environmental constraints. For instance, 12% of EU GHGs emissions are due to fuel consumed by passenger cars and, even if the EU as a whole diminished its GHG production by 5% between 1990 and 2004, there was a 26% jump in $CO_2$ from road transport linked to traffic and car-size increases over the same period (European Commission, 2007). However, a significant improvement in vehicle technology in the years to come cannot be ruled out. Overall, there is a need to strike the right balance between closing the infrastructure gap and promoting sustainable transport modes. Therefore, to the extent that there is still scope for a more flexible modal allocation of public and EU funds until 2015, a somewhat higher share could be attributed to railways, short sea shipping, inland waterways and intermodal facilities.

Figure 12. **Passenger transport in 2005**

As a percentage of total expressed in billion passenger-kilometres



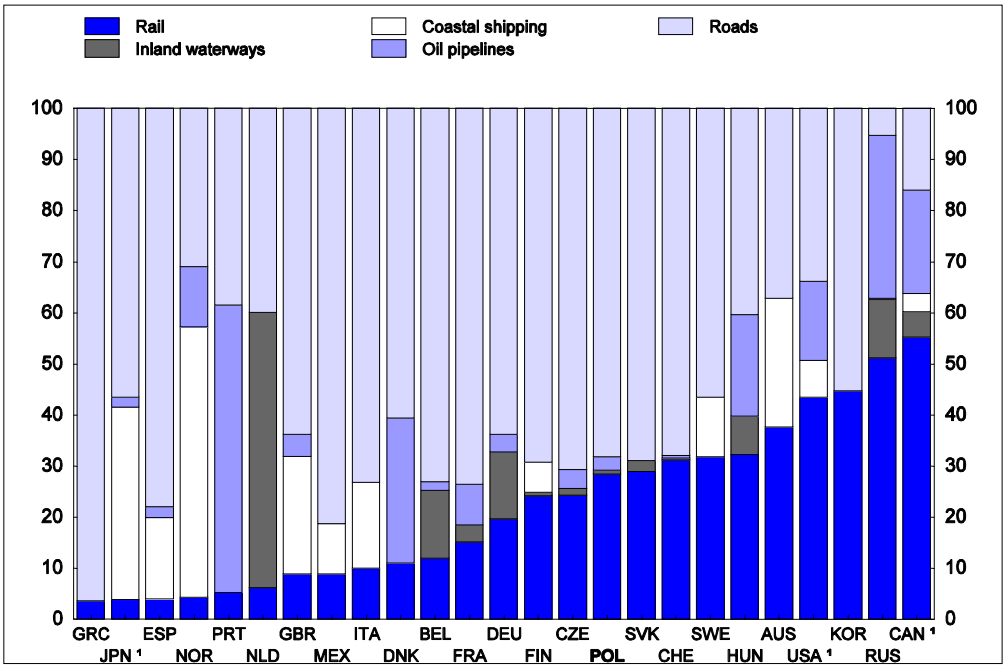

1. 2003 for Canada, 2004 for United States and Japan.

*Source*: OECD (2007), *OECD in Figures*.

14. Moreover, EU authorities have recently adopted a "logistics package" according to which seaports should become the main logistics points and centres of intermodal operations within the European transport network.

Figure 13. **Freight transport in 2005**

As a percentage of the total freight expressed in billion tonne-kilometres




1. 2003 for Canada, 2004 for United States and Japan.

*Source*: OECD (2007), *OECD in Figures*.

When designing the distribution of EU funds in the transport sector, the authorities have based their decisions on conclusions derived from large-scale consultations involving local authorities and various economic agents, and also on specific considerations such as the need to provide efficient connections between cities hosting the European soccer championships in 2012 or, more generally, the willingness to improve accessibility and reduce travel time between all 16 regional capitals. Cost-benefit analysis for public investment is performed by many OECD countries (see, for instance, Atkinson and van den Noord, 2001). So far, in the main operational programme "Infrastructure and Environment", projected investments have not been subject to cost-benefit analysis. However, such analysis are planned to be part of the feasibility study in the process of application. Within the programme, a baseline list of 82 infrastructure projects has been established, followed by an additional 45 infrastructure projects from a "reserve list", the main decision-making criterion for effective implementation being the availability of relevant documentation on time. This might indicate that the foreseen objective is quantitative rather than qualitative or, put differently, that the principal goal is to spend all available funds, rather than allocate them efficiently. This is confirmed by the lack of performance indicators to monitor the progress made in the implementation of different projects and the fact that the only measure established on a regular basis is the degree of absorption of funds.

There is also little evidence that, when elaborating the EU- and non-EU-related investment projects, inter-relationships among different transport modes have been properly taken into account. Although separate development strategies have been prepared for the main transport modes in 2007, a comprehensive plan taking into account, among others, substitutabilities and complementarities in the transport sector has not been released. The preparation of consistent medium- and long-term frameworks was begun, but has been recently interrupted (only getting an approval of the board of the Ministry of Infrastructure), as in the cases of documents "Strategy for transport development 2007–13" and the

"National transport policy 2007-20". A detailed and publicly available strategy should address long-term prospects in the transport sector, provide an in-depth analysis of interdependencies among different transport modes depending on underlying cost and revenue scenarios, and, finally, include on that basis cost-benefit analysis of each project. That would provide an efficient base for investment selection and the allocation of scarce resources. Last but not least, it would also have the advantage of providing an across-the-board plan that would be free of political considerations.

