

***The World Bank  
Ministry of Construction, Japan***

**Asian Toll Road Development Program  
Review of Recent Toll Road Experience in Selected  
Countries and Preliminary Tool Kit for Toll Road  
Development**

***Draft Final Report***

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***in association with***  
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# EXECUTIVE REPORT

## A. STUDY BACKGROUND

1. Developed and developing countries throughout the world have accumulated a diverse base of experience with respect to the institutional, regulatory, and financial aspects of building and operating toll road systems.<sup>1</sup> Intending to complete the construction of trunk road networks rapidly, many developing Asian countries have already introduced toll road systems. Arguably, however, many of these countries do not yet have clear or comprehensive visions and strategies for the future development and management of their toll road networks. It would therefore be valuable for the policymakers of these countries to learn the lessons derived from the successes and failures of toll road development in other countries in order to formulate appropriate institutional and regulatory frameworks suited to their needs.

2. Recognizing this, the World Bank, in collaboration with Ministry of Construction of Japan (MOCJ), has launched an Asian Toll Road Development Program, of which a Review of Recent Toll Road Experience in Selected Countries is intended to be the first critical component. It is anticipated that this Study will provide opportunities for individuals and organizations involved in toll road development to discuss the future progress of their systems and obtain clear guidance from the experience of other countries. For this purpose, the Study reviewed worldwide experience with toll roads, focusing on 18 economies.<sup>2</sup>

3. A wealth of information on the experience with toll roads was compiled for each of the selected economies. Information collection was most intense in the six Asian countries visited.<sup>3</sup> During these visits, the Consultant team met with more than 100 individuals representing approximately 70 institutions including toll road related agencies, financial institutions, toll road operators, construction firms, law firms, credit rating organizations, and a variety of public sector agencies. Throughout the study, particular attention was paid to ascertaining toll road issues and lessons learned that may ultimately be installed on the Bank's "Knowledge Management System."<sup>4</sup> This Executive Report presents the major study findings that served as

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<sup>1</sup> In this report, the terms "toll road" and "toll highway" typically refer to highways for which tolls are charged, though in some cases other tolled facilities such as toll bridges, toll tunnels, and tolled roundabouts (the last-named in Malaysia only) are also investigated. While in general highways for which tolls are charged tend to be high-standard, high-speed, multi-lane, controlled-access roads (alternately referred to as expressways, motorways, or even freeways), in some instances the toll roads investigated in this report may be of significantly lesser design standards, and not entirely access controlled either.

<sup>2</sup> The 18 economies include: five East Asian countries with developing toll road systems (China, Indonesia, Malaysia, the Philippines, and Thailand); five countries with developed toll road systems (France, Italy, Japan, Spain, and the United States); and seven other countries and a region (Argentina, Brazil, Chile, Colombia, the Hong Kong Special Administrative Region [SAR], Hungary, Mexico, and the United Kingdom).

<sup>3</sup> The team visited Hong Kong SAR (China), Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

<sup>4</sup> The World Bank's "Knowledge Management System" (KMS) is a computerized database that provides an efficient mechanism for storing and accessing information. The KMS is designed to facilitate access to a range of

a resource and provided discussion materials for the “Seminar on Asian Toll Road Development in an Era of Financial Crisis,” held in Tokyo, Japan from March 9 to 11, 1999.

## B. TOLL ROAD DEVELOPMENT TRENDS IN SELECTED COUNTRIES

4. Table 1 presents four indicators of toll road development in 18 selected economies, including the length of toll roads in service, gross domestic product per capita, auto ownership, and the extent of private sector involvement. While some countries have historically avoided charging tolls for public roads, in the present environment of fiscal restraint nearly all have turned to tolls as a preferred means for financing highway infrastructure investment. Except for a few countries such as Japan, the private sector is now playing a major role in toll road development. The following paragraphs give a brief overview of toll road development in the countries studied.

**Table 1: Indicators of Toll Road Development in 18 Selected Economies**

Economies	Total Length of Toll Roads in Operation (km) <sup>a</sup>	GDP per Capita <sup>b</sup> (US\$) 1997	Autos per 1,000 pop. <sup>c</sup> 1997	Extent of Private Sector Involvement <sup>d</sup>
Argentina	197 <sup>e</sup>	9,700	151	Moderate
Brazil	856 <sup>f</sup>	6,300	67	High
Chile	2.5 <sup>g</sup>	11,600	109	Moderate
China	4,735 <sup>h</sup>	3,460	8	High
Colombia	1,330 <sup>i</sup>	6,200	38	High
France	6,716 <sup>j</sup>	22,700	521	Moderate
Hong Kong	67.8 <sup>k</sup>	26,800	74	High
Hungary	254 <sup>l</sup>	7,400	272	Moderate
Indonesia	472 <sup>m</sup>	4,600	21	High
Italy	6,440 <sup>n</sup>	21,500	679	High
Japan	9,219 <sup>o</sup>	24,500	551	Low
Malaysia	1,127 <sup>p</sup>	11,100	152	High
Mexico	6,061 <sup>q</sup>	7,700	133	High
Philippines	168 <sup>r</sup>	3,200	12	High
Spain	2,255 <sup>s</sup>	16,400	457	High
Thailand	91 <sup>t</sup>	8,800	105	Moderate
United Kingdom	8 <sup>u</sup>	21,200	406	High
United States	7,363 <sup>v</sup>	30,200	760	Low

Sources:

<sup>a</sup> Figures in this column include toll bridge and tunnel roadways, although their contributions to the totals are generally minor.

<sup>b</sup> United States Central Intelligence Agency (CIA), *The World Factbook 1998*, <http://www.odci.gov/cia/publications/factbook/>

<sup>c</sup> Automobile Data: International Road Federation, *World Road Statistics 1998*, (Autos include passenger cars, buses, and trucks.) Population Data: CIA, *The World Factbook 1998*, <http://www.odci.gov/cia/publications/factbook/>

<sup>d</sup> This indicator is based on a qualitative assessment by the authors, taking into account the proportion of toll roads in each country or region that either are at present or are planned in the near future to be developed, financed, and/or operated by the private sector.

<sup>e</sup> (1996) International Bridge Tunnel and Turnpike Association (IBTTA), *1996 Toll Industry Statistics*

<sup>f</sup> (1998) Ministério dos Transportes, *Programa de Concessão de Rodovias Federais (Resumo)*, 1 June 1998

<sup>g</sup> (1998) *Public Works Financing*, November 1996, August 1997, and April 1998

<sup>h</sup> (1998) News Net Asia, 7 January 1998, <http://mna.asia.ne.jp/member/index.html>

<sup>i</sup> (1998) World Bank, *Project Appraisal Document ... for a Toll Road Concession Project [in Colombia]*, 11 June 1998, p. 3.

<sup>j</sup> (1998) The Association of French Motorway Companies, 1998, <http://www.autoroutes.fr/english/reseau.html>

<sup>k</sup> (1997) *Public Works Financing*, “1998 International Major Projects Survey”; and Highway Department of Hong Kong, *Privatization of*

standard categories of information such as examples of good practice, sample terms of reference, key readings, and who's who databases.

*Major Road Tunnels in Hong Kong Through BOT Arrangement, 1997*

<sup>1</sup> (1998) ELMKA, *ASECAP National Report, 1998 Motorway Network in Hungary*

<sup>m</sup> (1998) Express Highway Research Foundation of Japan (EHRF), *World Expressways (Sekai no Kosoku Doro)*, 1999

<sup>n</sup> (1997) Autostrade S.p.A., 1998, [http://www.autostrade.it/pagine\\_1/english/e-mappa.html](http://www.autostrade.it/pagine_1/english/e-mappa.html)

<sup>o</sup> (1998) Expressway Technology Center (EXTEC), *Case Study on Japan*, 1999

<sup>p</sup> (1998) Malaysian Highway Authority, 1998

<sup>q</sup> (1997) EHRF, *World Expressways (Sekai no Kosoku Doro)*, 1999

<sup>r</sup> (1998) Department of Public Works and Highways, 1998

<sup>s</sup> (1997) ASETA, *Red de Autopistas de Peaje Edicion 1998*

<sup>t</sup> (1998) Department of Highways, 1998

<sup>u</sup> (1997) World Bank Private Sector Department, 1997, *Toll Road Program in the United Kingdom A Policy and Financial Review*

<sup>v</sup> (1996) IBTTA, *1996 Toll Industry Statistics*

5. **Selected Countries in East Asia with Developing Toll Road Systems.** Over the last two decades the demand for high-standard highways in China, Indonesia, Malaysia, Philippines, and Thailand has increased substantially—a reflection of rapid economic growth and increasing levels of vehicle ownership and use.<sup>1</sup> Because of the limited resources available to the public sector for financing infrastructure development, many countries have turned to tolling as a promising method for funding highway development. Each of the five countries has adopted private sector concessions as their dominant mode for designing, building, financing, and operating toll roads.

6. *Malaysia* was the first country in the region to introduce toll roads (in 1966), while *China* now has about 4,735 km—the greatest total length in service. Although public sector highway authorities were the main actors in the early stages of toll road development, in the last ten years the private sector has become increasingly involved in each of these countries. At present, the majority of ongoing and planned toll roads in all of the countries involve the private sector.

7. The Asian financial crisis that began in mid-1997 has had a variety of consequences for toll road programs in these countries. The degree of impact on the toll road development programs has so far been the highest in *Indonesia*, relatively high in *Thailand* and *Malaysia*, and relatively low in the *Philippines* and *China*. Traffic volumes are down in *Indonesia*, *Thailand*, and *Malaysia*, but have not changed significantly in *China* and the *Philippines*. Most of the countries, except perhaps for *China*, are experiencing financial turmoil manifested by currency devaluation, rising interest rates, and a banking sector struggling with an increased volume of non-performing loans.<sup>2</sup> In *Indonesia*, all toll road construction work has been suspended, and the projects in the planning stages have been postponed indefinitely or canceled completely. In *Malaysia*, work is continuing but the basic terms and conditions of many projects are being renegotiated and project specifications are being redesigned (see Box 1). In many ways, the financial crisis has brought forward new issues in terms of the role of government in toll road development.

<sup>1</sup> Average annual growth of real (inflation-adjusted) GDP in these countries between 1990 and 1996 ranged from 2.8 percent in the Philippines to 10.1 percent in China (International Monetary Fund, *International Financial Statistics Annual Report*, 1997).

<sup>2</sup> However, in recent months, the Asian financial crisis has appeared to affect China as well. For example, in January 1999, the Guangdong International Trust & Investment Corporation (GITIC) was allowed to go bankrupt by the Government, leaving US\$4.3 billion in unpaid debts; GITIC had provided a cash-flow deficiency guarantee for repayment of loans to the Guangzhou-Shenzhen Super Highway Project.



8. **Selected Countries with Developed Toll Road Systems.** *France, Italy, and Spain* all feature advanced, well-developed toll expressway networks, and they each provide valuable lessons. *France* initially made a commitment to using tolls for financing motorway

**Box 1 Impact of the Asian Economic Crisis on  
Toll Road Development in Selected Countries**

**China.** Of the Asian case study countries, China appears to have been the least affected by the recent financial crisis; its annual GDP growth was 7.8 percent in 1998, just off its 8 percent target, but down from 8.8 percent in 1997. There has also been little indication of toll road project suspensions or postponements in China due to the economic crisis. There has thus far been no currency devaluation against the United States dollar as the Government has maintained its exchange rate controls. Also, the central government has ordered state banks to increase lending in order to achieve its growth targets. At least for the short term, these developments are expected to cater to the financing requirements of ongoing infrastructure projects across the country. Foreign financiers are, however, becoming extremely cautious about investing in new toll road projects in China.

**Indonesia.** The private sector participation-based approach to toll road development was considered to have a promising future in Indonesia until the onset of the financial crisis. But the collapse of the domestic commercial banking sector brought all ongoing Indonesian toll road projects to a halt. Both construction work and land acquisition has stopped on all sections. Without revenue from completed facilities, many concession companies are either facing bankruptcy or suspension of funding support, or are close to default on their concession agreements with Jasa Marga, the state toll road corporation. The collapse of the banking sector has also forced a number of concession companies to consider re-capitalizing their toll roads that are under construction.

**Malaysia.** As of January 1, 1999, concession agreements had been signed for 24 toll bridge and expressway projects in Malaysia. Of these, 13 projects are open to traffic, four are under construction, and the remaining have yet to begin construction. The current financial crisis has affected many of these projects, and the Government has so far been amenable to adjusting the terms and conditions of concession contract in response. In December 1997, for instance, the Government invited all project proponents that were negotiating concessions to submit alternative proposals for restructuring their projects in view of the financial crisis. In addition, the Malaysian central bank has recently increased restrictions to the country's exchange control regulatory regime, with the intent of limiting speculation in the ringgit.

**Philippines.** The Philippine economy is perhaps stronger than many of the other developing countries affected by the Asian crisis in the sense that it had already reformed its financial markets and "graduated" from International Monetary Fund reforms. In 1993 the Philippine central bank was made independent, the financial system was liberalized, foreign exchange controls were removed, and new foreign banks were allowed for the first time since 1949. There have been no major bank closures (only 1 or 2 percent), nor a collapse in the real estate sector (which has been attributed to a low rate of speculative construction). However, the currency was devalued, and the real GDP for 1998 declined by 0.5 percent from 1997. Ongoing toll road projects have seen no construction suspensions or slowdowns as a result of the economic crisis.

