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## Launching Public Private Partnerships for Highways in Transition Economies

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## TABLE OF CONTENTS

Acknowledgments .....	iv
Abstract .....	v
1. Introduction .....	1
2. Background .....	1
3. Some Lessons Learned from Successes and Failures .....	2
4. Concession Laws .....	3
5. Unsolicited Proposals .....	5
6. Steps to Launch a PPP Program in Highways .....	5
7. Selection of the Strategic Private Investor or Concessionaire .....	6
8. World Bank Partial Risk Guarantees .....	7
9. Greenfield and Road Maintenance Concession Programs .....	9
10. World Bank/PPIAF Toolkit for PPP in Highways .....	10
11. Economic Feasibility of Projects .....	10
12. Conclusions .....	11
References .....	12

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## **ABSTRACT**

In many countries the private sector has been involved in financing infrastructure through concessions under a public-private partnership (PPP) program. PPP schemes, however, are somewhat underutilized in transition economies, where the potential financing gaps are significant and growing, and there seems to be an enormous potential for more private sector involvement in the financing and operation of highway assets in these countries.

The reasons for the low private financing of road infrastructure in transition economies include lack of appropriate legal framework, economic and political instability and consequent high perception of risks, and relatively low traffic volumes. As new legislation is enacted (Russia, for example, passed a new concession law in mid 2005), institutions and economic growth become more sustainable (the Baltic states, as an example, have grown steadily over the last several years), and traffic increases on key roads and corridors, it seems fair to expect that the sector will become more attractive to private investors.

Institutions such as the World Bank can contribute to enhance private financing of road infrastructure through greater use of their guarantee power, in addition to supporting, when required, the public sector contribution to the construction cost of a PPP project through loans. Partial risk guarantees are particularly relevant in the context of seeking more private involvement in the financing of road infrastructure.

This paper reviews potential applications of partial risk guarantees, the required legal framework (for example, concession law) for attracting private capital for PPP schemes, possible steps for a country to launch a program of private participation in highways, the concept of greenfield and road maintenance concession programs, and the treatment of unsolicited proposals. It also summarizes potential applications of the World Bank Toolkit for PPP in Highways as an instrument to help decision-makers and practitioners to define the best PPP approach for a specific country.



# Launching Public Private Partnerships for Highways in Transition Economies

## 1. INTRODUCTION

Many governments do not have all the financial resources required to expand, maintain, and operate their country's highway networks and other transport infrastructure. The overall resources needed are enormous. In the United States, for example, it is estimated that \$55 billion will be required annually over the next 20 years simply to maintain the highway and bridges in their current condition.

In many countries, the private sector has been involved in financing infrastructure through concessions under a public-private partnership (PPP) program. Broadly defined, a concession is a legal arrangement in which a firm obtains from the government the right to provide a particular service (Kerf 1998). PPP schemes, however, are somewhat underutilized in transition economies, where the potential financing gaps are significant and growing, and there seems to be an enormous potential for more private sector involvement in the financing and operation of highway assets in these countries.

With many countries increasingly interested in attracting private capital to infrastructure projects, institutions such as the World Bank can contribute through greater use of their guarantee power, in addition to supporting, when required, the public sector contribution to the construction cost of a PPP project through loans. Partial risk guarantees are particularly relevant in the context of seeking more private involvement in the financing of road infrastructure.

This paper reviews potential applications of partial risk guarantees, the required legal framework (for example, concession law) for attracting private capital for PPP schemes, possible steps for a country to launch a program of private participation in highways, the concept of greenfield and road maintenance concession programs, and the treatment of unsolicited proposals. It also summarizes potential applications of the World Bank Toolkit for PPP in Highways as an instrument to help decision-makers and practitioners to define the best PPP approach for a specific country.

There has been so far relatively low private financing of road infrastructure in transition economies. The reasons for this include lack of appropriate legal framework, economic and political instability and consequent high perception of risks, and relatively low traffic volumes. As new legislation is enacted (Russia, for example, passed a new concession law in mid 2005), institutions and economic growth become more sustainable (the Baltic states, as an example, have grown steadily over the last several years), and traffic increases on key roads and corridors, it seems fair to expect that the sector will become more attractive to private investors.

## 2. BACKGROUND

Following the Second World War, virtually all investments in road infrastructure were made by the public sector. A significant shift to private provision only occurred during the 1990s. Funding commitments for partly privately financed roads in developing countries peaked in 1997 before the Asian, and subsequent Russian, financial crises, and actual private flows have been falling in recent years. These declines have been accompanied by high profile cancellations or renegotiations of some projects, a reduction in investor appetite for these activities and, in some parts of the world, a shift in public opinion against the private provision of infrastructure services (Harris 2003). On the other hand, private financing of roads has continued to grow strongly in several OECD countries, including Australia, France and some major states of the USA, and in some developing countries that were less affected by the broader regional financial crises, such as Chile and South Africa.