Insufficient co-ordination between different levels of government in formulating investment plans may also lead to excessive airport infrastructure. In view of the growing tendency to decentralise air traffic, the central authorities have decided to concentrate EU resources from the OP "Infrastructure and Environment" on the seven regional airports and the central airport in Warsaw, all belonging to the TEN-T network. However, many other local authorities are eager to expand their own airport facilities and, as for instance in the case of Obice (Gawrychowski, 2007), bargain for public and/or EU money from regional operating programmes, even though such infrastructure would not have national importance and are not warranted by distance and/or population density indicators. Furthermore, given the strong demand prospects and limited supply capacities of extending the Warsaw airport, there are plans to build a second central airport in Poland. Recently, a Spanish consulting firm (INECO-SENER) found that the most profitable location for the new facility would be at some point between Warsaw and Łódź, but it also warned that such a project would threaten the activity of several regional airports (Kozińska, 2007). Overall, in order to avoid resource misallocation, it will be important to improve co-ordination between different levels of government in designing airport infrastructure investment plans.

***Absorbing the EU funds efficiently***

The experience of the past few years underscores the difficulty of absorbing EU funds in the transport sector. By end-2006, spending had amounted to merely 16% of the allocated budget for the period 2004-06, the lowest percentage among seven different operational areas benefiting from EU financial support. While it had been initially planned to spend 78% of the budget, many problems occurred during the project implementation stage linked to poor preparation and, more specifically, the lack of land, co-financing, technical matters, environmental concerns or tender documentation (Ministry of Regional Development, 2006). Other difficulties may have been related to: excessive centralisation of the funding system; exaggerated prudence and formalism, often with too rigorous imposed requirements as compared with EU law; underestimated human-resource needs in public administrations; and, finally, lack of relevant knowledge and experience with new regulations by the beneficiaries. More generally, other new EU member states have also experienced difficulties in absorbing EU funds but are making progress nevertheless; hence, in this respect, Poland is not an outlier. Indeed, by October 2007, a 53.6% spending ratio (all programmes taken together) ranked Poland fifth among the 10 New Member States. The absorption capacity in the transport sector has also increased in comparison with 2006, as approximately half of the envelope was spent by end-2007; this is likely to rise further in accordance with "learning by doing". But the obvious challenge for the near future is to speed up this learning process. *First* of all, in accordance with the N+2 rule, there is a deadline in spending EU grants, which is the end of 2008 for the programming period 2004-06. *Second*, the amounts that will have to be spent over the new 2007-13 programming period will be much more substantial (see Box 2). Therefore, remaining difficulties need to be resolved rapidly.

In order to improve absorption performance, there are plans to strengthen the administrative capacity and human-resource base of relevant government agencies. A new institution – the Centre for European Transport Projects – is going to manage the projects, while the main managers of the funds (*i.e*. *GDDKiA* for roads and *PKP* for railways) will devote approximately 1 000 and 800 new staff, respectively, to the programme implementation phase. However, regardless of the needed quantitative reinforcement, some public institutions essential for the implementation of different projects suffer from important staff

turnover, an issue all the more acute that the labour market is very tight. Therefore, it appears necessary to provide competitive base salaries as well as link promotion to performance.

With the strong economic upturn and the boom in the housing market the cost of many building materials has soared over the past year, partly due also to global increases in the prices of many raw materials. Growing labour shortages, notably due to sustained emigration (for instance, because of job opportunities related to 2012 London Olympic Games), have also led to a jump in payroll costs. As a consequence of the tightening of the construction and labour markets, bids have often outstripped the allocated budgets for public-works contracts, thus requiring the cancellation of many public tenders. One possibility to circumvent the problem would be to have recourse to cheaper foreign contractors and their workforce (for instance, Chinese firms). The entry of foreign workers from Russia, Ukraine and Belarus into Poland was authorised in July 2007 and further extended in January 2008. Even though administrative charges for obtaining work permits were significantly lowered, existing barriers were lifted only partially, as current labour legislation does not allow the employment period for temporary migrants to exceed six months once a year. Additional steps for further easing access to the labour market would include its wider opening to foreign workers from other than neighbouring countries. The other condition is to keep a high vigilance over possible collusive behaviour among the main suppliers of building materials. Indeed, recently the Office of Competition and Consumer Protection (UOKiK) has expressed concern and started preliminary investigations of possible illegal price arrangements among several market participants. Finally, accelerating the investment programme because of the European soccer championships in 2012 reduces the bargaining position of the authorities in contracting with the private sector and may have adverse consequences for their ability to contain cost escalation in large infrastructure projects.[15] Because of this, it is of critical importance that the organisation of tenders be as competitive as possible.

The fact that transfers of EU funds are made in euros must also not be overlooked. However, no extra funds have been provisioned for the risks of exchange-rate appreciation, which would imply less EU structural cohesion funds in domestic currency, even though appreciation leads to lower import prices. Investment costs of many projects have been calculated with an assumed nominal exchange rate of 3.9 PLN/EUR, while the zloty has soared beyond 3.3 PLN/EUR. For the agreed allocation of EUR 67.3 billion, this amounts to a loss of zloty worth EUR 12.2 billion. Given the expected and known amounts to be transferred in the future, adopting a hedging strategy against currency exposure would help to safeguard the investment plans and preserve the funding effectively available for projects.