**Thailand.** The banking sector crisis in Thailand has had some impact on toll road projects, but to a much lesser extent than in Indonesia. At about 12 percent per annum, commercial interest rates are presently only 1 to 2 percent higher than they were before the crisis. However, banks are in general less willing to lend at present due to continuing problems with non-performing loans. The consensus view is that Thai banks intend to address their internal problems first, before taking on additional complex project finance commitments. Reduced traffic and an inability to win governmental approval for toll increases has also led to a growing cash flow problem for the primary toll road operator—portending difficulties with debt repayment, which has not been an issue before now.

construction by semi-public companies, but later moved towards a policy of more extensive private sector involvement. However, the French motorway system was confronted with a serious cash deficit problem in the 1970s and 1980s, partly as a consequence of the energy crises, and in response the government nationalized the private toll road companies in the early 1990s. France is also known for pioneering the technique of toll road development through cross-subsidization. Over time, the concession companies have been expected to subsidize new and more costly routes with operating surpluses derived from older, more heavily traveled segments that had been built at lower cost. In return for developing new motorways, the operators have been granted extensions in the periods of their older and more profitable concessions. *Italy* has undertaken toll motorway development through the granting of most concessions to companies controlled at least in part by public bodies. The toll road program in *Spain* has changed over time from the development of a private sector concession-based system of tolled intercity highways, *autopistas*, to a system of government-funded toll-free roads, *autovias*.<sup>3</sup> However, in response to recent budgetary stringency, the Spanish government has again become more amenable to private involvement in toll road development.

9. Unlike the history of private sector toll road development in France, Italy, and Spain, *Japan* has followed a consistent policy of toll expressway development through public corporations. A system of “toll revenue pooling” (internal cross-subsidization) for the entire rural expressway network has made it possible for Japan to develop more than 9,000 km of toll roads throughout the country, 6,420 km of which are expressways.<sup>4</sup>

10. In the *United States*, toll roads played an important role in the early development of the country, but particularly in latter half of this century most interstate highways and urban expressways have been developed as untolled facilities. Since the 1980s, however, there has been a renewed interest in toll financing for highways. Recent innovative financing initiatives in the United States have involved public-private partnerships between state governments and private sector highway development consortia.

11. **Selected Other Countries.** All of the Latin American countries reviewed in this study have been actively engaged in concessioning road infrastructure projects to the private sector. Since the early 1990s the government of *Argentina* has granted private firms the right to collect tolls on some of the country’s main highways in return for the duty to carry out a program of maintenance, rehabilitation, and construction. The latest program, however, calls for the development of a new 10,000 km national highway network using public sector funding. In *Brazil*, a 15,000 km toll road concession program is being implemented at both the Federal and State levels, although the January 1999 currency devaluation, combined with the increasingly depressed Brazilian economy, is likely to delay the ambitious development schedule. *Chile* has also been actively engaged in concessioning road improvement projects to the private sector, and it plans to build a modern toll motorway network using BOT-style concessions. The Government of *Colombia* has awarded a dozen concession contracts for rehabilitation and construction of highways, and is currently targeting the modernization of 4,900 km of national highways. Lastly, after several decades of limited results building state-run tolled and free highways, *Mexico* embarked upon one of the world’s most extensive privately-concessioned toll road programs in 1989. After completing 5,120 km of new highways in only five years,

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<sup>3</sup> The total length of *autopistas* and *autovias* are 2,255 km (1997) and 4,474 km (1994) respectively.

<sup>4</sup> As of November 1998.

financial instability due to unexpectedly high construction costs and low traffic, coupled with the December 1994 devaluation of the peso, brought the concession program to a standstill in 1995. A comprehensive restructuring of the program in 1997 cost the Mexican Government US\$8 billion; current plans call for a re-privatization beginning in 1999.

12. In the early 1990s, with an urgent need to both reduce public spending and improve its road infrastructure, *Hungary* called upon a BOT approach to develop a toll motorway network.<sup>5</sup> However, Hungary's pioneering experience with BOT has not been without difficulty, and the current plan is more along the lines of a public-private partnership approach. Some have also questioned the need for development of a full-scale motorway network in the country at this stage.

13. The *Hong Kong Special Administrative Region* adopted a plan for the private development of public infrastructure at an earlier date than many of its neighbors; its first privately built and operated toll tunnel opened in 1972. While the government utilized lease-type structures in their initial projects, they have lately been adopting a more standard BOT-style approach with increasingly sophisticated mechanisms for toll adjustment.

14. In the *United Kingdom*, due to legal restrictions and strong public resistance, direct assessment of tolls has thus far only been used for very short road links, such as bridges and tunnels. All British motorways currently in operation have been funded from Central Government sources, but the Government is now promoting use of the Design-Build-Finance-Operate (DBFO) mechanism to encourage increased private financing of roads. Similar to a BOT arrangement, this strategy calls for the development and maintenance of a road segment to be transferred to the private sector for a specified period of time. The difference is that under a DBFO arrangement, the concessionaire typically provides the facility and the services to the Government in return for "shadow tolls" that are based on highway usage and the availability of the facility.

### C. KEY ISSUES AND LESSONS LEARNED

15. **Overview.** Each of the selected economies has its own unique institutional and regulatory frameworks reflecting the social, economic, and political environment, which in turn influences the form of toll road investment decisions by the public and private sectors. In this study, both successful and unsuccessful experiences have been interpreted in this context, with the authors attempting to draw lessons that can be adopted in other countries. Throughout the report, the term "best practice" has been used to denote the goal of delivering economic efficiency (cost-effectiveness and the best use of resources), optimal achievement of parties' objectives, transparency, and adherence to the highest principles and ideals.

16. This study identified the following nine key issue areas: (i) planning and institutional; (ii) legal and regulatory framework; (iii) concession contracts; (iv) government support; (v) traffic forecasting; (vi) setting and adjusting toll rates; (vii) financing structure and sources;

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<sup>5</sup> Construction of an untolled motorway network in Hungary began in early 1960s and had reached 420 km in length by 1996.

(viii) public acceptance; and (ix) the role of donor agencies. The following paragraphs present a summary of the analysis undertaken.

17. **Planning and Institutional Issues.** *Strategic network planning.* The countries with successful toll road network development usually have a well-established strategic planning framework whereas less successful countries exhibit weakness in this area. *France, Italy, Japan, and Spain*, for example, regularly update national toll road network development plans that are supported by appropriate legislation. In *Indonesia* and *Mexico*, on the other hand, various sections of the current toll road program were conceived in isolation and not derived from a long-term strategic interregional network development plan, and accordingly they were not well coordinated with plans for capacity expansion of non-toll highways. A strategic planning framework incorporating network analysis is important to optimize the benefits and minimize costs of toll road development. Components of such planning should include: (i) refining the strategic road network and the most appropriate alignments of the key links; (ii) firming up the appropriate timing of construction of individual links based on corridor studies; and (iii) establishing clear economic and financial viability.

18. *Cross-subsidies for network expansion.* The *Japanese* experience demonstrates that pooling toll revenues can contribute greatly to network expansion by cross-subsidizing unprofitable routes or segments while maintaining relatively consistent toll levels over the network. The Government of Japan set a goal to build a nationwide expressway network that included routes running through rural areas and/or areas with terrain upon which road construction would be costly. To pursue this goal, toll revenues pooling was required given the requirement for full recovery of capital investment costs with toll revenues. *France* constructed an extensive motorway system connecting all of its primary cities and many of its secondary urban centers, with a system of cross-subsidies within companies in the 1970s and among companies in the 1980s.<sup>1</sup> This strategy resulted in expansion of the toll road network and toll harmonization. The critical issue raised by cross-subsidies is whether the social and economic advantages of having an extensive network of high-performance highways rather than a smaller network in which each individual segment is self-supporting justifies the loss of financial discipline and the possible misallocation of scarce resources through the use of such subsidies.

19. *Alternative forms of operating entities.* Toll roads may be developed and operated by (i) a government agency, (ii) a public corporation, (iii) a private sector concession, and (iv) a public-private (also known as private-public) partnership (PPP).<sup>2</sup> The existing arrangement of operating entities in each case study stems from particular political and historical backgrounds, and each approach presents certain advantages and disadvantages (see Table 2). The challenge here is how to offset the disadvantages inherent in each form of operating entity. For instance, an independent advisory committee in *Japan* recommended that public toll road corporations,

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<sup>1</sup> In 1982, a new Government agency, *Autoroutes de France (ADF)*, was established as a clearinghouse for the issuance of new advances (government loans) to and the receipt of repayment of previous advances from the toll road companies. The creation of ADF allowed the Government to engage in cross-subsidies between and among companies.

<sup>2</sup> The PPP approach refers to a commercial company in which both the private and public sectors hold stakes, with managerial control in the hands of the private sector. A PPP may be distinguished from a private sector concession in that (i) both private and public interests typically hold equity in a PPP, and (ii) it is more flexible regarding project implementation.

among many other things, specify targets to reduce construction and operation/maintenance costs.

**Table 2: Advantages and Disadvantages of Alternative Forms of Toll Road Operating Entities**

<b>Form of Entity</b> <i>Countries where Practiced</i>	<b>Advantages</b>	<b>Disadvantages</b>
<b>Government Agency</b> <i>Indonesia, Malaysia, Philippines, Thailand, and United States</i>	Facilitation of planning for network expansion.	Competing demands for government funds and difficulty in providing incentives to improve cost effectiveness and operational efficiency.
<b>Public Corporation</b> <i>Japan, Indonesia, Thailand, France, and the Philippines*</i>	Greater effectiveness relative to private companies in pursuing goals set by the government, and their ease of accepting cross subsidies among routes in a network.	Lack of incentives for cost reduction, and tendency to be less efficient than their private counterparts. Due to tight governmental control, less effective in responding to market conditions, which change over time and differ across regions due to tight control by the government.
<b>Private Concessions</b> <i>Argentina, Brazil, Chile, Colombia, France, Hungary, Mexico, Spain, Hong Kong SAR (China), and the United States, among others</i>	Often favored over Government agencies because of their efficiency and market responsiveness.	Network development can be more difficult compared with public agencies. Private firms may not be able to assume all the risks associated with toll road development, which entails a long-term and large-scale investment.
<b>Private-Public Partnership (PPP) Approach</b> <i>Hungary, Colombia, China, Indonesia, and Philippines</i>	Brings additional resources to the project and complete it in a shorter time. Increases the efficiency in construction and project operation, through market discipline, assuring that the project is completed on schedule and within the budget.	Requires clear and justifiable definition of responsibilities between the public and private sectors.

\* Strictly speaking both SEMCAs in *France* and PNCC in the *Philippines* are “semi-public” bodies, but with a majority of shares held by the public sector.

20. **Legal and Regulatory Frameworks.** *General need for well-drafted laws and regulations.* Irrespective of institutional option, well-drafted laws and regulations have proven necessary for successful toll road development, as demonstrated, for example, in *France, Japan,* and the *United States.* In *Japan* public corporations have been established under well-drafted laws, and strategic nationwide toll road plans are clearly defined every five years and issued as ministerial regulations.

21. When the private sector is to be involved in toll road development, concession laws need to be well drafted. The host government must provide the basic legislative and regulatory authority for a given infrastructure project to be built and operated by the private sector; this includes designation of the individual ministries, government agencies, or local governments authorized to grant concessions. The enabling legislation may be general and enable different types of concessions to be granted (e.g., the Philippines’ somewhat misleadingly nicknamed, yet comprehensive, “BOT Law”), or alternatively it may be specific and provide for a particular concession; either approach should be acceptable provided that, among other things, the right agency is designated as concession grantor and the permitted term of the concession is sufficiently long so that the concessionaire will be able to build and operate the toll road in accordance with its business requirements.

22. In *Argentina*, detailed laws and regulations covering bidding documents, administration and enforcement of concession contracts, and pricing mechanisms already existed in other sectors (e.g., power, telecommunications, water), but were lacking in transport until they were developed in the mid-1990s. This case demonstrates the importance of having a legal and regulatory regime in place, one that is well drafted and covers basic concerns.<sup>3</sup>

23. *Bidding and selection procedures.* Formalized, transparent procedures for dealing with investors prior to and during the bidding process are required. Bidding should be competitive to minimize the level of government support and reduce residual risk bearing by the government. The experience in *Argentina* demonstrates the benefits of simplified, transparent bidding procedures. While during the first phase of toll road concessions, bidders had to satisfy a large number of technical and financial criteria, a single criterion—lowest toll offered—was used in the second phase, providing transparency and avoiding the difficulty of trading off many disparate factors. *Chile* also recognized the importance of transparent and competitive bidding procedures, with the terms of the contract clear and equal for all participants, leaving as little as possible to future negotiations.

24. *Dispute resolution.* Although no one hopes for disputes on a BOT project, the regulatory framework must provide for adequate dispute resolution procedures in the event that disputes emerge. A number of toll road projects in *Thailand* have suffered due to a failure to follow established international dispute settlement procedures, which would provide the best approach.

25. **Concession Contracts.** Except perhaps in the Philippines, in the East Asian countries studied concession contracts have been relatively loosely negotiated and depended too much on “amicable solutions” between the parties involved. Concession contracts between a grantor and a concessionaire, however, should be unambiguous with respect to the risks involved. Preferably, a model concession contract should be prepared to enhance fairness and the clarity of negotiations between the parties involved. Essential elements of a concession contract are explained in Table 3.

26. **Government Support.** There is a variety of government support measures that can be provided to public corporation or private toll road concessionaires. Each has advantages and disadvantages as shown in Table 4, and countries that have been successful in toll road development have usually provided an appropriate combination of these measures. The extent of support to be provided to particular toll road operators, however, depends on the political and economic situations of countries considered. It is also important for a government to assess critically the possibility of large contingent liability in the case of guarantees such as foreign exchange guarantees, loan/bond guarantees, or equity guarantees.