The last decade experience showed that private participation is not a panacea, but also that, where commercial risks are shifted to the private sector, private participation can help deliver infrastructure that is essential for growth. The quality of regulation matters, and the key is to develop regulatory frameworks that are credible to investors and viewed as legitimate by road users. It is also essential that anticipated traffic volumes on road projects proposed by governments for partial or total financing by the private sector are

relatively high to ensure reasonable returns on investments.

The reality is that road infrastructure has to be paid for, whether provision is public or private, thus the need to sustain cost-recovering schemes, such as appropriate toll rates. As pointed out by Harris (2003), the real issue is not public infrastructure versus private infrastructure. It is more simple: the issue is less infrastructure versus more. Some lessons learned from successes and failures of a number of projects are summarized in the next section.

### 3. SOME LESSONS LEARNED FROM SUCCESSES AND FAILURES

An analysis of the experience with motorway development in the past ten to fifteen years in Hungary, the Czech Republic, Poland, Slovenia, Croatia, Romania, and Serbia showed that any PPP scheme, in order to be successful, requires strong (material) Government support and long lasting political will and engagement. This analysis highlights the following key pre-requisites for successful PPP schemes (World Bank 2004):

- A strong political will, an appropriate and stable regulatory and legal framework, and a stable macro-economic environment;
- The willingness of the public sector to provide the (substantial) public sector contribution (up to 40-60 percent of total project cost in some cases). Public sector support may also include the provision of existing assets as an in kind contribution, sovereign guarantees, and subsidies;
- Sufficient traffic volumes to make it viable to the private sector - A new road is unlikely to be financially viable without a flow exceeding 10,000 vehicles per day, unless the government offers an additional substantial subsidy to the concessionaire. By contrast, the rehabilitation of a road, particularly where there are no competing corridors, can be viable where the flow is just some 6,000 vehicles per day; and
- A robust economic and financial appraisal of the project that asks, and endeavors to answer, three questions: is the project beneficial for society, is it commercially viable for the potential concessionaire,

and is the required public sector contribution justified in terms of the additional benefits engendered by that contribution?

Risks associated with PPP programs should be adequately managed. The main risks of PPP highway projects, in addition to changes in design during construction which can lead to significant costs increase, are those that affect gross revenue. These revenue related risks usually reflect uncertainty in both the predictability of future traffic volumes and the willingness of road users to pay tolls, together with the possibility that expected land-use patterns do not materialize. . A study of 67 toll road cases by Standard & Poor's (2002) found that actual traffic, on average, was 70 percent of the forecast volume, with a spread of 18 percent to 146 percent. For countries without previous tolling experience, the average actual traffic was only 56 percent of the forecast, compared with 87 percent for those with previous experience.

The World Bank has, together with the Public-Private Infrastructure Advisory Facility (PPIAF), developed the Toolkit for Public-Private Partnership in Highways (World Bank/PPIAF 2003). This resource (discussed later), when used appropriately, provides a reliable way of screening potential transport projects for private sector participation, prior to further detailed investigation.

Particularly helpful PPP resource guidance, based on lessons learned, can be found in: (i) "Public and Private Sector Roles in the Supply of Transport Infrastructure and Services: Operational Guidance for World Bank Staff" (Amos 2004); and (ii) "Guidelines for the Development of Successful Public-Private Partnerships" (European Commission 2003).

The European Commission (EC), recognizing that Accession Countries and Member States can potentially benefit from the PPP approach to reform and upgrade infrastructure and services, has published, in addition to the "Guidelines," a Resource Book with a number of PPP case studies across countries and sectors (EC 2004). Further related information can be found on the EC website at:

[http://europa.eu.int/comm/regional\\_policy/sources/docgener/guides/pppguide.htm](http://europa.eu.int/comm/regional_policy/sources/docgener/guides/pppguide.htm)

PPPs should only be considered if it can be demonstrated that they will achieve additional value compared with other approaches, if there



is an effective implementation structure, and if the objectives of all parties can be met within the partnership. Regarding additional value, as an example, the UK Government (HM Treasury 2004) has developed a value for money (VfM) framework, the application of which (including a "Quantitative Evaluation" tool) is mandatory for all PPP projects proposed in the UK. Further information regarding the UK "value for money" assessment is available on the HM Treasury website at:

[http://www.hm-treasury.gov.uk/documents/public\\_private\\_partnerships/key\\_documents/ppp\\_keydocs\\_vfm.cfm](http://www.hm-treasury.gov.uk/documents/public_private_partnerships/key_documents/ppp_keydocs_vfm.cfm)

#### 4. CONCESSION LAWS

An appropriate concession law is fundamental for a country to establish an enabling environment for PPPs and it also serves as a possible marketing tool for investors. It should apply to construction, expansion, rehabilitation and maintenance of assets providing a public service, aiming at improving the efficiency and modernization of public services. In general, a concession law should include provisions for:

- Definition of concepts and terms;
- Transparent competitive bidding;
- Allowing for bid evaluation on a net present value (NPV) basis;
- Assurance of national treatment to foreign investors;
- Assurance of compensation in the event of expropriation;
- Assurance of access to international arbitration for foreign investors;
- A general reference to the terms of specific contracts, which creates scope for flexible approaches between sectors and projects; and
- Public disclosure of concession agreements.