A number of additional obstacles also threaten the realisation of investments that the Ministry of Infrastructure is aware of and is working to overcome. A serious impediment to infrastructure development is the burdensome legal environment, which makes for the investment preparation process being longer than actual construction. The public procurement law – in the formulation of which the Public Procurement Office (*Urząd Zamówień Publicznych*: UZP) plays a leading role – is an overriding concern both for bidders, as it is overly bureaucratic, and for public entities, as it has to be used at each single stage of the investment process, thus leading to many fragmented tasks (environmental impact assessments, design, construction, maintenance works, etc.).[16] The law also allows for an over-developed system of tender appeals, many of which are groundless and create an additional source of delay, while there are no penalties for an excessive use of this mechanism. However, recently the Council of Ministers has approved

15. The Portuguese experience with the organisation of the European soccer championships in 2004 reveals that cost-overruns occurred in the provision of the seven stadiums (230% worth) and related infrastructure (13.3%). Moreover, town halls of participating cities strongly increased their indebtedness, seriously compromising future investment capacity in other areas. Finally, stadiums that have been constructed have been utilised at a rate of only 20-35%, rendering problematic the long-term profitability of such investments.

16. Anecdotal evidence is that the law has to be applied even for the installation of road signs.

a draft bill on several amendments to public procurement regulations. The reform is focused on streamlining certain procedures, notably those that often led to cancelling tenders and rejecting bids that included minor mistakes. The issuance of building permits is subject to many authorisations at the level of voivodeships and central government (Ministries of Finance, Infrastructure, Environment and Regional Development) and would thus benefit from simplification. Tender appeals as well as failures to get relevant permits also postpone maintenance work. Co-ordination problems between different Ministries (Finance, Infrastructure, Regional Development) and implementing authorities in the process of channelling EU funds is yet another issue that calls for improvement (see, for instance, Mirończuk and Stefańska, 2007). Finally, other regulations, pertaining to environmental impact assessments and archaeological research stall the investment process and should be streamlined.

Many investment plans that were prepared well before EU accession now have to be supplemented by additional requirements, such as consultations with environmental protection organisations, which may lead to a reconsideration of earlier decisions. Environmental aspects related to EU policies appear to be a huge challenge, in particular with regard to the Natura 2000 ecological network aimed at protecting the best wildlife areas. When it joined the European Union in 2004, Poland committed itself to comply with EU environmental legislation regarding the protection of rare species of birds and habitats for unique animals and plants. The network has been extended over 19% of Polish territory, but it conflicts with many old investment plans that the national authorities would wish to implement nevertheless. As a result, there may be as many as 100 potential conflict zones, affecting investment activity for all transport modes. Construction work in the protected areas raises the strong opposition of the EU authorities and may end up in the European Court of Justice, as illustrated by the case of a ring-road project through the Rospuda river valley in the country's northeast (European Parliament, 2007).[17] Therefore, as thorny as it might be in some cases, it appears critical not to infringe on EU legislation and define alternative layouts that will bypass protected areas. Risking heavy penalties and, possibly, losing access to EU grants is not a viable option.

Finally, there are growing concerns among Polish policy-makers and in civil society whether tight budget constraints will allow an adequate provision of public funds for co-financing all EU-related projects and meeting other infrastructure needs. In this respect, the introduction of multi-year budgeting systems would provide a useful framework for addressing these issues and making clear the relevant trade-offs. A second complementary option, would be greater financial involvement of the private sector in the process of building and upgrading infrastructure in Poland, a role that is very limited in the present design of the OP "Infrastructure and Environment" (Box 2 and Table 2).

**Financing of infrastructure building and/or operation through PPPs**

There has been a dynamic development of public-private partnerships (PPPs) over the last 20 years in Europe (Table 3 and Figure 14), as the phenomenon has gathered steam in the United Kingdom and has attracted interest in other countries (Blanc-Brude *et al.*, 2007). Even though Poland's share has been minimal. PPPs are used in many activities that have public-good features, such as transportation infrastructure (roads, tunnels, bridges, rail, air and sea ports), utilities (electricity supply, sewage and waste disposal), not to mention schools, hospitals and prisons. Although PPPs are an evolving concept, they can be broadly defined as contractual agreements between the public and private sectors aiming at supplying infrastructure or a service derived from it that has traditionally been provided by the public sector (European Commission, 2003). The underlying idea is that individual interests and objectives of both parties can be brought together as both may have certain advantages relative to each other in carrying out

17. In April 2006 the EU Commission started an "infringement procedure" against Poland. However, since the construction work has continued, in March 2007 the EU authorities initiated legal action before the European Court of Justice, which could result in conviction and penalties.

specific tasks. The European Commission (2003) has put forward four principal roles for the private sector in PPP schemes, based on the provision of: *i*) additional capital, *ii*) alternative management and implementation skills, *iii*) value added to the consumer and the public at large and *iv*) better identification of needs and optimal use of resources. The OECD has also recently established a set of 24 principles for private-sector participation in infrastructure projects (OECD, 2007b).

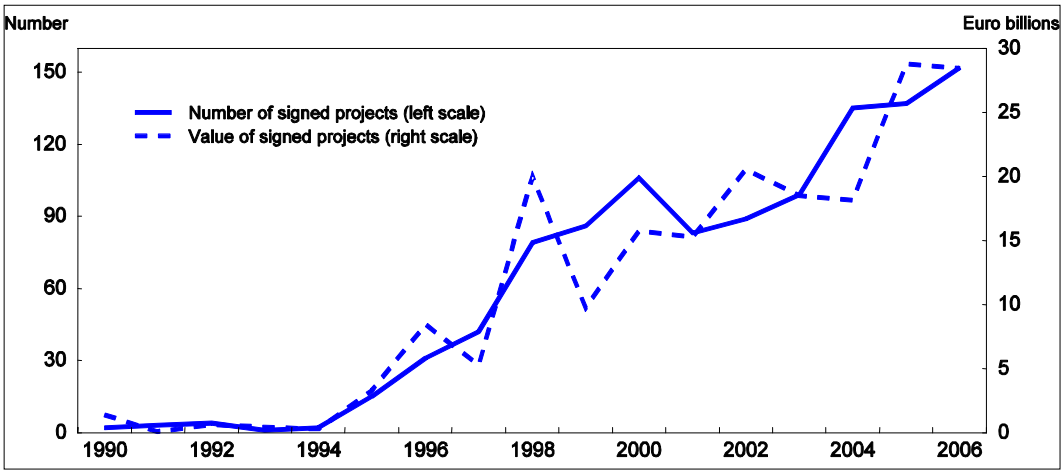
Table 3. **Countries' percentage shares of European PPPs, 1990-2006**