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<sup>3</sup> If these criteria are met, a law of general application may be preferred, to ensure equal treatment of concession holders in various sectors, to allow for learning from the related experience of other sectors, and to conserve scarce legislative energy. John D. Crothers [Gide Loyrette Nouel], “Project Financing of Toll Motorways in Central and Eastern Europe: A Signpost for Transition,” *Law in Transition* [an EBRD newsletter on legal cooperation and training], p. 7.

**Table 3: Essential Elements of a Toll Road Concession Contract**

<b>Element</b>	<b>Description</b>
<b>Grant of concession</b>	The concessionaire should be granted exclusive rights to the use of the toll road right-of-way.
<b>Credit enhancement of concession grantor</b>	When financial support measures (e.g., revenue shortfall compensation, payment of shadow tolls) are involved in a concession contract, the credibility and capability of the concession grantor to make such payments on a timely basis is important.
<b>Toll rate setting and adjustment</b>	The concession contract must provide a clear framework for toll setting and adjustment covering topics such as operating cost fluctuations, currency devaluation, and minimum debt service ratios. Such matters are particularly important when revenue guarantees are not in place and the concessionaire bears construction, traffic, and toll collection risks.
<b>Conditions to terminate contract</b>	In the event that concession is terminated, whether as a consequence of a default by the concessionaire or the grantor, or as a result of the occurrence of a force majeure event, then the grantor or a new entity appointed by the grantor would take over all ownership rights to the toll road, including the right to collect tolls.
<b>Step-in right of lenders/concession grantor</b>	Project lenders will invariably seek to take an assignment from the concessionaire of its rights and interests under the concession contract, including its rights to the revenues from the tolls or fares. In addition, when the concessionaire is in breach of its obligations under the concession contract or there has occurred a default event under the financing documents, the project lenders will wish the right to “step-in” to cure the breach and, in some cases, transfer the shares in the concessionaire to a new sponsor, or transfer the concession to a new concessionaire.
<b>Changes in law</b>	One of the most difficult concession contract negotiation issues relates to changes in law, the occurrence of acts of government interference, force majeure, and other events or circumstances outside the control of the concessionaire that reduce returns for the sponsors or results in the concessionaire’s inability to pay the project lenders. In most concession contracts, unless a deficiency guarantee or subsidy is provided, such events or circumstances will expressly exclude insufficient traffic or downturn in usage.
<b>Exclusivity</b>	The concession contract should ideally provide that no other concession that would compete with the project has been or would be granted, at least for an acceptable period. Unless such an assurance is provided, a competing concession may be granted and reduce traffic flow.
<b>Dispute resolution</b>	The approach may be to require dispute resolution under local law, with proceedings in the local language and/or English, or to provide for offshore arbitration under internationally tested rules.
<b>Mitigation of risks</b>	Various risks associated with the projects are assumed among the participants who are best able to manage such particular risks. Major risks for a private financed toll road project include: (i) political risks, (ii) construction completion risks, (iii) market and revenue risks, (iv) operation risks, (v) finance risks, and (vi) legal risks.
<b>Post-concession issues</b>	There has not yet been a toll road concession project in which the concession has expired and the facility transferred. These post-concession issues must be discussed and determined as a part of the integrated transport policy of each country before the granting of concessions.

27. **Traffic Forecasting.** Traffic forecasting is far from an exact science; it involves a great deal of uncertainty and is highly susceptible to poor quality input data and erroneous or incomplete assumptions. Factors such as land use and population growth along the route, public acceptance and use of the highway, and various economic indicators used in traffic models all have inherent uncertainties that affect the traffic forecast. Since project viability (vis-à-vis anticipated toll revenues) is directly related to expected traffic volume, toll road operators, grantors, concessionaires, financiers, and investors must all be concerned with such estimates. There are many cases where analysts have used parameters calibrated elsewhere without evaluating their transferability to the countries in which they were to be applied. In other instances, grantors have used traffic volumes that were estimated by the project proponents without re-examining the figures during negotiations. These situations have been partly attributable to a lack of technical expertise and budgetary constraints, reflecting further institutional shortcomings.

**Table 4: Advantages and Disadvantages of Common Government Support Measures for Toll Road Development**

Support Measures <i>Countries where practiced</i>	Contents	Advantages	Disadvantages
<b>Comfort Letter</b> <i>China</i>	A legally non-binding letter issued by government to give support to certain actions not clearly stated in contractual agreement such as performance of a public corporation as a grantor of concession	Can provide financiers and sponsors a minimum level of assurance when no implicit government support is attainable.	Not legally binding.
<b>Land Acquisition</b> <i>China, Thailand, and United States, and others</i>	Expropriation of right of way for toll road construction. Cost of land acquired maybe borne either by the government or the concessionaire.	Helpful for the concessionaire because the right of expropriation usually resides with the government. This support usually improves "project economics" to a great extent when implemented at no cost to the sponsors.	Delays.
<b>Extension of Concession Period</b> <i>Indonesia and others</i>	Measure to provide compensation for the loss of profit due to circumstances caused by the government	Improves project economics.	Effect on current cash flow is small.
<b>Construction of Related Facilities</b> <i>United Kingdom, Thailand, and others</i>	Construction of connecting roads, access ramp, etc.	Contributes significantly to the project since connecting roads and other facilities are critical elements for commencement of operation.	Construction delays may critically impair the commencement of operation.
<b>Revenue Support</b> <i>Malaysia and China (including Hong Kong SAR)</i>	Revenue support is usually done with a minimum threshold for compensation paid by the government.	Facilitation of the finance closing and the project.	Weak design may impose a large contingent liability on the government.
<b>Revenue Sharing with Existing Facilities</b> <i>Malaysia, Thailand, United Kingdom, and others</i>	Deriving revenue from an existing toll road facility; can take the form of taking over the complete facility including employees and assets as well as debts.	Possible mitigation of revenue shortfall risk in the startup years.	Revenue sharing formula requires careful design. Possible burden when all assets, debts, and employees are to be transferred.
<b>Shadow Toll</b> <i>United Kingdom and Argentina</i>	Toll is paid by government according to the vehicle-km of the traffic counted automatically.	Facilitation of private financing without stimulating resistance to tolling.	Possible financial burden/ fiscal inflexibility in the later years; may hinder transition to real tolling.
<b>Provision of Development Rights and Third-Party Revenue</b> <i>Malaysia and China (including Hong Kong SAR)</i>	Right of commercial development along the toll road to supplement project economics.	Enhancement of project economics.	Excessive dependence on this measure may impair project economics.
<b>Subsidies/Grants</b> <i>Chile, Colombia, and Spain</i>	Government support both in cash and in kind such as land and facility.	Enhancement of project economics.	Arrangement may be time consuming and implementation may be delayed; possible risk of undue governmental intervention, "moral hazard," etc.
<b>Subordinated Loan</b> <i>Malaysia and others</i>	A type of loan for which repayment is subordinated to the senior loan (ordinary loan). Government, parent company and, in some cases, institutional investors are providers of the loan. The interest rate is higher than for a senior debt.	Facilitation of finance closing because it is treated as equity; could be used as stand-by facility to mitigate risks such as cost overrun and revenue shortfall.	Possible deterioration of project economics due to higher interest cost.
<b>Foreign Exchange Guarantees</b> <i>Indonesia, Philippines, and Spain</i>	Compensation for impact caused by devaluation of local currency. It could be built into the tariff formula	Facilitation of finance closing in foreign currency when country risk in this respect is high.	Possible large contingent liability for the government in the event of large currency devaluation.
<b>Loan (Bond) Guarantees</b> <i>China and others</i>	Guarantee on repayment of loan and on redemption of bond	Facilitation of finance closing.	Possible large contingent liability for the government; moral hazard for concessionaire and lenders.
<b>Equity Guarantees</b>	Guarantee of equity investment	Facilitation of project proposals and implementation.	Possible large contingent liability for the government; moral hazard for concessionaire and other investors.



28. The importance of sensitivity analyses in traffic forecast cannot be overstated—with respect to traffic and traffic diversion as well as other key variables (e.g., toll rates, project costs, implementation period, and a combination of these factors). In the Dulles Greenway Project in the *United States*, the traffic forecasts upon which financing decisions were made did not accurately address the issue of toll sensitivity, and motorists appeared to be discouraged by the initial toll charge, which was more than double the rate of the connecting Dulles Toll Road. In a more successful example, JHPC, the state toll road corporation in *Japan*, has refined toll diversion equations over many years, to improve the accuracy of traffic forecasting by adjusting toll elasticities.

29. Not surprisingly, traffic forecasts are typically more accurate for improved existing highway routes than for new toll road projects in “greenfield” corridors. Although accuracy can also be improved in the long term by refining methodologies and using empirically based equations for estimated traffic diversion (as has been done in *Japan*), it is still important that traffic forecasting be cross-evaluated by more than one independent consultant or institution.

30. **Setting and Adjusting Toll Rates.** The profitability of a toll road project, especially in inflationary environments, will depend much on the toll level, or increases achievable by the operators. Accumulated world experience suggests a number of general guidelines for setting and adjusting toll rates. Sensible, general principles suggested by one World Bank report (for Vietnam) indicate that (i) tolling is feasible only when there is a minimum of 4,000-5,000 vehicles per day; (ii) toll rate levels should not result in excessive traffic diversion, with an upper limit of acceptability considered to be in the range of 10-15 percent; and (iii) under certain conditions, toll rates can be set higher where there is no viable alternative.

31. *Toll adjustment procedures.* Another issue is whether toll rate adjustments should be left to a governmental authority’s discretion or based on a formula, usually linked to inflation. In either case, there is a need to follow specified toll adjustment procedures once they have been set; uncertainty creates problems for toll road operators (see Table 5).

32. **Financing Structure and Sources.** *Advantages and disadvantages of toll financing.* An important threshold issue is the relative advantages and disadvantages of toll financing of highways as compared to financing from fuel taxes or other revenues sources—with the latter the predominant approach in *Northern Europe, North America, and Australia*. The decision of whether to toll a particular road or not is important where traffic levels are relatively low, but it has not been adequately considered in many of the case study countries. The decision should be justified by economic analysis since the perceived objectives (e.g., raising additional revenue, fairness in terms of the user pays principle, optimal pricing and resource allocation) are seldom achieved. Also, the costs of establishing a toll system, the collection costs, and the diversion of tolls by collectors (leakage) can be high. For example, the case studies and other evidence indicate that additional construction costs can range between two and eight percent of initial costs and that operating expenses can range between five and twenty percent of toll revenue, depending on whether an open or closed tolling system is employed.

Table 5: Selected Examples of Toll Adjustment Procedures

Location	Example	Description
<i>France</i>	Governmental discretion	Toll rate adjustments are at the discretion of the Ministry of Finance, which tends to approve larger increases for less profitable companies. The French approach avoids unnecessarily high returns to investors, but at the risk of sacrificing efficiency by undermining incentives to make exceptional efforts to control costs or improve productivity.
<i>Japan</i>	Use of an advisory committee to the Prime Minister	The Japanese toll revenue pooling system requires a reexamination of total cost redemption every time there is an expansion of the expressway network (i.e. when the Minister of Construction issues a construction order for a network addition). When the cost of constructing a network expansion or other significant improvement requires a toll rate adjustment and/or an extension of the toll collecting period, the proposal goes through official government procedures involving a review and examination by a “Toll Committee,” and approval by MOC and MOTC reflecting public hearings.
<i>Spain</i>	Use of a formula linked to inflation	Spain’s approach to regulating the toll rates of concessionaires is based on a formula linked to price inflation. The Spanish approach has the merit of promoting new investment and efficiency, and it has only limited risks of unnecessarily high returns to investors, since “excess” profits are moved to a Special Reserve.
<i>Hong Kong SAR</i>	A sophisticated yet straightforward toll adjustment mechanism (TAM)	If traffic and therefore revenue falls below a forecast volume, the TAM will allow the operator to advance the prespecified date of a toll increase. Conversely, if the amount of revenue received by the operator is above the forecast, resulting in a rate of return that exceeds a specified range, a toll increase will be deferred.
<i>Philippines</i>	An advanced toll adjustment formula – attractive to investors	Mandated by Presidential Decree No. 1894, it is based upon a parametric formula that takes into account prevailing local and foreign interest rates, the consumer price index, currency values, and a construction materials price index. However, if toll road investors happen to receive a windfall, there is no profit-sharing clause—the investors keep all of the reward.
<i>Indonesia</i>	Uncertainty in adjustment procedures	Under Law No. 13/1980, the designation of a road section as a toll road and the determination of initial toll tariffs require Presidential approval of proposals made by Minister of Public Works. The concession company proposes tariff adjustments every two or three years based on a formula incorporating the consumer price index, but approval cannot be guaranteed by the government. Uncertainty over the toll adjustment procedure may discourage private investors.
<i>Mexico</i>	Uncertainty in adjustment procedures	Both toll increases and decreases typically require approval of the Secretariat of Communications and Transport, which restricts most concessionaires’ abilities to responsively adjust pricing to optimize revenues once the roads were open to traffic.
<i>Malaysia</i>	An approach for addressing uncertainty—similar to that of <i>Hong Kong SAR</i>	The proposed new method is to annex the forecast traffic volume to the concession agreement. If the actual traffic level is more than the forecast level at a specified time, the Government could request either the deferral of a toll rate increase or lowering of the level of toll rate increase; but if the actual traffic is less than forecast, the concessionaire could request to bring forward the timing of toll rate increases.