A concession law can be kept relatively simple and general, while specific regulation with detailed guidelines about the ways in which the procurement process will be conducted, criteria, contract award, selection committees, etc. should be documented in operational guidelines (or decrees). A separation between

law and regulation provides more flexibility for amendments during the implementation of a PPP program.

It is usually beneficial to have a draft concession law reviewed by a law firm with a strong international project finance practice and with a strong local knowledge base.

Public disclosure of concession agreements is highly desirable. In recent years a growing number of countries have taken the step of publishing concession agreements they have made. This has several benefits: (a) it provides a further check on corruption, which in addition to its direct benefits can enhance the legitimacy of private sector involvement in often sensitive sectors; and (b) when the concession agreement relates to the provision of services to the public, it provides consumers with a clearer sense of their rights and obligations, and can facilitate public monitoring of concessionaire performance. The lack of transparency in concession agreements may lead to serious public concerns, as highlighted in a recent report by Transparency International (2005).

It is usual practice for concessions law to contemplate the concept of "negative concessions" in which there is a contribution from the public budget, rather than a payment to the public budget. The law would make explicit the right of the public authorities to enter into multi-year contracts to make the required stream of payments to the concessionaire.

A concession law needs to link with other laws, such as:

- Laws regulating the provision of public services
- It is common to find aspects of utility services governed by sector-specific laws, some of which establish specialist regulatory bodies. The relationship between those laws and bodies and concession agreements needs to be spelt out, for example regarding tariffs and service standards.
- Procurement laws
- In order to provide a clear legal framework, the regime for bidding for concessions needs to be clear vis-à-vis other procurement laws.

- Laws governing foreign investment
- The provisions of a concession law need to be clear relating to other laws that might include restrictions of some kind on foreign participation. It is important that regarding concessions there is no separate treatments for local and foreign investors.

Many countries distinguish between concessions for public works, concessions for the delivery of public services, and concessions for the exploitation of natural resources. A concession law would need to reflect such distinctions.

There are situations in which one of the bidding criteria is based on minimum public contribution (or “subsidies”) to construction or reconstruction costs. A Concession Agreement may include: (i) re-build<sup>1</sup> and/or build; (ii) operate; and (iii) maintain. It may cover the whole spectrum of PPP, i.e., management and maintenance contracts, operation and maintenance contracts, and Build-Operate-Transfer (BOT) concessions.

Other useful provisions in concession laws include:

- The concept of “cannon” or “entry ticket fee,” which is a current practice worldwide. It is usually through the “cannon” that the government’s transaction costs in moving the project from initial conception to eventual signature of a contract are reimbursed by the concessionaire. However, in the end the cannon is going to be recovered by the concessionaire either through a higher subsidy or higher tariffs/tolls.
- The concept of periodic independent assessment of the concession assets to be carried out by an expert acceptable to both parties and paid, preferably, by the concessionaire.
- Amendments of concession agreements. International experience illustrates two general approaches: (a) provide no special rights for the grantor to unilaterally amend or terminate, and so leave this to be determined by the parties by agreement; or (b) provide the government with such special rights, but

with carefully defined safeguards for the concessionaire.

- Arrangements regarding the land required to provide the public services. Responsibilities of the granting authority may include providing adequate site condition, right of access, expropriation and acquisition of land, contingent environmental liabilities, etc.
- The concept of contract renegotiation, as it is better to be prepared to manage the process when renegotiation may be necessary. Concession laws should establish clear mechanisms for renegotiation and amendments (as a way to minimize contract distress and cancellation). The renegotiation of projects is not an unusual occurrence (Harris et al. 2003). In fact, about half of all concessions become subject to renegotiation, often due to inflated demand or yield estimations, or unrealistic operating cost assumptions (Amos 2004). While not all renegotiation is undesirable, opportunistic renegotiation should be discouraged in both existing and future concessions (Guasch 2004).
- Provision for international arbitration.
- Award of contracts through a two-step approach in which the qualitative requirements (for example, experience, financial capability, management plan) and some of the quantitative requirements (for example, investment plans) are judged on a pass/fail basis. All bidders that pass this stage are by definition qualified and step two judges the financial offers.
- Exceptions to competitive bidding. For example, most countries permit sole sourcing in the case of very small contracts (where the costs of a tender would be disproportionate to the benefits) and in emergency situations (where there is no reasonable time to conduct a tender, which may be a particular concern when it relates to the delivery of public services).

A recent review of compliance of transition economies with international practices regarding concession legislation is summarized in Table 1 (EBRD 2004). Three countries showed a very high degree of compliance, namely Bulgaria, Kyrgyz Republic and Lithuania.