| | % of value of signed projects | % of number of signed projects |
|---|---|---|
| United Kingdom | 57.7 | 76.2 |
| Spain | 12.8 | 8.6 |
| Portugal | 5.8 | 2.3 |
| France | 3.9 | 2.8 |
| Greece | 3.9 | 0.6 |
| Italy | 3.7 | 2.1 |
| Germany | 2.9 | 2.4 |
| Hungary | 2.7 | 0.8 |
| Netherlands | 1.7 | 1.0 |
| Belgium | 1.1 | 0.7 |
| **Poland** | **0.9** | **0.4** |
| Ireland | 0.7 | 0.7 |
| Austria | 0.6 | 0.2 |
| Cyprus[1,2] | 0.4 | 0.3 |
| Czech Republic | 0.4 | 0.2 |
| Finland | 0.2 | 0.2 |
| Sweden | 0.2 | 0.1 |
| Malta | 0.1 | 0.1 |
| Romania | 0.1 | 0.3 |
| Latvia | 0.0 | 0.1 |
| Slovak Republic | 0.0 | 0.1 |
| Slovenia | 0.0 | 0.1 |
| **Total** | **100.0** | **100.0** |

1. By Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of United Nations, Turkey shall preserve its position concerning the "Cyprus" issue".
2. By all the European Union Member States of the OECD and the European Commission: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

*Source*: European Investment Bank (2007), *Economic and Financial Report 2007/03*, "Public-private partnerships in Europe: An update".

Figure 14. **New flows of European public-private partnerships**




*Source*: European Investment Bank (2007), *Economic and Financial Report 2007/03*, "Public-private partnerships in Europe: An update".

PPPs can yield sizeable advantages by allowing an efficient supply of services that were previously supplied solely by the public sector. If properly designed, such partnerships between private and public entities may play a useful role in enhancing a proper cost-benefit analysis of projects, bringing innovation in design and financing structures, reducing the risk of cost overruns and delays in the delivery of assets (these tend to be less frequent than under traditional procurement, see Grimsey and Lewis (2007)), providing good quality infrastructures with optimised life-cycle maintenance costs (due to the bundling of construction and operation phases) and improving operational and commercial performance. However, the key element for obtaining better value for money as compared with traditional procurement is the risk-sharing scheme between private and public partners. Although each project is different and needs individual risk assessment and allocation, several general principles can be drawn from international experience of PPP projects related to road transport (Box 3).

Box 3. **The allocation of risks in PPP transport projects: lessons from international experience**

In order for PPPs to yield additional value compared with traditional public procurement and thus provide good value for money, the key element is an optimal sharing of different types of risks between the public and private sectors. The general rule is that each risk should be allocated to the party best able to manage it. However, the whole spectrum of risks may be complex and difficult both to identify *ex ante*, given the project's lifetime (often up to 30 years or more), and to distribute appropriately (Ng and Loosemore, 2007). As a result, disputes over risk allocation may emerge, with, on the one hand, the private sector seeking to minimise uncertainty and sensitivity of its returns by bargaining with the public sector for more guarantees and, on the other hand, the public sector trying to reduce the guarantees in order to shelter taxpayers from excessive costs (Medda, 2007). Risks can be broadly classified in several categories: planning, design, construction, changes in demand, regulatory, financial and macroeconomic. Although each project is different and needs individual risk allocation, international experience yields useful broad empirical insights as regards the best risk-sharing practices between private and public entities (Sadka, 2006; Irwin, 2007).

- Design and construction risks should be borne by the private sector. Bundling construction and operation offers an incentive to the private partner to make appropriate upfront payments in order to achieve lower life-cycle maintenance costs, and thus to internalise externalities between the two phases of the project (Blanc-Brude *et al.*, 2006). However, in doing so the firm may have a tendency to under-invest in quality-related characteristics of the facility. Therefore, the public partner should specify the quality standards of the service to be provided during the concession and at the terminal date. Finally, including the building period in the length of overall concession provides an incentive for the private partner to minimise construction delays in order to benefit from collected revenues as soon as practical.