33. *Equity financing.* It is relatively easy to attract domestic capital of both debt and equity for smaller projects, say when the capital cost is less than US\$100 million. Moreover, it is very beneficial for a toll road project to obtain domestic financing to avoid the exchange rate risk between local currency toll revenues and foreign currency debt. However, in many countries, local capital markets are not sufficiently developed to provide the long-term capital required for toll road projects. The current financial crisis in Asia has worsened the situation.

34. *Subordinated loans.* There are two important roles for subordinated loans: (i) to fill the gap between the equity and the senior loans in the original finance structure, and (ii) to provide stand-by financial support in case of revenue shortfall and cost overruns. They may address the difficulty of procuring equity (due to equity's slowness in recouping the investment through dividend payments) by providing a stable cash payment stream with a higher interest rate than senior debts from the beginning years of the project. Because of the subordinate nature of repayment to senior debts, second to the equity injection, government support and sponsors' support in the form of subordinated loans should be more acceptable to the senior debt providers than ordinary loans. This approach, while common, should be applied carefully since an excessive use of subordinated loans may considerably increase the capital costs and impair the sponsor's commitment to the project.

35. *Senior commercial bank loans and debt securities.* Procurement of long-term bank loans for privately financed toll road projects is a critical issue in developing countries. The longest tenure that a toll road project company can obtain in a commercial bank loan in the East Asian countries studied is about five years, which is far too short to recoup the investment, whereas in many developed countries such as the United States and United Kingdom, the tenure of commercial bank loans may extend 15-30 years, i.e., matching the concession period. For developing countries, it may be recommendable to either establish a financing institution or a similar mechanism to provide long-term loans for privately financed infrastructure projects.

36. *Institutional investors/infrastructure investment funds.* Institutional investors can be a good source of financing for toll road projects since the long-term maturity of their funds matches the duration of a toll road concession. However, institutional investors in developing countries are not active in infrastructure sector in general.

37. *Initial public offerings (IPOs).* An IPO of a single asset company with a BOT arrangement can be difficult as the duration of future cash flow is limited by the fixed concession period and the enterprise is affected to a great extent by general stock market sentiment at the time of IPO. On the other hand, an IPO based on multiple assets with a portfolio of stable cash-generating toll road projects may become an appropriate solution to fundraising issues in developing countries. Example practices are found in *China*. Jasa Marga, the public toll road company of *Indonesia*, planned an IPO that has been delayed due to the Asian financial crisis.

38. *Asset securitization.* One innovative approach is the leveraging of existing highway assets to raise new funds in capital markets. This approach can be attractive to private investors, since they may assume only limited construction/completion risks, and the transactions offer the prospect of high returns. The approach is also attractive to governments, since it permits them to obtain additional financing with relative ease, including for financially less attractive but still economically desirable projects. For example, by the securitization of existing highway assets, including roads financed with World Bank assistance, *China* has been able to raise large sums of additional capital from foreign investors.

39. However, there are some concerns with the asset securitization approach, e.g., the possibility of over-leveraging the asset at the expense of the obligation to repay the original loan. Another problem with using the capital markets is that the timing and the volume of fundraising is inherently dominated to a great extent by prevailing market sentiment; investors

are very sensitive to political risk (as seen recently in East Asia and the Russian Federation recently) as well as the features of alternative investment opportunities such as coupon rate for various bonds, profitability of stock markets, and ups and downs of real estate markets. Therefore, financing through the capital markets should not be counted on as a perpetual and stable source of funds.

40. *Pinpoint equity with indexed infrastructure bond issue.* Pinpoint equity (high debt-to-equity ratios) coupled with inflation-indexed bond issues may be used to relieve investors of the problem of slow returns on their investment through dividends. The issues here are (i) the need for the investor to flexibly recoup its investment without hindering the opportunity of private financing, (ii) lowering the capital cost to achieve a more affordable toll rate, (iii) the need to provide the investor with incentives that lead to higher returns, and (iv) the need of the investor for liquid investments.

41. **Public Acceptance.** An important issue on public acceptance of toll road development relates to land acquisition and resettlement. Certain countries such as *China* and *Thailand* could benefit from upgraded institutional capacity and compensation schemes to address resettlement planning issues. Also worth noting here, risks related to land acquisition are best borne by the Government, not the developer, as was the case with the Guangzhou-Shenzhen Superhighway Project in China.

42. In addition, mitigation of adverse environmental impacts (e.g., air quality, noise) of toll roads must be an integral part of the planning process. In the case of the M3 toll road in *Hungary*, public hearings were not held to discuss alternatives, in contravention of European Union directives. The Environmental Impact Assessment for the M3 project has also been criticized, for not considering (i) the impact of the road on increased automobile traffic inside Budapest, (ii) increased automobile traffic in residential areas along alternative routes, and (iii) impacts on animal habitats.

43. Effective public relations campaigns can foster public acceptance of well-conceived toll road projects. Public acceptance—of both the highway and its tolls—has been a major issue for all of the toll road operators and investors in the *Philippines*. Since toll rates on the original toll expressways there had been extremely low for a longtime, motorists did not have any familiarity with paying market-rate tolls. Consequently, a major concessionaire has initiated public awareness campaigns in their various highway corridors using print, broadcast, and outdoor media.

44. **The Role of Aid Agencies.** Aid agencies can address a variety of financing, institutional, and regulatory issues as shown in the examples below:

- *Long-term loans.* One way in which donor agencies can provide assistance for toll road development is in providing long-term financing. In many developing countries, even ones that have large capital markets, it is difficult for domestic capital to cover infrastructure projects mainly because of the lack of long-term financing tools; for example, this issue has been addressed in *Brazil* and *Colombia* by the Inter-American Development Bank (IDB).

- *Interim financing.* Donor agencies can also provide interim financing (e.g., as provided in *Hungary* by the European Bank for Reconstruction and Development, EBRD).
- *Credit enhancement with respect to political risk.* Donor agencies provide various measures of credit enhancement with respect to political risks, including political risk insurance, Export Credit Agency (ECA) cofinancing and guarantees, and Partial Credit and Risk Guarantees (e.g., as provided in *Colombia* by the World Bank).
- *Arranger of finance.* A donor agency can play the role of financial arranger (e.g., as done in *Hungary* by EBRD).
- *Provision of guarantees.* Another role of donor agencies can be to guarantee loans (e.g., *Hungary* by EBRD).
- *Technical assistance and human resource development.* Donor agencies, particularly the World Bank, can add value by providing expertise and contributing to training in various areas related to toll road development (e.g., as achieved in *China* and *Chile* by the World Bank; in *Hungary* by EBRD; and in *Malaysia*, the *Philippines*, and *Thailand* by the Japan International Cooperation Agency).

# PRELIMINARY TOOL KIT: ISSUES AND LESSONS

## A. INTRODUCTION

1. **Study Background.** Developed and developing countries throughout the world have accumulated a wide variety of institutional, regulatory, and financial experience building and operating toll road systems.<sup>1</sup> While some countries have historically avoided toll financing, in the current environment of fiscal restraint nearly all countries have turned to tolls as a preferred means for financing highway infrastructure investment. An enormous amount of experience has been gained in the creation and management of toll road systems. Many developing Asian countries have already introduced toll road systems, with the countries intending to complete the construction of trunk road networks as early as possible. However, these countries do not yet have clear or comprehensive visions and strategies for the future development and management of their toll road networks. It would therefore be valuable for the policy-makers of these countries to learn the lessons derived from the successes and failures of toll road development in other countries in order to formulate appropriate institutional and regulatory frameworks suited to their needs.

2. Recognizing these circumstances, the World Bank, in collaboration with Ministry of Construction of Japan (MOCJ), launched an Asian Toll Road Development Program, of which this Review of Recent Toll Road Experience in Selected Countries is intended to be the first critical component. It is anticipated that this Study will provide opportunities for Asian countries to discuss the future development of their toll roads and obtain clear guidance from the experience of other countries. The World Bank's consultant team (the "Part 1 Team")<sup>2</sup> was asked to commence the Study with a review of the worldwide experience with toll roads, focusing on 18 economies.<sup>3</sup>

3. The study is intended to provide general guidelines for selected Asian countries in formulating institutional and regulatory frameworks for toll roads, and such guidelines will ultimately be installed in the Bank's Knowledge Management System.

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<sup>1</sup> In this report, the terms "toll road" and "toll highway" typically refer to highways for which tolls are charged, though in some cases other tolled facilities such as toll bridges, toll tunnels, and tolled roundabouts (the latter in Malaysia only) are also investigated. While in general highways for which tolls are charged tend to be high-standard, high-speed, multi-lane, controlled-access roads (alternately referred to as expressways, motorways, or even freeways), in some instances the toll roads investigated in this report may be of significantly lesser design standards, and not entirely access controlled either.

<sup>2</sup> The World Bank's Terms of Reference for the Study specifies a "Part 1 Team" and a "Part 2 Team," both of which are to provide assistance with the overall Study. As defined in the Terms of Reference, the "Part 1 Team" comprises PADECO Co., Ltd., Highway Planning Inc., and Value Management Institute, Inc., all of Japan; and the "Part 2 Team" comprises the Expressway Technology Center (EXTEC) and the Express Highway Research Foundation (EHRF), both of Japan.

<sup>3</sup> The 18 economies include: five "Target Countries" (China, Indonesia, Malaysia, Philippines, and Thailand); five countries with developed toll road systems (France, Italy, Japan, Spain, and the United States); and eight other countries (Argentina, Brazil, Chile, Colombia, Hong Kong SAR, Hungary, Mexico, and the United Kingdom).

4. The consultant team's work is divided into four principal tasks as follows:
  - Task 1: preparatory work to determine Bank Steering Committee objectives; determination of data needs and development of a data collection strategy; preliminary planning for a Bank Study Tour in Japan and a three-day Seminar in Tokyo
  - Task 2: collection of worldwide information on toll road development; site visits to the selected Asian countries; and preparation of an Interim Report describing the global experience with toll road development
  - Task 3: organization and administration of the Bank Study Tour in Japan and the three-day Seminar in Tokyo; and preparation of Study Tour and Seminar proceedings
  - Task 4: preparation of Inception, Interim, Draft Final, and Final Reports at the appropriate times during the execution of Tasks 1, 2, and 3.
5. This Report summarizes the major findings of work conducted between August 1998 and May 1999. The consultant team's time was spent collecting toll road-related reference materials from various sources, conducting field visits to the selected Asian countries, organizing a seminar, and preparing the analysis of worldwide experience with toll road development as set out in Tasks 1 and 2 above. Detailed profiles of toll road development and related issues in each of the economies analyzed are presented in Part III (Case Studies).
6. In late August to early September 1998, the consultant team visited Washington, D.C., in order to "manage"<sup>1</sup> the first Bank Steering Committee meeting, and to conduct interviews with the Steering Committee members and other Bank staff involved in toll road development in Asia and Latin America. The team also visited several international and domestic toll road-related institutions in the Washington area during this period. Shortly before the first Bank Steering Committee meeting, the Bank's advisory team (the "Part 2 Team") "managed" meetings of the Japanese Advisory Committee and the MOCJ Steering Committee in Japan. A complete list of the members of the Bank Steering Committee, the Japanese Advisory Committee, and the MOCJ Steering Committee that have directed this study is presented in Appendix A.
7. **Field Visits.** Visits to four of the Selected Asian Countries (Malaysia, Indonesia, Thailand, and the Philippines) as well as Hong Kong and Singapore were conducted during the months following the first Bank Steering Committee meeting. The consultant team held meetings with toll road related agencies, financial institutions, toll road operators, construction firms, law firms, credit rating organizations, and a variety of public sector agencies in the following countries or regions:
  - Hong Kong Special Administrative Region (September 21-22, 1998);
  - Singapore (September 23-26, 1998);

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<sup>1</sup> In the terminology of the Bank's Terms of Reference for the Study.

- Malaysia (September 28–October 1, 1998);
- Indonesia (October 26–28, 1998);
- Thailand (October 29–November 2, 1998); and
- the Philippines (November 4–6, 1998).

8. The World Bank and MOCJ prepared and sent introduction letters to facilitate the consultant team visits (see Appendix B). The consultant team composed a checklist of potential issues related to toll roads in the Selected Asian Countries and used it as a discussion guide during the interviews (see Appendix C). In addition to discussing general toll road issues, the consultant team asked questions regarding the impact of the recent financial crisis in Asia on toll road projects and toll road development plans. The findings from these field visits have been reflected in Case Studies contained in Part III of this report as well as Appendix D. During the course of the field visits, the team met with more than 100 individuals representing approximately 70 institutions. A list of interviewees and agencies visited is presented in Appendix E.

9. **Additional Data Collection.** Additional information regarding toll roads in countries not visited was obtained through library and Internet-based research, as well as by contacting relevant toll road institutions in these countries directly via telephone and/or facsimile. The institutions contacted in this manner are listed in Appendix F.

10. **Seminar in Tokyo.** In collaboration with the World Bank and Ministry of Construction, Japan, the consultant team organized the “Seminar on Asian Toll Road Development in an Era of Financial Crisis.” This international seminar was held in Tokyo, Japan from March 9 to 11, 1999, and involved about 250 individuals from around the world. The consultant team prepared official seminar proceedings.

11. **Structure of Report.** This Report describes the consultant team’s research findings with respect to issues and lessons learned from toll road development in the 18 economies studied. The work draws from analyses of reports, documents, and other materials made available by the Bank and from various other sources, as well as insights from the field visit meetings and the Tokyo seminar.