<sup>1</sup> Re-build may include, for example, rehabilitation, modernization, refurbishing.

**Table 1. Level of Compliance/Conformity with International Practices regarding Concession Legislation: Case of Transition Countries with and without Concession Law.**

Very High Compliance/ Fully Conforms	High Compliance/ Largely Conforms	Medium Compliance/ Generally Conforms	Low Compliance/ Partly Conforms	Very Low Compliance/ Does Not Conform
Bulgaria	Ukraine	Hungary	Belarus	Slovak Republic
Kyrgyz Republic	Croatia	Moldova	Serbia and Montenegro	Armenia
Lithuania	Uzbekistan	Romania	Bosnia and Herzegovina	Czech Republic
	Slovenia	Macedonia	Latvia	Russia
		Tajikistan	Turkmenistan	
		Kazakhstan	Albania	
		Estonia	Georgia	
			Azerbaijan	
			Poland	

Source: EBRD. "Concession Assessment Project." Cover Analysis Report, 2004.

## 5. UNSOLICITED PROPOSALS

Unsolicited proposals, which seem attractive to some governments in their wish to accelerate road or motorway construction in the country, tend to be so controversial (usually involving allegations of corruption), that in fact they may take longer to negotiate than an open, competitive tender procedure. In theory, unsolicited proposals could generate beneficial ideas; in practice, there have been a number of unfavorable experiences, mostly as a result of exclusive negotiations behind closed doors (in a recent case, a contract signed between a government and a private company included a clause that prohibits any leakage of the signed contract).

Several countries have adopted specific legislation to deal with such proposals, while some governments have simply forbidden unsolicited proposals to reduce public sector corruption and opportunistic behavior by private sector companies. The general experience with unsolicited proposals is often negative, reflecting the fact that projects of this type have usually represented poor value for money, and were frequently incompatible with the actual development needs of the countries, and their ability to pay. They also often lead to allegations of corruption. Corruption has been shown to be associated with the lack of adequate transport infrastructure in a country, as well as low economic development (Queiroz and Visser

2001). It is essential to eliminate or minimize the perception, as well as the reality, of corruption in PPP programs so that such programs can best contribute to a country's economic development.

Some governments have adopted procedures to transform unsolicited proposals for private infrastructure projects into competitively tendered projects. Such countries include Chile, the Republic of Korea, the Philippines, and South Africa (Hodges 2003).

## 6. STEPS TO LAUNCH A PPP PROGRAM IN HIGHWAYS

A first step in launching a PPP program in highways in a country is to define the priority projects where the government envisages soliciting private investors financing of the total or partial cost of the project. In the case of Russia, for example, several high priority projects for potential PPP in highways have been described, such as Moscow-St. Petersburg motorway, outer Moscow ring road, Moscow-Minsk highway, access to Domodedovo airport, St. Petersburg Western High-speed Diameter Road, bridge on Volga river at Volgograd. More details on the Russian PPP program are provided by Eijbergen (2005). Other countries that have identified preliminary projects for PPP consideration include Latvia (for example, Riga-Jelgava motorway), Lithuania (for example, RailBaltica), Estonia (for example, fixed link to Saaremaa Island),

Albania (for example, Durres to Kukes highway), Ukraine (for example, Lviv-Krakovets and Vinnytsia-Kyiv highways).

Other steps to launch a PPP program would include (some of these steps can be done in parallel):

- a) Enact relevant legislation (for example, concession and toll road laws);
- b) Carry out feasibility study of priority projects. Employ reputable consultants, using well prepared terms of reference (TOR). Identify/quantify social and economic benefits; carry out financial assessment to help check the potential for attracting private capital (for example, relatively high overall financial rate of return and return on equity);
- c) Carry out environmental and social assessment, including development of mitigation plan and land acquisition plan for the right of way;
- d) Assess the willingness of users to pay; review tolling / payment options (for example, actual tolls, shadow tolls, vignette system);
- e) Define performance standard for the new investment and the service standards during the operation period.

## 7. SELECTION OF THE STRATEGIC PRIVATE INVESTOR OR CONCESSIONAIRE

Open and transparent competitive bidding is usually perceived as a prerequisite to ensuring the efficient allocation and use of scarce public resources. The World Bank Procurement Guidelines recommend the use of international competitive bidding (ICB) to select the concessionaire or entrepreneur under BOO (Build, Own, Operate), BOT (Build, Operate, Transfer), BOOT (Build, Own, Operate, Transfer) or similar type of concessions for projects such as toll roads, tunnels, harbors, bridges. The Guidelines state that the ICB procedures may include several stages in order to arrive at the optimal combination of evaluation criteria, such as the cost and magnitude of the financing offered, the performance specifications of the facilities offered, the cost charged to the user, other income generated by the facility, and the period of the facility's depreciation. The Guidelines are available at:

<http://siteresources.worldbank.org/INTPROCUR/REMENT/Resources/Procurement-May-2004.pdf>

Steps in the selection process include:

- a) *Advertising.* A notice requesting expressions of interest to prequalify should be published in at least one international newspaper and one of national circulation and should include the scheduled date for availability of prequalification documents.
- b) *Investor Feedback.* Meeting with selected potential investors/concessionaires to solicit feedback on the options being analyzed as well as on the key parameters and assumptions underpinning the conclusions of financial feasibility.
- c) *Public Information.* Implement an appropriate program to disseminate information to the public on the financing and construction of the proposed facility (or project).
- d) *Prequalification of Concessionaires.* Develop operational and financial criteria to be used in judging the suitability of prospective bidders, and conduct a transparent pre-qualification process. Prequalification ensures that invitations to bid are extended only to those who have adequate capabilities and resources. Prequalification shall be based entirely upon the capability and resources of prospective bidders to perform the particular contract satisfactorily, taking into account their (a) experience and past performance on similar contracts, (b) capabilities with respect to personnel, equipment, and construction, and (c) financial position. All bidders that pass this stage are by definition qualified for the next phase.
- e) *Inviting pre-qualified firms/consortiums to submit bids.* Define the procedures for the pre-qualified bidders to carry out their own due diligence of the proposed project. In addition, a Data Room prepared by the Client should be made available to potential investors, to enable them to fully assess the investment opportunity.
- f) *Bidders' review and comments.* In order to minimize opportunities for post-bid negotiations on substantive issues with the winning bidder, major transaction

documents (such as concession contract, shareholders agreement) should be circulated to the bidders for review and comments before bids are submitted. The clear understanding to bidders should be that the period designated for review and providing comments will be their only opportunity to influence the terms of the bidding process.

- g) *Competitive Bidding Process.* Once the structure of the transaction has been approved, organize a competitive bidding process to award the concession contract to a strategic investor. Steps in the bidding process include supervising the lawyers/engineers in the preparation of the tender documents, administering the offering period for bidders due diligence, and preparing the bid procedures and selection criteria.
- h) *Bid Evaluation.* Evaluate the bids received based on the agreed, transparent selection criteria, and recommend award to the best evaluated bidder
- i) *Transaction Closure.* The principal parties complete and execute the concession contract, shareholders agreement and other documents necessary for the satisfactory closing of the transaction.
- j) *Public disclosure of the concession agreement.* By providing a further check on corruption, this can enhance the legitimacy of private sector involvement.

International financial institutions (IFI) such as the World Bank can cooperate and assist in all of these steps. Forms of assistance may include:

- a) Technical assistance to all required processing stages, including establishing good regulatory capability;
- b) In case the project requires government subsidies (for example, government contribution to the construction cost), the IFI could consider financing a part of such subsidies;
- c) The IFI could provide a partial risk guarantee (PRG) to support the selected concessionaire so it can borrow at lower interest rate and/or longer maturity.

## 8. WORLD BANK PARTIAL RISK GUARANTEES

The World Bank through its guarantee instruments can help accelerate growth in transition countries by mobilizing larger amounts of private financing for infrastructure development and other projects of national importance.

By covering government performance risks that the market is not able to absorb or mitigate, the World Bank's guarantee mobilizes new sources of financing at reduced financing costs and extended maturities, thereby enabling commercial/private lenders to invest in projects in transition countries. Guarantees can mitigate a variety of critical sovereign risks and effectively attract longer term commercial financing in sectors such as power, water, transport, telecom, oil and gas, and mining. Guarantees can also enhance private sector interest in public private partnerships.

A website dedicated to World Bank guarantees is available at:

<http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTFININSTRUMENTS/EXTGUARANTEES/0,,contentMDK:20267847~HIPK:545970~menuPK:64143502~pagePK:64143534~piPK:64143448~theSitePK:411474,00.html>

The World Bank operational policy regarding its guarantee program, OP 14.25, states that the objective of a guarantee is to mobilize private sector financing for development purposes. The World Bank may guarantee private loans with or without an associated World Bank loan; the World Bank does not guarantee equity investments. The World Bank provides guarantees only to the extent necessary. The operational policy is available at:

<http://wbln0018.worldbank.org/institutional/manuals/opmanual.nsf/toc1/A505EC4B4C9EB1658525672C007D0976?OpenDocument>

Although guarantees may be structured in different ways, there are two basic kinds. Partial credit guarantees cover debt service defaults on a specified portion of a loan, normally for a public sector project. Partial risk guarantees cover debt service defaults on a loan, normally for a private sector project, when such defaults are caused by a government's failure to meet its obligations

under project contracts to which it is a party. The nature and scope of government contractual undertakings that the World Bank backs vary depending on specific project, sector, and country circumstances. The World Bank requires that the underlying contracts for partial risk guarantees contain appropriate dispute resolution procedures; if there is a dispute about the government's obligations, the World Bank's guarantee is triggered only after the government's liability has been determined in accordance with such procedures. Both kinds of guarantees may cover scheduled interest as well as principal payments on a loan.