- Risk-sharing with respect to future demand between private and public entities is a key element of the partnership as it determines the financial viability of the investment project. Some risks are exogenous to both partners, such as fuel costs or the rate of growth of GDP per capita. Others are endogenous to and should fall within the responsibility of the government. The scale of traffic on a toll motorway is linked to available substitutes provided and/or subsidised by the public sector (for instance, through a fast rail service), development of access (complementary) and competing (substitute) roads in a government-planned network or the scale of a price subsidy determined for socio-economic or political considerations. But there are also risks that are endogenous to the private partner, such as advertising and marketing expenditures, the provision of efficient breakdown services, the availability and quality of rest areas along the road or the level of tolls fixed within agreed boundaries in the contract. However, if the government guarantees fixed revenues to the concessionaire through shadow tolls according to a predefined traffic volume, then it removes any incentive to the operator to incur demand-enhancing spending. Opportunistic behaviour can even occur, because by lowering a high volume of traffic the concessionaire can save on maintenance costs that otherwise would have to be incurred. Therefore, a revenue-sharing mechanism should imply that part of the risk in demand is transferred to the private partner. This can be achieved by fixing a certain level of demand as a benchmark with the public partner paying (receiving) a fraction α (β) of the deficit (surplus) if actual demand is lower (higher) relative to the benchmark.* Yet, in the case of a toll road it is more efficient if the government provides a guarantee of demand in terms of quantity, rather than revenue, as in the former case the private partner has a clear incentive to improve the collection of tolls. An alternative way of guaranteeing revenue that does not imply any fiscal commitment for the public partner is to endogenise the terminal date of the concession by ending it once the present value of revenues reaches a certain threshold. However, in such an arrangement the incentive for the private partner to boost demand seems lower, since it accelerates the terminal date of the contract, even though it allows him to save on future maintenance costs.

- Another aspect of risk sharing relates to macroeconomic risks. Governments should not be inclined to bear them, even though they can influence some of them to a certain extent as in the case of the level of interest rates, inflation or exchange-rate fluctuations. Economy-wide policy cannot be shaped by considerations linked to a particular project, though the public partner can authorise the concessionaire to shift inflation, interest-rate and exchange-rate risks to road users, by agreeing on an indexation of the toll. If a guarantee against exchange-rate risk is nevertheless provided for a foreign-currency debt issue, the public partner should control the scale of borrowing and hence of the exposure, otherwise the firm could overly increase the sensitivity of the project's value to that risk factor. By the same token, because of moral-hazard problems public authorities should not bear the risk of the firm's insolvency by providing unconditional guarantees to the concessionaire on its debt.

- Risks related to planning and changes in the legal environment should be borne by the public sector, as they are exogenous to the private partner. Thus, the government should compensate the concessionaire (or alternatively allow it to levy higher user charges) for any modifications in design, environmental or safety regulations that are made subsequent to the signature of the contract.

* Parameters α and β are not necessarily equal.

With tight public budget constraints, PPPs can be viewed as an appealing way to mobilise additional private funds and as a way to speed up the investment process, especially in countries lacking external sources of income and thus more open to foreign private capital (Hammami *et al.*, 2006). However, the literature also emphasises that the attractiveness of PPPs should be analysed in terms of efficiency in delivery of projects, rather than as a tool to circumvent national and international budget rules. Indeed, PPPs provide a temptation to disguise fiscal problems and realise projects with poor value for money (as compared with conventional contractual undertakings), because of the possibility of an off-balance-sheet recording of the investment.[18] Overall, PPPs should be seen as a possibility to create fiscal space through efficiency gains and not by being moved off budget.

18. Eurostat recommends that assets and liabilities involved in public-private partnerships should be classified as non-government aggregates and therefore recorded off the balance sheet for the government if both of the following conditions are met:

    - the private party bears the construction risk, and

Since the start of the transition process, it has been widely believed in Poland that PPP schemes would be an important means of bridging the gap in transport investments. Indeed, the lack of an efficient transportation infrastructure and its adverse impact on Poland's economic development had been recognised since the beginning of the transition. In particular, it was expected that PPPs would bring an important contribution in the extension and operation of the motorway network. However, the feeling that private financial means were lacking delayed real action for several years. The adoption by the government of the Motorway Construction Programme in 1993 and by the Parliament of the Act on Toll Motorways in October 1994 allowed the use of licensing arrangements for the construction of motorways. At the same time, the Agency for the Construction and Exploitation of Motorways (ABiEA) was created, with the primary purpose of preparing the early stages of investments (environmental studies, land acquisition, etc.), organising tenders and granting concessions. In the mid-1990s, it was expected that private investors would build the lion's share of the 2 600 km of motorways planned for 2010, with financing, construction and maintenance costs recovered exclusively from toll charges. However, in early 2008, out of the 699 km of existing motorways in Poland as little as 174 km were built and operated under such arrangements and another 61 km upgraded and operated alone. More recently, two other stretches of 276 km have been tendered (181 km of A1 motorway and 95 km of A2 motorway) and are expected to be built by 2011 (see Box 1).

Many mistakes, omissions and other hindrances have contributed to a weak performance of the PPP regime in Poland in the 1990s, among them (American Chamber of Commerce in Poland, 2007):

- Delay in clarifying the status of the ABiEA agency and the lack of experience among administrative officials;
- Low traffic-level forecasts and insufficient government guarantees for companies financing motorway projects, which have deterred many investors and have led to a dramatic reduction in the scope of some projects;
- Because of the long-term nature of PPP contracts, a related tendency by successive governments to review legal and financial details of past arrangements.

In mid-2003, the government decided to render the legislative system more favourable by preparing a special PPP law. The aim was to stimulate public-sector investments with the participation of private entities in sectors other than roads and to allow for a reduction in the risk of PPP undertakings that prevailed under the previous legal framework. The new PPP Law was passed in July 2005, complemented by secondary legislation (decrees) released one year later. However, it resulted in a very complicated and rigid framework, including extensive steps to be followed by public entities to gauge whether value for money is being provided. Virtually no contracts have been signed under the PPP act, and there is a wide consensus among public officials and private-sector participants that the current regulations are inefficient. As a result, the existing PPP Law needs to be streamlined quickly so as to promote efficient PPP schemes in the transport sector. It is also necessary to ensure a strong competition at the bidding stage and keep flexible tender rules at the same time. In the latter case, one option would be to specify the output to be achieved, while leaving to the private sector the opportunity to come up with its own solutions regarding the technology to be used and design of the infrastructure. Such a solution could not only stimulate more private operators to submit a bid, but also contribute in setting up a framework for innovative and possibly efficient offers to be proposed.