12. The remaining chapters (Chapters 2 - 10) of this part (Part II – Preliminary Tool Kit: Issues and Lessons) summarize key issues and sub-issues on toll road development, introduce relevant experience in the countries studied, and present a summary of lessons learned. The analyses presented in these chapters are based on country-by-country analyses of toll road issues set out in Part III (Case Studies) of this Report, and are expected to serve as preliminary tool kit for toll road development. The following three major questions are addressed here:

- What are the key issues regarding toll road development in the selected Asian countries and other countries studied?
- What have been the successes and failures in responding to these issues among the countries studied?
- What lessons have been learned?



13. This study identified the following nine key issue areas:

- planning and institutional (Chapter 2);
- legal and regulatory framework (Chapter 3);
- concession contracts (Chapter 4);
- government support (Chapter 5);
- traffic forecasting (Chapter 6);
- setting and adjusting toll rates (Chapter 7);
- financing structure and sources (Chapter 8);
- public acceptance (Chapter 9); and
- the role of donor agencies (Chapter 10).

14. The following chapters elaborate the above issues and provide examples of instructive practices from which lessons may be learned; the examples range from “best” practices to practices that should be avoided.

## B. PLANNING AND INSTITUTIONAL ISSUES

15. Planning and institutional issues are the province of the public sector, with sub-issues as follows: (i) the need for a strategic network planning framework; (ii) cross-subsidies for network expansion; (iii) the problem of overlapping responsibilities among government agencies; (iv) alternative forms of operating entities; (v) the need for proper project preparation; and (vi) the importance of strong public sector institutions. Each is addressed below.

16. **Need for Strategic Network Planning Framework.** The countries having successfully developed toll road networks generally have well-established strategic planning frameworks relative to those in the less successful countries. A strategic planning framework incorporating network analysis is important to optimize the benefits and minimize the costs of toll road development. Components of such planning should include: (i) refining the strategic road network and the most appropriate alignments of the key links; (ii) firming up the appropriate timing of construction of individual links based on corridor studies; and (iii) establishing clear economic and financial viability.<sup>1</sup>

17. A strategic planning framework is well established in Japan where strategic nationwide toll road plans are clearly defined every five years and issued as ministerial regulations. The Japanese experience demonstrates the importance of setting clear goals or principles on which expressway development is to be based. In Japan’s case, the expressway network has been expanded across the country, to promote accessibility and promote regional economic development. Japan now has nationwide expressway coverage, which has helped build a political consensus for network expansion, as well as perhaps for maintaining a uniform level of toll rates within the network.

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<sup>1</sup> The World Bank, *Republic of Indonesia Road Sector Study Summary Report*, Report No. 15394-IND, Infrastructure Operations Division Country Department III, East Asia and Pacific Region, June 1997, pp. 13-14.

18. The long-term planning frameworks in Japan, France, Italy, and Spain—four countries with developed toll road systems—are summarized in Table 1.

**Table 1: Long-Term Planning Framework of Countries with Developed Toll Road Systems**

Country	Long-Term Planning Framework	Source
Japan	<ul style="list-style-type: none"> <li>The Inter-City Expressway Master Plan, based on the National Development Arterial Expressway Construction Law of 1957, was revised in 1966 and again in 1987. The latest plan aims at providing a total length of 11,520 km of expressways (target year unspecified) with major objectives of: (i) strengthening the ring-road network in major metropolitan areas; (ii) covering the majority of residents within a one-hour-drive of expressways.</li> <li>Strategic development plans for metropolitan toll roads are authorized by Minister for Construction with consultation of the Minister for Transport based on the following laws: (i) Implementation Law of Infrastructure in the Tokyo Metropolitan Region (1956, 1978); and (ii) Implementation Law of Infrastructure in the Kinki Region (1956, 1978).</li> </ul>	Nihon Doro Kyoukai (Japan Road Association), <i>Michi: Roads in Japan 1998</i> .
France	<ul style="list-style-type: none"> <li>A 1951 law required the government to prepare 5-year plans for roads and this plan has been revised every five years since.</li> <li>In 1960, a 15-year plan mainly concerned with national arterial roads was prepared; subsequent 5-year plans were harmonized with the 15-year plan. In 1970, 1977, 1988, and 1990, the 15-year arterial road plan was revised, with the total length of expressways called for increased from 3,500 km to 9,530 km.</li> <li>In 1992, Schema Directeur Routier National (SDRN) issued the latest long-term plan, which assured 9,540 km of motorways and 2,580 km of route expressways, in order to: (i) improve user benefits and as safety, and (ii) to strengthen cross-border links.</li> </ul>	Express Highway Research Foundation (EHRF), <i>Sekai no Kosoku Doro (World Expressways)</i> , 1999
Italy	<ul style="list-style-type: none"> <li>Following laws enacted in 1955 and 1961, the domestic network plan was developed rapidly. ANAS (Azienda Nazionale Automa delle Strade) has been empowered to enter into contracts with concessionaires such as Autostrade..</li> <li>After a 7-year hiatus during the energy crises of the 1970s, a 1982 law called for continuing motorway construction, with a target of establishing a 7,500 km nation-wide network.</li> <li>In 1990, a 10-year master plan set out four “principles”: (i) completion of the network, (ii) qualitative improvement and deletion of network bottleneck, (iii) improvement of international connections, and (iv) improvement of accessibility to major facilities.</li> </ul>	Hiroaki Nakagawa, “Report of the Mission to Study Toll Roads in Europe,” <i>Kosoku Doro to Jidosha (Expressway and Automobile)</i> , June 1996.
Spain	<ul style="list-style-type: none"> <li>Based on a 1965 law regulating concession procedure, a long-term plan prepared in 1967 called for construction of 4,800 km of motorways by 1985</li> <li>Administrating Delegates of Toll Motorways (<i>Delegacion del Gobierno en las Autopistas de Peaje</i>) has been given responsibility for toll motorway planning.</li> <li>In the wake of the energy crises of the 1970s, the <i>Autopista</i> (toll road) plan was revised by the Socialist Party and 4,000 km of low-standard motorways were constructed, <i>Autovia</i> (untolled), over the eight-year period commencing in 1982.</li> <li>A master plan for the 2000, prepared in 1993, aims to construct a national network.</li> </ul>	José A. Gómez-Ibáñez and John R. Meyer, “The Modern Pioneers: France and Spain,” <i>Going Private: The International Experience with Transport Privatization</i> , 1993

19. On the other hand, many developing countries have shown some weakness with respect to the strategic network planning of their toll roads. *Indonesia* and *Mexico* may be cited as examples of countries requiring a stronger master planning framework. The *Indonesian* Ministry of Public Works has been responsible for the initiation of toll road projects in the country, but various sections of the current toll road program were conceived in isolation and implemented through solicited and unsolicited procedures. The program was neither derived from a long-term strategic interregional network development plan nor has it been well coordinated with plans for capacity expansion of non-toll highways. In *Indonesia*, there have also been some shortcomings in clearly establishing the economic and financial viability of toll

road sections. *Mexico* had neither an intermodal transport development strategy, nor did it design projects to fit in with regional long-term development plans. These shortcomings proved particularly problematic with respect to the Government's concurrent rail, port, and airport privatization plans. Also, planning for highway development, even when considered in isolation, was inadequate. Consider, for example, that some key segments of the five "priority corridor" roads were never concessioned, and other toll roads lacked important links to other highways in the network.

20. **Cross-Subsidies for Network Expansion.** The experience of *Japan*, *France*, and *Italy* demonstrates that pooling toll revenues can contribute greatly to network expansion. The Government of *Japan* set a goal to build a nationwide expressway network that included routes running through rural areas and/or areas with terrain upon which road construction would be costly. To pursue this goal, cross-subsidies were required given a requirement to recover costs with toll revenues. Toll revenue pooling has been utilized for regional toll roads and urban expressways that constitute an integral network. The rationale underlying the system has involved several issues, however, including equity among users, economic inefficiencies that might arise from insensitivity to route or segment profitability, and the determination of routes to be included in the system. *France* constructed an extensive motorway system connecting all of its primary cities and many of its secondary urban centers, with a system of cross subsidies within companies in the 1970s and among companies in the 1980s.<sup>1</sup> Although the system was initiated with an aim of overcoming a financial crisis, the system resulted in expansion of the toll road network and toll harmonization. In *Italy*, tolls for motorways operated by Autostrade S.p.A. were set uniform through cross-subsidization, and toll increases were justified if needed for constructing, operating, and maintaining the entire network.<sup>2</sup>

21. The critical issue raised by such cross-subsidies is whether the social and economic advantages of having an extensive network of high-performance highways rather than a smaller network in which each individual segment is self-supporting justifies the loss of financial discipline and the possible misallocation of scarce resources through the use of such subsidies.<sup>3</sup> In the case of *Japan*, a ceiling is applied to reduce inefficiency; i.e., cross-subsidization for a loss-making routes is limited to a maximum of half of the total construction cost of the route. The balance must be covered by the toll revenue of the loss-making route or by subsidies from the government.

22. **Problem of Overlapping Responsibilities among Government Agencies.** In instances where toll road planning, implementation, and regulation has been undertaken by government agencies, efficiency concerns suggest that redundancies and overlapping responsibilities among the agencies involved with toll road development should be avoided. In *Thailand*, for example, with respect to network development, separate, sometimes competing

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<sup>1</sup> An analysis of traffic volumes on the motorways operated by three profitable companies shows a range of volumes from less than 10,000 vehicles per day to as many as 50,000 vehicles per day, depending on the route segment.

<sup>2</sup> Toll levels in fact have been more or less uniform within the Autostrade group. Toll levels among concessionaires differ by as much as a factor of 2, however, due primarily to differences in construction costs.

<sup>3</sup> José A. Gómez-Ibáñez and John R. Meyer, "The Modern Pioneers: France and Spain," *Going Private: The International Experience with Transport Privatization*, The Brookings Institution, Washington, D.C., 1993, Chapter 8, pp. 107-45.

toll road projects have been prepared by three government agencies (i.e., the Department of Highways (DOH), Ministry of Public Works; the Expressway and Rapid Transit Authority (ETA), Ministry of Interior; and the State Railway of Thailand (SRT), Ministry of Transport and Communications). One consequence of such duplicative projects has been construction difficulties because of physical (right-of-way) conflicts between and among projects, with attendant environmental implications. Also worth noting in this context is the Royal Act on Private Participation in State Affairs (1992), which applies to transport as well as other sectors; it is “inward” looking in that certain of its provisions place emphasis on assuring that the interests of various ministries and agencies are represented rather than focusing on the required inputs for successful project implementation—with delays in implementing projects as one consequence.<sup>1</sup> A plan to address these institutional problems by creating a new overall regulatory agency for toll roads is now under consideration by the Royal Thai Government.

23. Taking another example, in the *Philippines*, despite comprehensive BOT legislation, the responsibilities of the various public sector institutions in charge of toll road regulation and implementation overlap considerably. It is unclear exactly which agency is to initiate planning for individual toll road projects. By law, the Toll Regulatory Board (TRB) is to plan for toll roads, as they are the agency tasked with overseeing the development of toll roads; however, toll road companies with existing franchises (Public Estate Authority and particularly Philippine National Construction Company) also may plan for toll road expansion under their original franchises. But, under the BOT Law, the Department of Public Works and Highways is the implementing agency for national roads projects whether they are tollways or not, and TRB is regarded as just a regulatory body. Furthermore, under the BOT Law the private sector can (and is indeed encouraged to) also initiate their own plans by means of unsolicited proposals.

24. **Alternative Form of Operating Entities.** Toll roads may be developed and operated by (i) a government agency, (ii) a public corporation, (iii) a private sector concession, or (iv) a public-private partnership. The existing arrangement of operating entities in each country studied stems from particular political and historical backgrounds, and each approach presents certain advantages and disadvantages.

25. *Government Agency (Indonesia, Philippines, Thailand, and Malaysia).* Although there may be theoretical merit to direct execution by government, particularly with respect to planning for network expansion, competing demands for government funds and the difficulty in providing incentives to improve cost effectiveness and operational efficiency have been major issues. The Malaysian Highway Authority (MHA), for example, was established as a government agency for the purpose of designing, constructing, and maintaining toll expressways, but due to lack of government funding, MHA was later put in charge of regulatory and supervisory functions over the operations of private toll road concessionaires.

26. *Public Corporation (Japan, France, Indonesia, and Thailand).* Table 2 sets out the main features of public corporations in different countries, indicating that functional responsibilities may vary somewhat from one country to another.<sup>2</sup> Arguments made in favor of

<sup>1</sup> *Toll Roads in Thailand*, Country Draft Paper prepared by The World Bank, Private Sector Department, 1997.

<sup>2</sup> Also, in the *United States*, about 7,600 km of public toll roads have been built by public toll-road commissions with low-interest, long-term bond issues. Charles L. Wright and Daniel J. Freire Coloma, “Toll-Road Partnerships: What Works, What Doesn’t, and Why?,” *Transportation Quarterly*, Vol. 51, No. 4, Fall 1997, p. 87.

public corporations relate to: (i) their greater effectiveness relative to private companies in pursuing goals set by the government; (ii) the inconsistency of management by private firms with desired intensive control by government when a large amount of subsidy is provided; and (iii) their ease of accepting cross subsidies among routes in a network. On the other hand, it is often argued that public corporations lack incentives for cost reduction and generally tend to be less efficient than their private counterparts. Due to tight control by the government, public corporations tend to be less effective in responding to market conditions that change over time and differ across regions.