Both governments and the private sector benefit from a guarantee. Governments benefit because it can:

- Catalyze private financing in infrastructure
- Facilitate privatizations and public private partnerships
- Reduce government risk exposure by passing commercial risk to the private sector
- Improve impact of private sector participation on tariffs

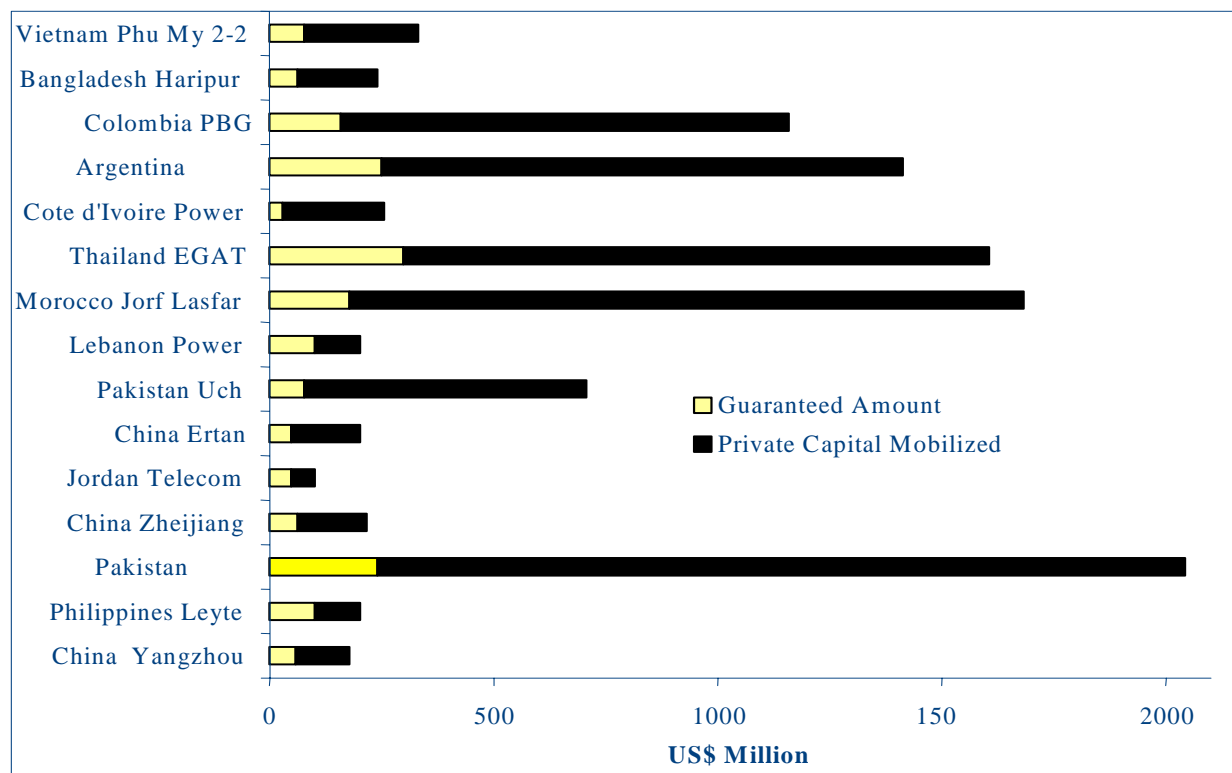
- Encourage larger co-financing

The private sector benefits because it can:

- Reduce risk of private transactions in emerging countries
- Mitigate risk that the private sector does not control
- Open new markets
- Lower the cost of financing and extend maturities
- Improve project sustainability

The World Bank guarantee instruments have proved to be a powerful instrument in catalyzing private financing to frontier markets. Twenty two guarantees with about US\$ 1.4 billion exposure to the World Bank have achieved a remarkable leverage by catalyzing more than US\$ 12 billion of private resources for projects worth US\$ 24 billion (see examples in Figure 1). Each dollar of guarantee financing has leveraged close to 5 dollars of private finance. They have been mostly used so far for energy projects, but they should be equally useful for toll road projects too.