Notwithstanding the lack of a clear legal framework, a strong political commitment is a critical factor for PPPs. Although, according to the Ministry of Transport's plan released in July 2007, 443 km out of

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- the private party bears at least one of either availability or demand risk.

1 213 km of new motorways could be built under PPP schemes in the period 2007-15, there were nevertheless signs that PPP projects were not a major priority of the government ruling between 2005-07, with some officials expressing scepticism as to the successful participation of the private sector in motorway development in Poland (INECO, 2006). More generally, creating a business-friendly climate for private entrepreneurship, encouraging regional governments and local authorities to develop business relationships with the private sector and breaking with the sentiment that they offer opportunities for corruption appear to be vital conditions for successful PPP development in Poland.

Long-duration PPPs pre-commit future generations and governments. Therefore, the lack of political consensus across the political spectrum and consistency is yet another issue that might deter private national and international investors from participating in PPP projects in Poland and possibly lead to important fiscal costs. In January 2007, the Ministry of Transport withdrew a DBOT concession granted to a private firm in 1997 for the construction and subsequent operation of a section of the planned A1 motorway. However, details of the arrangement foresaw a very little risk transfer to the private partner and were determined only once the concession had been allocated, while it should have been set before starting the tender (to avoid the well known "hold up" problem, with the contractor having the upper hand).[19] Public authorities have subsequently realised that the fiscal cost of such a commitment might be excessive over the long term, thus deciding to withdraw the concession. Another argument for breaching the contract was based on the assumption that the State could continue the construction of the A1 motorway at a lower cost. In March 2006, the private contractor was willing to build one kilometre of motorway for a cost of EUR 7.4 million, whereas the Ministry of Transport claimed that it could carry out the public works for only EUR 5 to 6 million. However, in October 2007 the government lost the lawsuit at the court of first instance, while in the meantime the construction cost per kilometre of motorway has jumped to over EUR 9 million. Yet, according to the agreement reached with the private partner in mid-2008, this cost was ultimately set slightly below EUR 12 million.

Because EU funds are not sufficient to bridge the entire gap in the transportation infrastructure capital stock, many investments are already planned to be financed with an exclusive recourse to public resources. Beyond the EU budgetary planning period 2007-13, there will remain significant projects that will have to be implemented in subsequent years. The investment effort is already projected to be pursued beyond 2013, with plans to build a second major airport, develop high-speed rail connections and extend high-capacity roads to more than 6 000 km by 2020. Moreover, as the infrastructure gap narrows, substantial amounts will be necessary to finance growing maintenance costs. However, beyond 2015, it is likely that per capita GDP will exceed 75% of the EU average, and many regions in Poland may lose their eligibility for EU funds. Furthermore, poorer regions – located in Romania and Bulgaria, which have recently joined the European Union – will probably be considered as having priority over the next programming period. In such circumstances, Polish authorities will have to find the needed resources to pursue efforts in infrastructure provision. More generally, international trends suggest that expanding access to private-sector capital and expertise should play a critical role in bridging the infrastructure gap in many OECD countries in the coming decades (OECD, 2007c). In this respect, PPPs facilitate private-sector involvement in the supply of public infrastructure-related services. Recent findings suggest that factors such as macroeconomic stability and market conditions (including size of the market and customers' purchasing power) are crucial determinants for promoting PPPs (Hammami *et al.*, 2006). From this angle, Poland's past problematic experience with PPPs (in particular, the lack of interest on behalf of the private sector) in the early stages of transition should be put into perspective. Factors such as the end of

19. According to the concession formula, the government was expected to bring a financial contribution to the project and retain the financing risk by providing the concessionaire with a guarantee for coverage of the senior debt repayment. In return, the authorities were supposed to set the toll levels, but also to guarantee to the concessionaire an agreed level of revenues, thus taking almost all the business risk of operation of the facility (INECO, 2006).

disinflation, robust growth prospects, rapid catching-up in per capita GDP levels, membership in the European Union and prospects for integration into the EMU create a much more favourable framework for the development of PPPs. Therefore, it appears advisable that Poland continue to expand its expertise in this area by considering the possibility of pursuing the development of PPP projects for the profitable stretches of high-capacity roads in the most developed regions of the country, but also by envisaging this option for other transport modes (railroads, airports and sea ports).

It is true that PPPs are often a complex and sophisticated mechanisms that involve higher transactions costs. Yet, as the example of the United Kingdom reveals, economies of scale in the learning-by-doing process of both public and private partners are possible (Table 3). Such arrangements have to be considered as an additional policy option, with no bias in favour of any particular procurement method. Achieving better value for money should be a key criterion and the main driving force to be considered in the decision process. In this respect, the creation of a central unit, as in Ireland or the United Kingdom, with a focused and dedicated team responsible for the oversight and quality control of cost-benefit analyses could deliver important value added in a successful implementation of PPP projects and development of best practices. It would also have the advantage of concentrating PPP knowledge that is now spread out among different ministries and units. Because PPPs are not immediately recorded in deficits and debt levels but may create future certain or contingent liabilities for governments (depending on the type of risk-sharing arrangements), such a unit could enhance the transparency of public finances by quantifying and publishing the scale of expected future budget commitments and, for this reason, could be located within the Ministry of Finance. Finally, public funding of such a unit would not only follow international standards in this area, but also provide a more appealing framework for a more active involvement of public administration in PPP projects by breaking with the legacy of suspicion of corrupt behaviour at the meeting point between the private and public sectors. In this respect, given the local authorities' general mistrust of private partners, the creation of such a unit within the private sector only would probably fail to fulfil this objective efficiently.