**Table 2: Main Features of Public Toll Road Corporations in Different Countries**

Country	Public Corporations	Main Features and Responsibilities
Japan	JHPC and others	Japan Highway Public Corporation (JHPC) is responsible for construction, maintenance, and operation of the national toll expressway network and some stand-alone toll roads. Other toll road organizations operating toll roads in Japan include three other national public corporations and 56 local road public corporations and public bodies.
Indonesia	Jasa Marga	The state toll road enterprise, Jasa Marga is authorized to develop, construct, and operate toll roads throughout Indonesia, and encouraged them to do so in cooperation with the private sector, upon the grant of a concession license from the Minister.
Thailand	ETA	The Expressway and Rapid Transit Authority (ETA) is required to perform all planning, land acquisition, toll collection, toll rate determination, and general supervision functions for its toll roads. It may either develop its roads independently, or in partnership with the private sector; both models are represented in its completed projects.
France	SEMCA*	The SEMCAs were strengthened and given more autonomy and responsibility including the granting of concessions to companies owned by the private sector, in 1969.
Philippines	PNCC*	The franchise of the Philippine National Construction Company (PNCC), as amended in 1983, includes responsibility for constructing, maintaining, and operating any extensions to its routes. PNCC is also now responsible for the procedural work to select private sector partners, perform feasibility studies, and prepare project contracts.

\* Strictly speaking both SEMCAs and PNCC are “semi-public” bodies, but with a majority of shares held by the public sector.

27. *Private Sector Concessions (France, Spain, Hungary, the United States, Argentina, Brazil, Chile, Colombia, Mexico, Indonesia, Malaysia, Thailand, and the Philippines, among many others).* Dating back at least to the 19<sup>th</sup> century in the United States, private sector concessions have often been favored over government agencies because of their efficiency and market responsiveness. The experience of France suggests that private companies can build highways more efficiently than can public companies (e.g., COFIROUTE’s construction costs per km were 23 percent less than those of the SEMCAs in the early 1970s, a consequence of a more cost-sensitive roadway design<sup>1</sup> and higher labor and equipment productivity). However, private firms may not be able to assume all the risks associated with toll road development, which entails a long-term and large-scale investment.<sup>2</sup> Budgetary dependence on the Government may be substantially reduced in this approach toward toll road development, but a

<sup>1</sup> This has been accomplished in part by lowering design standards.

<sup>2</sup> José A. Gómez-Ibáñez and John R. Meyer, “The Modern Pioneers: France and Spain,” *Going Private: The International Experience with Transport Privatization*, The Brookings Institution, Washington, D.C., 1993, Chapter 8, pp. 107-45.

problem with development by the private sector relates to “moral hazard,” since national toll roads, like banks, are too big and important to let fail (consider, e.g., in the early 1980s the French central government nationalized three private-sector concessionaires, and indemnified their shareholders, although it was not required to do so)<sup>1</sup> More recently, strong government support has been provided to rescue private toll road projects in Indonesia, Malaysia, the Philippines, and Thailand. Because of difficulties with this approach in attending to overall network issues, the private financing approach requires a government regulatory body to plan and coordinate individual project proposals.

28. *Public-Private Partnership (PPP) Approach (Hungary, Colombia, China, Indonesia, and Philippines).* The PPP approach refers to a commercial company in which both the private and public sectors hold stakes, with managerial control in the hands of the private sector. A PPP may be distinguished from a private-sector concession in that (i) both private and public interests typically hold equity in a PPP, and (ii) it is more flexible regarding project implementation.<sup>2</sup> The Government of *Hungary* moved toward the PPP approach away from private concessions, for political and financial reasons<sup>3</sup> that make a more private sector approach difficult to implement. The Government of *Colombia*, in its World Bank assisted Toll Road Concession project has also adopted a PPP approach, instead of a purely governmental approach, in order to (i) bring additional resources to the project and complete it in a shorter time, freeing scarce governmental resources for other investments;<sup>4</sup> and (ii) increase the efficiency in construction and project operation, through market discipline, assuring that the project is completed on schedule and within the budget.<sup>5</sup> Equity joint ventures in *China* (among provincial governments and foreign-capital firms), *Indonesia* (between Jasa Marga, the government toll road operator, and private investors), and the *Philippines* (DPWH or PNCC/PEA, and private investors) are alternative PPP forms that have been applied in the Asian countries.

29. **Need for Proper Project Preparation.** Before inviting the private sector to undertake toll road concession projects, basic information (e.g., base-year traffic forecasts, basic engineering, basic design, soil studies) should be established by the grantor. The World Bank assisted Toll Road Concession Project in Colombia, instructive in this regard, featured: (i) selection of a project with strong economic and financial justification, in view of its transport system impacts; (ii) retaining of financial advisors with international experience to structure the project and prepare the legal documentation; (iii) design of the bidding process to attract quality

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<sup>1</sup> Private sector concessions that are contractor-driven are to be avoided, however, since conflicts of interest are unavoidable and difficult to address contractually; concessions involving transport operators are more likely to reflect long-term interests. The experience of *Hungary*, *France*, and *Spain*, among others, is instructive in this regard.

<sup>2</sup> European Bank for Reconstruction and Development, *Transport Operations Policy*, p. 23, 1997.

<sup>3</sup> E.g., limited public acceptance of BOT concessions, the requirement for the Government to make a substantial contribution to toll road projects to make them “bankable.”

<sup>4</sup> With no private financing of the road, the Project would represent 12-18 percent of the investment budget for the national road network during the construction period; however, with partial private financing, it will require only 4-6 percent of the investment budget for national roads.

<sup>5</sup> The World Bank, Finance, Private Sector, and Infrastructure (LCSFP), Country Management Unit for Colombia, Ecuador and Venezuela (LCC4C), Latin America and Caribbean Regional Office, *Project Appraisal Document on a Proposed Loan in the Amount of US\$137.1 million to Colombia for a Toll Road Concession Project*, Report No. 17986, June 11, 1998.

international investors, e.g., through carrying out a well-targeted promotional campaign and using clear bid evaluation criteria focused on the few parameters most related long-run efficiency; (iv) providing bidders with detailed engineering data, while giving them the time to prepare their own estimates; (v) state-of-the-art traffic forecasts; (vi) advance consideration of social and environmental issues; advance purchase of right-of-way, i.e., before financial close; and (vi) drafting a concession contract with incentives to improve performance and flexibility to manage uncertainty while avoiding opportunistic renegotiations.

30. *Chile* presents another interesting, alternative approach. It allows the private sector to propose new projects, and in certain cases provides for repayment of costs incurred by private firms for the development of project concepts adopted by the government for competitive procurement. Also worth noting is the Government of Chile's practice of reducing construction risk by giving bidders reference designs, which are about 90 percent complete, although variations are permitted.

31. A less successful case may be found in *Thailand*, where the government's policy has generally been reactive and sometimes pre-empted since private-sector proposals have generally been approved (e.g., as in case of the Bangkok Elevated Road and Track System, BERTS). Such decisions were made without prior adequate master planning or other analysis to assure that the projects are in the public interest. Consequences of inadequate project preparation have included: (i) parallel, competing projects, as previously discussed; (ii) few bids, resulting in little competition; (iii) poorly structured concession agreements, not based on sound risk allocation principles and an underlying detailed financial analysis; and (iv) a lack of confidence in the private sector about the Government's commitment to follow through on signed concession agreements.<sup>1</sup>

32. **Importance of Strong Public Sector Institutions (also see need for proper project preparation, above).** Even if a private sector approach is adopted, strong public sector institutions are important to assure efficient planning and implementation of toll roads. *Argentina* and *Mexico* present indicative examples of institutions requiring strengthening. The Dirección Nacional de Vialidad (DNV), which is now the planning and coordination agency for national roads in *Argentina*, lacks sufficient capacity to adequately supervise concessionaires; the Secretariat of Public Works, the responsible agency for access roads, reportedly suffers from a similar deficiency. Similarly, in many cases the public (and private sector) organizations involved with toll road development in *Mexico*, lack sufficient technical, organizational, staff, and financial resources to plan for and implement the proposed projects successfully. The Mexican Secretariat of Communications and Transport is understaffed and has inadequate overall institutional capacity to take on the commitments demanded by the scale and nature of Mexico's private toll road program.

33. The issue of how an enhanced government planning capability can be paid for is perhaps one of the most challenging in many developing countries. One idea out forward in the *Philippines* is to establish a "project preparation fund" for government-commissioned feasibility studies of unsolicited proposals; a revolving fund could be created with contributions from the private sector project proponents, possibly in the form of a levy on income or an

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<sup>1</sup> See, e.g., Roger J. Allport, "Transport Concessions Policy in Thailand," in PTRC, *Financing Transport Infrastructure*, ed. by Sheila Farrell, 1994, pp. 187-92.

“unsolicited bid fee.” The government could then use this fund to prepare project plans proactively, or at least to conduct their own feasibility studies alongside the private sector. Project development guidelines could also help the government to be more “proactive” in dealing with the proponents, rather than always reacting to them.

34. **Accountability of Private Sector Involvement.** When a private sector approach is adopted, it essential to assess whether the approach is able to assure the best “value for money” to the public sector, i.e., maximum performance for taxpayer funds. The DBFO approach for highway projects under the Private Finance Initiative (PFI) in the United Kingdom may present a best practice in this context, where a comparison between the cost of the PFI option and the cost of the conventional option (i.e., a public sector approach) is conducted to assure that public funds are used less in the private sector approach in obtaining the same output.

## C. LEGAL AND REGULATORY FRAMEWORK

35. Legal and regulatory frameworks is one of the least visible aspects of toll road development, but are nevertheless vitally important elements. Sub-issues within this issue category include: (i) the general need for well-drafted laws and regulations; (ii) bidding and selection procedures; (iii) security legislation; (iv) regulation of foreign direct investment; (v) currency issues; (vi) dispute resolution; and (vii) land acquisition law. Each is addressed below.

36. **General Need for Well-Drafted Laws and Regulations.** Irrespective of institutional option, well-drafted laws and regulations have proven necessary for successful toll road development, as demonstrated, for example, in *Japan* and *Spain*. In *Japan*, public corporations have been established under well-drafted laws, and strategic nationwide toll road plans are clearly defined every five years and issued as ministerial regulations. *Spain* enacted the General Law on Motorways in 1972, which called for the expansion of its intercity motorway system (*autopista*) to 6,594 km.

37. When the private sector is to be involved in toll road development, concession laws need to be well drafted. The host government must provide the basic legislative and regulatory authority for a given infrastructure project to be built and operated by the private sector; this includes designation of the individual ministries, government agencies, or local governments authorized to grant concessions. The enabling legislation may be general and enable different types of concessions to be granted, or alternatively, it may be specific and provide for a particular concession; either approach should be acceptable provided that, among other things, the right agency is designated as concession grantor and the permitted term of the concession is sufficiently long so that the concessionaire will be able to build and operate the toll road in accordance with its business requirements.

38. In *Hong Kong Special Administrative Region (SAR)*, the rights and obligations of the government and the concessionaire are regulated by legislative Ordinances that are enacted on a project-by-project basis. Each Ordinance clearly authorizes the concessionaires’ legal rights of toll facility operation and specifies to a highly detailed extent the terms and conditions for the allocation of specific project risk. Clear risk-sharing, backed up by legislation that subjects



each project to detailed regulations, appears to be a highly effective way to facilitate private sector participation in infrastructure development—particularly when a comprehensive regulatory framework for BOT does not exist.

39. In *Argentina*, detailed laws and regulations covering bidding documents, administration and enforcement of concession contracts, and pricing mechanisms already existed in other sectors (e.g., power, telecommunications, water), but were lacking in transport until they were developed in the mid-1990s. The case demonstrates the importance of having a legal and regulatory regime in place, one that is well-drafted and covers basic concerns.<sup>1</sup>

40. The concession law (Act XVI of 1991) of *Hungary*—which governs all concessions, not only for toll motorways—was not clear enough to prevent a successful challenge to a toll rate calculation method. The challenge was based on a contradictory provision in the Hungarian Civil Code that permits a judge to “adjust” a contract in “exceptional” circumstances in which the price is considered disproportionate to the service provided.<sup>2</sup>

41. In *Mexico* the lack of clear legal and regulatory institutional arrangements discouraged lenders and builders from respecting their agreements. There were no formal mechanisms for the Government to obtain and address requests or inquiries from private sector parties before, during, or after the bidding process, which led to an often adversarial and less than transparent relationship between the parties. The independent regulatory authority for supervising contractual arrangements lacked sufficient capacity, and contracts were subject to the local court system, which represented a significant risk to international investors who were unfamiliar with the domestic legal system. With projects that have required direct government support, the Mexico’s Secretariat for Communications and Transport’s dual role as government regulator as well as concession partner sent somewhat conflicting signals to the private concessionaires.

42. *China* is still developing a legal and regulatory environment conducive to the private financing of new highways. Specific issues have included: (i) the generally unclear line of authority between the central and provincial governments and a complex and ambiguous approval process, leading to project delays and increased costs; (ii) absence of legal convertibility of the Chinese currency and the lack of guarantees that foreign exchange will be available when required; (iii) limits on the amount of security a foreign-invested enterprise may provide to a foreign party, which can affect the determination of how highly leveraged a project foreign lenders are willing to finance; (iv) regulations restricting the availability of guarantees

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<sup>1</sup> What is important is not that there be a general concessions law or a specific law governing toll motorways, but that there be a law in place, one that is well-drafted and covers basic concerns. If these criteria are met, a law of general application may be preferred, to ensure equal treatment of concession holders in various sectors, to allow for learning from the related experience of other sectors, and to conserve scarce legislative energy. John D. Crothers [Gide Loyrette Nouel], “Project Financing of Toll Motorways in Central and Eastern Europe: A Signpost for Transition,” *Law in Transition* [an EBRD newsletter on legal cooperation and training], p. 7.