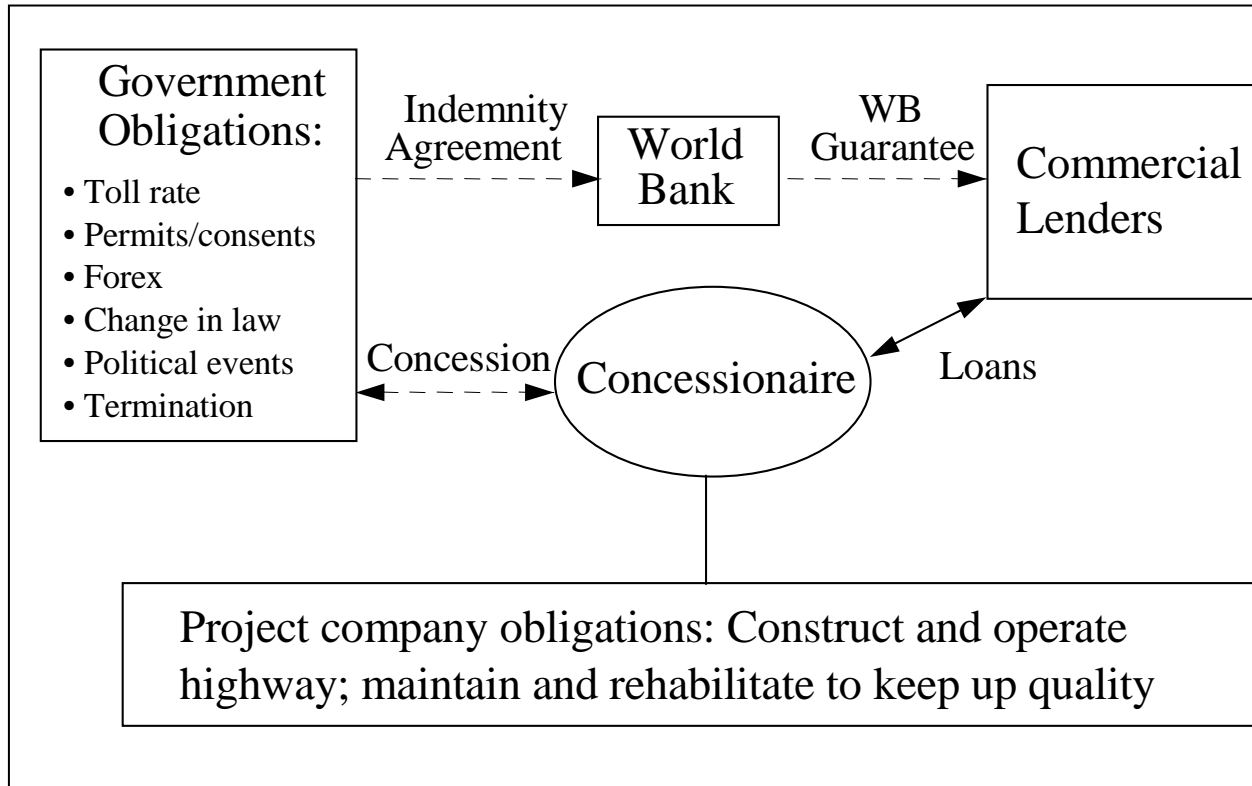
**Figure 1. Examples Of Guarantees' Leverage in Catalyzing Private Resources.**



Partial risk guarantees are particularly relevant in the context of seeking more private involvement in the financing of road infrastructure. Such guarantees cover specific government obligations spelled out in support agreements with the project entity. Examples of such agreements include concession agreements, implementation agreements, build-own-operate-transfer (BOOT) contracts,

build-own-operate (BOO) contracts and, the most common form, build-operate-transfer (BOT). Partial risk guarantees are appropriate for enhancing a project's limited recourse project financing, the most common method of financing concessions for transport infrastructure. Figure 2 provides an illustration of how a partial risk guarantee can apply to a highway concession contract (Queiroz 1999).

**Figure 2. Structure of a Highway Concession Contract and World Bank Guarantee.**



**9. GREENFIELD AND ROAD MAINTENANCE CONCESSION PROGRAMS**

Greenfield PPP projects include investment in new construction, usually on a new alignment, by the concessionaire, while in road maintenance/rehabilitation/operation (RM/R/O) concessions the concessionaire agrees to assume responsibility for an existing road or part of a road network. Several concession options are available and each country should select the most appropriate for its specific needs. Through the most common forms of concession, a country can transfer to the private sector the responsibility to: (i) build, operate and transfer (BOT) back to the public sector (at the end of the concession period) a road facility (for example, a motorway, bridge, tunnel), or (ii) maintain, rehabilitate, operate

(RM/R/O concessions) an existing road or road links. Each concession can include individual links or a set of links in a given area of the country (i.e., area-wide concessions).

The steps in the process of launching a road concession program include preparation of all the relevant concession documents, technical, financial and economic analysis, competitive selection of concessionaires, evaluation of proposals, as well as award of the concession contract. When the main purpose of the concessions is to obtain additional funds to those available in the budget for roads, or release limited public funds for use on other roads (for example, secondary and rural roads), shadow-tolls (whereby payment to concessionaires are made out of the budget, based on traffic volumes and classification) and availability fees (whereby payment to concessionaires are made out of the budget,



based on lane availability) would not be feasible options, except insofar as they postpone the budgetary burden.