Although the latest available national plans do not foresee this possibility, the authorities could nevertheless consider the opportunity of combining EU grants and private funds within PPPs for major infrastructural projects. Such an option has been successfully exploited by several EU countries, for instance in Portugal (Vasco de Gama Bridge) or Greece (Athens airport) and can constitute an important means to increase the absorption of EU funds. Several different PPP-grant blending models have been designed, with the advantage of increasing affordability by keeping user charges or unitary payments from the public authority at a low level (Goldsmith, 2008). However, enhanced public-sector capacity is needed for the implementation of such projects, all the more because under the latest EU legal framework, which recognises and encourages the potential role of PPPs, certain regulations are complex to interpret. In this respect, the Polish authorities could receive assistance through several joint initiatives related to PPPs (JASPERS and JESSICA[20]) recently launched by several international institutions, including the European Commission (DG REGIO) and the EIB and/or the EBRD.

**Charging for infrastructure access**

Poland faces an important challenge in establishing an efficient toll system. The Motorway Construction Programme adopted in 1993 and the Act on Toll Motorways voted by the Parliament in 1994 launched the possibility of direct charging for road infrastructure access. Currently, there are only three stretches of motorways (A2 with 135.5 km, A4 with 61 km and A1 with 25 km) with individual charging systems. Tariffs are related to the costs of construction and maintenance and increase with the size of

20. JASPERS – "Joint Assistance to Support Projects in European Regions"; JESSICA – "Joint European Support for Sustainable Investment in City Areas".

vehicle. Although there seems to be a quite coherent basis for a tolling system in Poland, several issues remain.

Toll roads have a low acceptability among motorway users. Polish users are probably more acquainted with toll-free, high-quality motorways in Germany and the United Kingdom than their tolled counterparts in France, Italy and Spain. Moreover, the fact that before transition the State provided and funded many public services and utilities with no direct charges is certainly an additional factor explaining this unpopularity. This sentiment is reinforced when considering that out of a total of 699 km of motorways, tolls are charged on only around 220 km (only 32% of the network). Past difficulties in finding concessionaires for operation and collection of charges on other stretches account for this, but eroding political consensus over toll roads has probably exacerbated underlying problems. For instance, in 2001 the newly elected government decided on a strategy based on the construction of toll-free motorways, financed from annual license fees, but the bill was never passed by the Parliament. Following the 2005 elections, the new government was rather reluctant to extend the road network through toll motorways linked to licensing schemes, considering the level of collected user charges to be a sensitive social issue.

Another important impediment to a wider extension of toll roads in Poland is the general perception of high tax pressure, especially as a number of existing taxes are supposed to finance road development. This is the stated purpose of the "excise fuel tax" and the "fuel surcharge" (apart from VAT). The former tax generates a great deal of revenue (about EUR 3.75 billion in 2005 or 8.3% of total budget revenues and 1.5% of GDP), though only 30% of that is earmarked for roads and as little as 12% for national roads. These percentages, established in 1997, were supposed to be only the minimum allocations devoted to the road sector, but, in fact, the invested amounts have never been at significantly higher levels. According to the Act on Financing of Land Transport Infrastructure of 16 December 2005, 18% of the annual overall income from the excise duty on fuel is to be used to finance road and railway national infrastructure investments, with about 65% of income allocated to road infrastructure projects and the remaining 35% spent on railways.

Users' willingness to avoid toll routes by choosing toll-free alternatives causes an accelerated deterioration of their surface as well as noise, safety and pollution externalities for inhabitants in neighbouring areas. This issue was particularly thorny for the heavy goods vehicles that were also subject to a license fee, thus subjecting them to a type of double taxation when using a toll motorway. This led to an exemption from tolls to heavy goods vehicles as from September 2005, with the concessionaires being compensated for the lost income by shadow payments from the government. Although this decision solved the problem, it has brought into question the determination of the government to generalise toll motorways. However, due to rapidly growing transfers to concessionaires (representing 73.8% of revenues from license fees in 2006 and estimated to outpace them in 2009[21]) as well as to the necessity to comply with EU legislation, the authorities plan to cancel this lump-sum tax as from mid-2008. Instead, the objective is to introduce tolls for trucks over 3.5 tonnes on the motorway and expressway network in accordance with the "user pays" principle and possibly an additional externality-corrective component to internalise the cost of congestion.