<sup>2</sup> The Hungarian concession law is not without its positive features, however. For example, one useful provision is found in Section 3(1) of the law, which states that the grantor may conclude a concession contract with “domestic or foreign natural persons or legal entities, and with the unincorporated associations thereof” (emphasis added), which allows bidding by international consortia that may forego the time- and cost-consuming obligation of forming a special purpose concession company until after selection of the winning bidder. Another useful feature is the 35-year (initial) concession period provided in Article 12, with the possibility of an extension without separate tender for an additional period of up to one-half of the original period.

to foreign parties, including regulations that limit the capacity of the Chinese party to a joint venture from guaranteeing a foreign party's investment return, which makes it difficult to use deficiency payments; (vi) the likely illegality of non-competition undertakings (e.g., with respect to competing roads and other modes of transport); and (vii) the lack of automatic toll rate adjustments in concessions, leaving project sponsors and lenders with no assurance that costs can be recovered over the life of a concession.<sup>1</sup>

43. The enabling law system in *Indonesia* has a problem of not designating the right agency as concession grantor. This case suggests the potential for problems when the recommended approach is not followed. Pursuant to Law No. 13 of 1980 on Roads, Jasa Marga (Pederoso), which is currently a state-owned company, has been granted the general authority to “manage” toll roads throughout the country. Pursuant to Government Regulation No. 8 of 1990 on Toll Roads, the Minister of Public Works has granted permission to Jasa Marga to appoint persons and grant authority to develop specific toll roads. Using this authority, Jasa Marga has authorized various persons to manage various toll roads. Therefore, from the perspective of a concessionaire, which is authorized to manage and develop a toll road, the grantor is Jasa Marga, the obligations of which are not guaranteed or backed by the Republic of Indonesia.

44. **Bidding and Selection Procedures.** Formalized, transparent procedures for dealing with investors prior to and during the bidding process are required. Bidding should be competitive to minimize the level of government support and reduce residual risk bearing by the government. A clear bidding and negotiation process requires that:

- the need for project requirements to be specified closely, to ensure evaluation is of like-for-like;<sup>2</sup>
- clearly defined government support measures in the bidding documents, where necessary as a maximum—rather than held back for negotiation; and
- simple evaluation criteria—for example, bidding at defined tariffs (to meet government policy objectives) to minimize the level of government investment required.<sup>3</sup>

45. “Best” practices are found in *Colombia*, *Argentina*, and *Chile*. In the World Bank assisted Toll Road Concession Project, the *Colombian* Government's (up-front) capital contribution was determined by competitive bidding, at the minimum level sufficient to make the project attractive to private investors and compensate them for externalities associated with the project. As a result, INVIAS (the government road agency) was able to award the Project concession with significantly less exposure than envisaged and shift a greater burden to the private sector, since the successful bidder asked for the lowest capital contribution and declined the Bank's Partial Risk Guarantees in its bid.<sup>4</sup> The experience in *Argentina* demonstrates the

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<sup>1</sup> See, e.g., Paul D. McKenzie and Christopher Walcott [Baker & McKenzie, Hong Kong], “Financing Highway Projects in the People's Republic of China,” *PFI Asia Pacific Review*, March 1998, pp. 27-29.

<sup>2</sup> It is also important to allow for nonconforming bids to foster private sector innovation.

<sup>3</sup> Roger J. Allport, *Developing Best Practices for Promoting Private Sector Participation in Infrastructure: Expressways*, Draft Final Report (Appendix B: Case Studies), Asian Development Bank, TA No. 5733-REG, June 1998, pp. 182-183.

<sup>4</sup> The World Bank, Finance, Private Sector, and Infrastructure (LCSFP), Country Management Unit for Colombia, Ecuador and Venezuela (LCC4C), Latin America and Caribbean Regional Office, *Project Appraisal Document on*

benefits of simplified, transparent bidding procedures. While during the first phase of its toll road concessions bidders had to satisfy a large number of technical and financial criteria, a single criterion—lowest toll offered—was used in the second phase, providing transparency and avoiding the difficulty of trading off many disparate factors. *Chile* recognized the importance of transparent and competitive bidding procedures, with the terms of the contract clear and equal for all participants, leaving as little as possible to future negotiations.

46. In *United Kingdom*, the Transport and Works Act of 1992 unified the legal process required enabling of privately financed infrastructure projects, as well as close monitoring of the project formation process by a third party to implement projects fairly and avoid corruption. These requirements are helpful for infrastructure projects that mobilize large sums of money. In this context, the National Audit Office (NAO), which was established in 1984, reviews major deals soon after they have been signed to make sure that there was appropriate competition in the bidding process, and examines the “value-for-money.” Findings of NAO investigations are made available to a large number of public bodies who are considering similar deals so as to improve the process.

47. The regulatory framework in the *Hong Kong SAR* has been devised so as to ensure a “level playing field” through such means as a clear and straightforward tender process and criteria for proposal assessment. In addition, the whole of the tender process is monitored closely by the Central Tender Board and the Independent Commission Against Corruption. The resulting “competition” for procurement has meant that equity participation in the bidding teams over the years has included not only the major contractors but also other interests such as land developers (apparently depending on which institutions had funds to invest at the time the bid was made).

48. The lack of transparency has long been an issue in toll road concessions in *Indonesia*. The companies owned by a family member of a former President now partly operate a number of the most profitable toll roads. For the investors, the involvement of the President’s family meant a reduced risk in approval procedures, but inevitably created a non-transparent environment in toll road concessions.<sup>1</sup> The Ministry of Public Works is now investigating the corruption/transparency issue with regard to toll road concessions.<sup>2</sup> The recent move of the Government of Indonesia to prepare clear prequalification and bidding procedures may encourage private sector participation and attract foreign investors in future toll road projects.

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*a Proposed Loan in the Amount of US\$137.1 million to Colombia for a Toll Road Concession Project*, Report No. 17986, June 11, 1998. Also worth noting here is the (yet to be used) proposal by three Chilean economists of road concession franchises offered on the basis of least-present-value-of revenue (LPVR) auctions, an approach deemed particularly suitable for investments in which demand is unresponsive to efforts made by the franchise holder. Eduardo Engel, Ronald Fischer, and Alexander Galetovic, “A New Method for Auctioning Highways,” in The World Bank, *The Private Sector in Infrastructure—Strategy, Regulation, and Risk*, September 1997.

<sup>1</sup> The existing selection criteria for toll road bids consist of: (i) fulfillment of given scope of works and technical specification; (ii) construction period; (iii) concession period; (iv) cooperation scheme offered to Jasa Marga and; (v) minimum request of guarantee to Jasa Marga as well as to the Government of Indonesia.

<sup>2</sup> Questions now being asked are as follows: Is there evidence of cronyism between the concession company and the decision-makers? Were correct and fair procedures employed during the tender process? Is there any evidence of distortions and/or use of privileges in the tendering process?

49. *Thailand* is another country with an at least perceived lack of transparency. For example, in the case of the Second Stage Expressway (SES) concession to Bangkok Expressway Company Limited (BECL), five consortia purchased the bidding documents, only two bids were received, and the second bidder was disqualified ostensibly for lack of experience.<sup>1</sup> In the case of the Bangkok Elevated Road and Track System project, the concession was awarded directly to Hopewell based on their project proposal, without competition. Also consider that Articles 15 to 17 of the Royal Act on Private Participation in State Affairs (1992) indicate a variety of possible bidding methods, arguably providing too much flexibility in the sense that clear processes and evaluation criteria are not specified.<sup>2</sup>

50. With the development of its toll road program on a project-by-project basis, *China* has lacked a structured bidding and selection process set by government policy. Consequences have included the lack of standard documents and fixed procedures, and private negotiation of contracts rather than the use of transparent bidding procedures. The process is time consuming (e.g., eight years in the case of the Guangzhou-Shenzhen Superhighway) and “assurances” received during backroom negotiations may be later rescinded in response to political pressures.<sup>3</sup>

51. The tendering process in *Mexico* lacked strict prequalification procedures and did not require the bidders to submit detailed financing plans. Consequently, many small-to-medium sized concessionaires relied upon commercial bank loans for their equity commitments, which became problematic as soon as project revenues began to falter. Potential concessionaires also faced challenges during the bid preparation process, as there was insufficient time between the release of bidding documents and their due date. This precluded independent consultants from being able to perform effective field survey work on behalf of the project investors.

52. **Security Legislation.** The lack of provisions for the protection and enforcement of security arrangements (e.g., mortgages and liens) in a country’s legal system makes bankers extremely reluctant to lend to BOT projects.

53. The *Malaysian* example demonstrates a generally sound approach to this issue. In the Malaysian legal system, which was derived and inherits most of its legal rules and principles from the English legal system, the laws governing the taking or enforcement of security over fixed or moveable assets are clear, well-established, and can generally be relied on to protect the security holder. However, it should be pointed out that land law in Malaysia, unlike in England, is based on the Torrens registration system<sup>4</sup> and therefore any interest (including any

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<sup>1</sup> Kennedy School of Government [Professor José Gómez Ibáñez], *Bangkok’s Second Stage Expressway*, Case CL-97-1401.0, 1997.

<sup>2</sup> *Toll Roads in Thailand*, Country Draft Paper prepared by The World Bank, Private Sector Department, 1997.

<sup>3</sup> *Private Sector Development and the Financing of Toll Roads in China*, Country Draft Paper prepared by the World Bank, Private Sector Department, 1997.

<sup>4</sup> The Torrens System, in the law of real property, is a system of registration of title to real estate. The system was first introduced in Australia by the British statesman Sir Robert Richard Torrens in 1857 and was subsequently adopted in England, New Zealand, parts of Canada, and 20 states of the United States. The principal processes of the system involve registration of title followed by investigation and filing of the owner's documents of title; provision for special proceedings, if necessary, to establish title validity; transfer of title to registered land through entry on the register; and guarantee of a perfect title, with an indemnity fund provided to compensate for any loss

security interest) in real property would have to be registered with the local land office or registry and such registered interests will generally take priority over any unregistered interests.

54. On the other hand, the regulatory framework governing security in *China* is still in its infancy. While Chinese law does provide a framework for the provision of certain types of security, certain aspects, in particular enforcing security and prohibitions against government guarantees may diminish the utility of certain security arrangements. Of especial concern, the Measures for the Administration of Security Provided to Foreign Parties by Organizations in the People's Republic of China prescribes limits on the amount of security a foreign-invested enterprise may provide to a foreign party.

55. **Regulations of Foreign Direct Investment.** General laws and regulations concerning foreign investment may provide incentives or disincentives to foreign investment in toll road concessions. The Government of *Malaysia*, for instance, in pursuit of equity objectives has adopted a National Development Policy with the aim of securing at least 30 percent of the ownership of the Malaysian economy by *Bumiputras*, the indigenous people of Malaysia and at least 40 percent by Malaysians generally (*Bumiputras* or otherwise), leaving a maximum of 30 percent foreign equity ownership. However, in respect of equity holdings in toll road concessions, the Government has adopted an even stricter policy of permitting no more than an aggregate of 25 percent foreign equity. This policy effectively precludes foreign direct investment, but on the other hand has helped to develop domestic private sector.

56. **Currency Issues.** The currency used for the pricing of tolls and the ease of its convertibility to foreign currency affect the interest of international investors in toll road projects. To minimize the risk of hard currency investments, some of the toll rate formulas in the *Philippines* include variables that reflect exchange rate movements. Under current regulations in *China*, tolls in a highway project must be priced and collected in the country's currency, the renminbi, which is not freely convertible. The ability of a foreign-invested highway project to secure adequate foreign exchange payments is therefore subject to risks relating to exchange rates and access and availability of foreign currency.

57. **Dispute Resolution.** Although no one hopes for disputes on a BOT project, the regulatory framework must provide for adequate dispute resolution procedures in event that such disputes occur. *China* adopts a liberal approach, at least in theory. Any contract to which a foreign party is a signatory is a "foreign economic contract," and the parties to such a contract may stipulate arbitration either inside or outside China. While there have been difficulties in enforcing foreign arbitral awards rendered in China in practice, China is bound under international treaty to enforce foreign arbitral awards rendered in other jurisdictions. The concession contract of Metro Manila Skyway in the *Philippines* clearly spells out procedures for arbitration and dispute resolution in accordance with international law.

58. *Malaysia*, on the other hand, restricts the application of foreign law. Although Malaysian law provides for enforcement of judgments emanating from foreign jurisdictions in certain circumstances, judgments from only a very limited number of jurisdictions can be enforced in Malaysia. Further, the Government will insist that the concession agreement be

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suffered by a land purchaser owing to error in the title certificate issued. See Microsoft Corporation, *Microsoft Encarta '98 Encyclopedia*].

governed by Malaysian law and that the parties submit to the exclusive jurisdiction of Malaysian courts.

59. **Land Acquisition Law.** The law related to land acquisition and resettlement may affect the implementation of toll road projects. While it is possible that government agencies and public corporations may be authorized to expropriate land under the relevant laws, it is difficult to provide such right to the private sector; this could lead to an increased cost of toll road development.

60. A Presidential Decree in *Indonesia* states that the land on which toll roads are built will be state property and land acquisition should be conducted by the Government and the cost also borne by the Government. Due to a lack of public funds, however, concession companies are asked to pay the cost of land acquisition while the government still maintains ownership. As this practice is not based on any official guidelines, there is a need to clarify the responsibility for land acquisition to avoid confusion among investors.

61. A foreign-invested enterprise in *China* can acquire only the right to use land and not actual ownership. Moreover, there are limitations on the mortgageability of land use rights, depending on the nature of the rights obtained. Generally, a significant premium, prohibitive in the case of a highway project involving large tracts of land, is necessary in order to obtain land use rights that are freely mortgageable.