Typically, under a greenfield concession, tolling is used as a method of generating a cash flow sufficient to service a loan for part of the investment and to cover operating costs, while under a maintenance concession program, tolling is used to raise funds principally for operation. Tolling recommendation must have regard to the prevailing social conditions as well as the market response of travelers and freight shippers to tolls. Consideration should be given to the institutional options and regulatory arrangements with respect to public and public-private approaches to toll roads.

All concessions require an institutional structure, such as a dedicated unit (which could also run the competitive bidding process) to monitor the private sector performance, including compliance with the performance standards defined in the concession agreement. The concession contract and public - private sector arrangements for a new investment concession and for a maintenance concession may be different, but a country can pursue both types of concessions at the same time.

## 10. WORLD BANK/PPIAF TOOLKIT FOR PPP IN HIGHWAYS

The main objective of the Toolkit for PPP in Highways is to provide policy makers from economies in transition with some guidance in the design and implementation of a Public Private Partnership (PPP) in the highway sector. The Toolkit is structured under five headings (or modules) and is navigated through a series of tree diagrams under each of these headings. It also includes a library and interactive financial models. It is a multimedia product available on a CD ROM and from the World Bank's web site at:

<http://rru.worldbank.org/Documents/Toolkits/Highways/start.HTM>

Using basic assumptions about a specific motorway project, the financial simulation tool of the Toolkit is helpful to answer key questions on the financial feasibility of the project. For example, questions such as the ones below can be answered with minimum effort using the Toolkit:

- What is the internal financial rate of return (IRR) of the project?

- In the absence of Government subsidies, ceteris paribus, what would be the return on equity (ROE)?
- While subsidies may be paid by the Government during the construction period, it recovers some of this payment through taxes during the operation period. What would be the Government contribution to the proposed project that would lead to a financial balance for the government throughout the concession period?
- In the absence of Government subsidies, ceteris paribus, what would be the required initial toll rate to yield a return on equity of 16 percent?
- Assuming that an initial average toll rate of US\$0.06 per vehicle-km is the highest acceptable by road users, an investment cost of US\$3 million per km (typical for a four-lane road on flat terrain), and an initial traffic volume (AADT) of 15,000 vehicles per day, what is the minimum concession life that would generate a return on equity (ROE) likely to attract a private sector concessionaire (say an ROE of 15 percent or higher)?

A recent update of the financial simulation tool is particularly appropriate to answer questions such as the ones above. The Excel file with the updated Tool is available on the World Bank website at:

<http://wbln0018.worldbank.org/ECA/Transport.nsf/ECADocByLink/01C97A272081983D85256FD20061ECB8?Opendocument>

## 11. ECONOMIC FEASIBILITY OF PROJECTS

While the Toolkit for PPP in Highways can provide a useful assessment of the "financial" viability of a concession, the economic viability of a project is an essential criterion to determine whether it is beneficial for the country to proceed with a particular initiative. Three main questions require answering; firstly, the project has to be beneficial to the country in economic terms; secondly, the project has to be commercially viable; and thirdly, if a public contribution is necessary, the provision of this contribution needs to be economically viable for the country. A very useful tool for assessing the economic viability



of a roads project is the Highway Development and Management (HDM-4) model. In using the model, careful thought is required to ensure the correct specification of benefits and costs. HDM-4 has been frequently used for prioritization/economic analysis of proposed motorways. The World Road Association (PIARC) coordinates the availability, support and training opportunities for HDM-4 users, and future research and development activities. PIARC maintains an HDM-4 Information Center, which can be accessed at:

<http://www.piarc.org/en/projects/hdm4/>

More information on HDM-4 applications is available on the University of Birmingham web site at:

<http://civ-hrg.bham.ac.uk/isohdm/abouthdm4.htm>

## **12. CONCLUSIONS**

This paper discussed potential applications of partial risk guarantees to assist countries in transition to seek more private involvement in the financing of road infrastructure. It also presented a review of the required legal framework (for example, concession law) for attracting private capital for PPP schemes, possible steps for a country to launch a program of private participation in highways,

the concept of greenfield and road maintenance concession programs, and the treatment of unsolicited proposals. The paper also summarized potential applications of the World Bank Toolkit for PPP in Highways as an instrument to help decision-makers and practitioners to define the best PPP approach for a specific country.

In many countries the private sector has been involved in financing infrastructure through concessions under a public-private partnership (PPP) program. PPP schemes, however, are somewhat underutilized in transition economies, where the potential financing gaps are significant and growing, and there seems to be an enormous potential for more private sector involvement in the financing and operation of highway assets in these countries.

The reasons for the low private financing of road infrastructure in transition economies include lack of appropriate legal framework, economic and political instability and consequent high perception of risks, and relatively low traffic volumes. As new legislation is enacted (Russia, for example, passed a new concession law in mid 2005), institutions and economic growth become more sustainable (the Baltic states, as an example, have grown steadily over the last several years), and traffic increases on key roads and corridors, it seems fair to expect that the sector will become more attractive to private investors.

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