Indeed, despite difficulties in introducing toll roads in Poland, there is a growing encouragement from the European Conference of Ministers of Transport (ECMT, 2003 and 2006) and the European Commission that a sustainable transport policy should be based on a fair infrastructure charging system, with users gradually assuming the cost of their activities on the basis of "user pays" and "polluter pays" principles. Charging for use is also important from the point of view of rebalancing the modal split. As a

21. For instance, a license fee with one-day validity brings only PLN 27 of revenue to the National Road Fund, but costs PLN 190 in terms of compensation that the Fund has to pay to the concessionaire of the A2 motorway stretch for a crossing by the heaviest type of truck.

result, since the 2006 amendment of the EU Directive on commercial freight traffic on motorways, user charges can be applied on roads, including the trans-European network and roads in mountainous regions, with possible differentiation of levied tolls depending on the vehicle's emission category, the level of damage caused to roads as well as the place, time and amount of congestion. This EU regulation, which should be transposed into law by Member States by June 2008, applies to trucks weighing over 12 tonnes and is going to be extended to vehicles over 3.5 tonnes by 2012. However, as mentioned above, Poland will apply it to vehicles over 3.5 tonnes already by mid-2008. Even though it does not concern passenger car traffic, it clearly underlies the necessity to link the wear and tear on roads and environmental pollution to the corresponding charges. An additional EU requirement is the creation of an integrated electronic toll road system in Europe for the collection of all types of road fees on the European road network. Therefore, the collection of user charges in Poland for vehicles weighing over 3.5 tonnes is projected to be made through an electronic system. However, given these elements, the Polish authorities could go one step further and consider the introduction of tolls for passenger cars, not only on all existing and future motorways, which has been allowed since 2002, but also on expressways. This would also have the benefit of achieving a better balance between road transport and other transport modes. Moreover, efficiency gains could stem from the implementation of an electronic toll system also for light vehicles, with the benefit of speeding up traffic as compared with traditional toll booths.

Several factors should contribute to a wider acceptance of toll roads in the future in Poland. The continuation of the catching-up process along with rising GDP per capita levels should render the prices more affordable, but also increase the willingness to pay due to a higher marginal value of time. Further extension of the motorway and expressway network, allowing for safe and high-speed connections between main economic centres will probably iron out the heterogeneity of the current road system composed of stretches of tolled and non-tolled routes and thus increase the demand for the former. Moreover, growing congestion on other roads should boost demand for tolled alternatives, but the users need to perceive the improved quality compared to untolled roads. The remaining question is what the optimal level of tolls should be. According to the Ministry of Transport estimates, the maximum "socially acceptable" thresholds are thought to be PLN/km 0.2 (EUR 0.056) for passenger cars and PLN/km 0.46 (EUR 0.128) for trucks. The maximum projected authorised level by the Ministry for the heaviest vehicles is PLN/km 2.5 (EUR 0.694) on motorways and should amount to 80% of that price on expressways. Whatever the final level of user charges ultimately implemented, it is important that it reflects several elements, among which the scale of involvement of EU funds in network extension, a small earmarking of collected taxes on road development and the necessity to continue infrastructure investment efforts beyond 2015. Because of that, it appears essential that the effective level of collected tolls reflects at least maintenance, operation and environmental costs along with an element of Pigouvian taxation for congestion as an effective transport demand-management instrument. As to the stretches built by private partners under PPPs, if the objective of the government is to keep levied tolls at a low level without jeopardising the profitability of the projects, available options include a lengthening of the licensing period or a buyback of the facility by the public partner at the end of the concession.

**Conclusion**

Closing the gaps in transport infrastructure is a key to raising potential. A major challenge is to implement the ambitious spending plans sufficiently rapidly so that the substantial EU funds can be fully and efficiently absorbed without massive cost overruns. Access to the labour market for foreign construction workers should be further facilitated. Public procurement legislation should also be reformed, notably to limit the abuse of appeal procedures and to simplify the delivery of building permits and environmental impact assessments. Public-private partnerships should be given more consideration as they have the potential to enhance efficiency. Detailed recommendations to improve transport infrastructure policies can be found in Box 4.

Box 4. **Main recommendations on transport infrastructure policies**

**Investment decisions**

- Elaborate and publish a precise and comprehensive top-down strategy for the transport sector, addressing long-term prospects and interrelations among projects, based on cost-benefit analysis.
- To the extent that there remains scope for any re-allocation of total available funds, try to achieve a better balance between the need to develop the road network and other more environmentally friendly modes (railways, short sea shipping, inland waterways and intermodal facilities).
- Streamline the law on PPPs, pursue efforts to develop PPPs by creating a central public unit responsible for the oversight and quality control of cost-benefit analyses and quantifying future budget commitments; consider the option of combining EU grants and private funds within PPPs and receiving assistance through the JASPERS and JESSICA programmes.
- Improve co-ordination between central and local government in designing investment plans for airports.

**Absorption of EU funds**

- Provide easier access to foreign workers from a broader range of countries than those on the eastern border.
- Maintain vigilance over possible collusive behaviour among the main suppliers of construction materials.
- Hedge PLN/EUR currency exposure in connection with future transfers of EU funds.
- Streamline the legal framework related to public procurement, issuance of building permits, environmental impact assessments and archaeological research.
- Adopt multi-year budgeting systems for addressing growing fiscal spending needs linked to co-financing.

**Transport infrastructure**

***Roads***

- Charge passenger cars for using expressways; consider extending electronic collection to light vehicles.
- Determine in a transparent way the level of tolls on EU- and state-funded high-capacity roads, and consider the introduction of an explicit congestion tax.

***Railways***

- For providing regional rail services, promote the organisation of competitive tendering procedures and consider creating independent system operators to plan the traffic and rail connections.
- Strengthen the position of UTK as an independent market regulator, and separate the main state-owned infrastructure manager (PKP PLK) from the PKP Group.

***Ports***

- Consider phasing out tax exemptions granted to ports, and extend the deadline for VAT payment.

***Aviation***

- Strengthen ownership rights by privatising the national airline company LOT.
- Split the Polish Airports' State Enterprise (PPL) into different entities, consider their privatisation, and introduce a formula for the transparent calculation of price caps on take-off and landing fees.

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