62. In *Thailand*, a 1987 law and subsequent Royal Decrees govern the acquisition of land for transport infrastructure projects, but efficient adjudication mechanisms and well-defined procedures for land acquisition have not yet been established. In the case of the Second Stage Expressway, the Expressway and Rapid Transit Authority was unable to deliver key plots of land to the concessionaire on a timely basis, which under the concession contract enabled the company to consider the affected section as “delayed works” subject to compensation in the form of a share of revenues from the (existing) First Stage Expressway.<sup>1</sup>

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<sup>1</sup> *Toll Roads in Thailand*, Country Draft Paper prepared by The World Bank, Private Sector Department, 1997; and Kennedy School of Government [Professor José Gómez Ibáñez], *Bangkok’s Second Stage Expressway*, Case CL-97-1401.0, 1997.

## D. CONCESSION CONTRACTS

63. Except perhaps in the Philippines, in the East Asian countries studied concession contracts have been relatively loosely negotiated and depended too much on “amicable solutions” between the parties involved. Concession contracts between a grantor and a concessionaire should be unambiguous with respect to the risks involved. Preferably, a model concession contract should be prepared to enhance fairness and the clarity of negotiations between the parties involved, and to improve the efficiency of negotiation by clarifying a starting point of discussion. Sub-issues within this issue category relate to: (i) grants of concession; (ii) credit enhancement of the concession grantor; (iii) toll rate setting and adjustment; (iv) conditions for contract termination; (v) step-in rights of lenders/concession grantor; (vi) changes in law; (vii) exclusivity; (viii) dispute resolution; (ix) mitigation of risks; and (x) post-concession issues. Each is described below.

64. **Grants of Concession.** The concessionaire should be granted exclusive use of the toll road right of way, including the right to develop ancillary businesses (e.g., food, service stations), which must be clearly defined by legislation.

65. **Credit Enhancement of the Concession Grantor.** When financial support measures (e.g., revenue shortfall compensation, payment of shadow tolls) are involved in a concession contract, the credibility and capability of the concession grantor to make such payments on a timely basis is important. The concession should be granted on behalf of the State; if the local authorities are not willing to do so, the private sector should secure strong credit enhancement from the Government (e.g., a performance guarantee for the grantor’s contractual obligation).

66. **Toll Rate Setting and Adjustment.** The concession contract must provide a clear framework for toll setting and adjustment covering topics such as operating cost fluctuations, currency devaluation, and minimum debt service ratios. Such matters are particularly important when revenue guarantees are not in place and the concessionaire bears construction, traffic, and toll collection risks. Toll road projects developed by the private sector in *Thailand* have been hindered by ambiguous toll adjustment clauses in the concession contracts. In the case of the Second Stage Expressway, for example, there have been a number of disputes between the Government and the concessionaire concerning the allowed toll rate, with the latest turning upon a close reading of the concession contract, which at least arguably includes an ambiguous approach to this issue.

67. **Conditions for Contract Termination.** In the event that a concession is terminated, whether as a consequence of a default by the concessionaire or the grantor, or as a result of the occurrence of a force majeure event, then the grantor, or a new entity appointed by the grantor, would take over all ownership rights to the toll road, including the right to collect tolls. The issue as to whether there should be compensation payable by the grantor to the concessionaire and how the project lenders are to be repaid in this situation will need to be addressed. The way that this issue is addressed is usually quite complicated and depends on the stage of the project when the termination event occurs and the cause of the termination event.

68. **Step-in Rights of Lenders/Concession Grantors.** Project lenders will invariably seek to take an assignment from the concessionaire of its rights and interests under the concession

contract, including rights to the revenues from the tolls or fares. In addition, when the concessionaire is in breach of its obligations under the concession contract or there has occurred an event of default under the financing documents, the project lenders will wish the right to “step-in” and cure the breach and, in some cases, transfer the shares in the concessionaire to a new sponsor, or transfer the concession to a new concessionaire. To enable this to happen, the project lenders will need to have the rights of an assignee of the concession contract, and also have an agreement from the grantor that they can “step-in” and cure the breach and/or substitute the concessionaire or the sponsors.

69. **Changes in Law.** One of the most difficult concession contract negotiation issues relates to changes in law, the occurrence of acts of government interference, force majeure, and other events or circumstances outside the control of the concessionaire that reduce returns for the sponsors or result in the concessionaire’s becoming unable to pay the project lenders. In most concession contracts, unless a deficiency guarantee or subsidy is provided such events or circumstances will expressly exclude insufficient traffic or a downturn in usage.

70. There are two stages in the negotiation of this issue. First, from the concessionaire’s perspective, the types of such acts, events, or circumstances should, to the extent possible, be well defined or capable of objective determination (with perhaps recourse to a court or independent arbitrators if there is a disagreement). The second stage is to determine the consequences; the ideal position for the concessionaire upon the occurrence of certain circumstances (e.g., a politically motivated strike or the failure by the grantor or a governmental agency to provide related infrastructure) that lead to a reduction in operating revenue would be for the grantor to agree that tariffs could be increased, or the concession period extended. Although rare, in some cases the grantor may agree to pay compensation to the concessionaire.

71. **Exclusivity.** The concession contract should ideally provide that no other concession that would compete with the project has been or would be granted, at least for an acceptable period. Unless this assurance is provided, a competing concession may be granted and reduce traffic flow.

72. **Dispute Resolution.** The approach has been to require dispute resolution under local law, with proceedings in the local language and/or English, or to provide for offshore arbitration under internationally tested rules. However, projects in the studied Asian countries have suffered due to the failure to follow established international dispute settlement procedures. For example, failure of the dispute resolution process may be illustrated by the Bangkok Elevated Road and Transit System (BERTS) project in *Thailand*. The Ministry of Transport and Communications and the State Railway of Thailand informed the concessionaire, Hopewell Holdings (Thailand), in a letter dated February 25, 1998 that, since the termination of the concession contract in a previous letter (January 27, 1998) was made under (unspecified) legal procedures, the concession contract was rescinded and the binding arbitration clause in the contract rendered ineffective; Hopewell has a contrary interpretation.<sup>1</sup> Similarly, a seemingly adequate dispute settlement procedure in the contract for the Second Stage Expressway

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<sup>1</sup> Clause 31 (Settlement of Disputes) includes two paragraphs: 31.1: “Whenever there arises a dispute...the parties shall first endeavour to reach an amicable settlement. In the event that within 60 days or any extension...the parties fail ...the dispute shall be referred to arbitration. 31.2: “The award of two arbitrators or of the umpire...shall be absolute and final and binding upon the parties.”



concession was not applied when the Expressway and Rapid Transit Authority of Thailand assumed control of the completed segment on September 2, 1998.<sup>1</sup>

73. **Mitigation of Risks.** A concession contract is an outcome of risk allocation among the participants of a toll road BOT project. Major participants are the Government, the grantor (which may not be the Government), the leading sponsor, the project company, and the lenders. Various risks associated with the projects are assumed among the participants who are best able to manage such particular risks. Major risks for a privately financed toll road project include: (i) political risks, (ii) construction completion risks, (iii) market and revenue risks, (iv) operation risks, (v) finance risks, and (vi) legal risks.

74. Instructive practices are found in the *Philippines* and *Hungary*. The basic approach to risk sharing in the *Philippines* has been to assign risks to the parties who are judged through negotiation as best able to bear them. Overall, risks that are commercially insurable are to be borne by the proponent and charged to the users. Risks such as natural and political force majeure are a part of “core guarantees” borne by the government. Such risks are included in the government default provisions, whereby the government guarantees that it will take over the project in case of its default. The Motorway Directorate of *Hungary* contributes rights-of-way without charge to the project, having resolved all resettlement issues and environmental problems. Leaving these matters outstanding puts project sponsors at risk for decisions and actions that the government is best prepared to assume.

75. A comprehensive analysis of all the risks pertaining to a project is an essential starting point of concession contract negotiations, especially for private sector proponents. One of the most important (and controversial) elements of a concession contract is allocation and sharing of these risks between the grantor and the concessionaire. The DBFO approach to highway projects in the United Kingdom, as implemented under Private Finance Initiative, may present a best practice in the treatment of these risks. In this approach, a comprehensive risk matrix is compiled by the public sector at the inception of the project, which in turn forms a base for calculating risks transferred from the public sector to the private sector under the contractual arrangement (concession contract); also, the calculated figures are used in a “value-for-money” assessment<sup>2</sup> of the project.

76. **Post-Concession Issues.** There has not yet been a toll road concession project the concession of which has been expired and the facility transferred.<sup>3</sup> Pertinent issues—including transfer procedures, price evaluation formula (when the price is greater than zero), and quality assurance check—are normally determined precisely in the concession contract. There are a number of important issues for the public sector after the concession (e.g., Who takes over the facility and how? What happens when the grantor becomes privatized at the time of transfer? Will the original concessionaire have the right of first refusal for the renewal of concession contract or re-bidding?). These post-concession issues must be discussed and determined as

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<sup>1</sup> Clause 19 of the Second Stage Expressway concession contract provided for a three-person arbitration panel, consisting of one person each named by the Expressway and Rapid Transit Authority of Thailand and Bangkok Expressway Company Limited (BECL, the concessionaire) and an umpire named by the these two.

<sup>2</sup> The terms refers to the concept of assuring the accountability of private sector involvement in public works.

<sup>3</sup> Although it is not an example of private sector concessions, in Japan, 61 stand-alone toll roads across the country, totaling 568 km, have been made toll-free after the public corporations repaid all the project debts.

part of the integrated transport policy formulation process of each country before the granting of concessions.

## E. GOVERNMENT SUPPORT

77. There are a variety of government support measures that can be provided to public corporations or private toll road concessionaires. Countries that have been successful in toll road development tend to provide an appropriate combination of government support measures. The degree of support that should be provided to particular toll road operators, however, depends on the political and economic situations of the countries. It is also important for the government to assess critically the possibility of large contingent liability in the case of guarantees such as foreign exchange guarantees, loan/bond guarantees, or equity guarantees. Sub-issues relate to: (i) comfort letters; (ii) land acquisition; (iii) extension of the concession period; (iv) construction of related facilities; (v) revenue support and revenue sharing with existing facilities; (vi) shadow tolls; (vii) provision of development rights and third-party revenue; (viii) subsidies, grants, and subordinated loans; (ix) foreign exchange guarantees; (x) loan (bond) issue guarantees; (xi) equity guarantees; and (xii) special funds.

78. **Comfort Letters.** Legally non-binding letters issued by governments to support certain actions not clearly stated in contractual agreement (e.g., a central government's assurance of performance for a public corporation as a concession grantor) are known as "comfort letters."<sup>1</sup> Such letters of support can give financiers and sponsors a minimum level of assurance when no implicit government support is attainable, but they are not legally binding. Comfort letters have proven useful in *China*, at least in the power sector. A case in point is the Laibin B Power Station, China's first pilot BOT project involving US\$620 million in costs funded through a commercial loan of about US\$160 million together with equity and export credits; at the request of the investors and lenders, the State Development Planning Commission issued a general letter of support of the project. By stressing the importance placed on the project by the government, such letters of support can provide investors and lenders with some comfort that the project will secure relevant approvals and other policy support.<sup>2</sup>

79. **Land Acquisition.** In most private toll road projects, largely for strategic reasons, the land is acquired and held in the name of the grantor or another governmental authority. The private sector typically would like to avoid the following two situations: (i) large acquisition cost and capital cost during early years of a project when no particular revenue is expected; and (ii) ownership of land that may not be converted into other uses, while various taxes and duties may be imposed on the acquisition and the ownership of the land.

80. Approaches vary, however, as to whether the concessionaire or the grantor is to pay land acquisition costs and related compensation. The approach adopted in Guangdong Province (*China*) involved the public sector acquiring the required land and transferring it to the private

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<sup>1</sup> When the grantor is a state government or public corporation, the comfort letter is submitted to the concessionaire and the financier by the central government.

<sup>2</sup> Paul D. McKenzie and Christopher Walcott [Baker & McKenzie, Hong Kong], "Financing Highway Projects in the People's Republic of China," *PFI Asia Pacific Review*, March 1998, pp. 27-29.

sector at no cost, while after the concession period, the private sector is to transfer it back to the public sector at no cost. In projects in Bangkok (*Thailand*), the Expressway and Rapid Transit Authority of Thailand (ETA) expropriated the land but the concessionaires have been obliged to reimburse costs. In the Dulles Greenway project (*United States*) project, the private sector acquired the land (and owns it, then transfers it to the public sector after the concession period at no cost).

81. **Extension of Concession Period.** Extension of the concession period is a supplemental measure for compensating the loss of profit caused for a variety of reasons. However, cash flow increases in the distant future may not improve a project's immediate profitability and may reduce the residual value of the project. Therefore, governments should be careful in extending concessions when asset valuation and payments to the concessionaire are required with the transfer of the project. Extension of the concession period, a common practice in toll road BOT projects in many countries, may also be granted when a force majeure event causes cessation of toll road operation for a certain period due to the occurrence of war, earthquake, riots, or other events that have been defined in the concession contract.

82. The extension of concession or redemption period as practiced in *Italy* and *Japan* may be used to keep tolls at relatively low levels while maintaining financial returns. In *Japan*, the redemption period for intercity national expressways was extended to 40 years in 1985, up from the previous 25- 30 years, in order to minimize toll rate increases. Although uncertainty increases with a longer redemption period, improved accuracy in traffic forecasting (made possible through the accumulation of traffic data and improved modeling techniques) helped to rationalize this extension. The experience of *Italy* clearly demonstrates the financial advantage of extending the concession period, although it was not necessarily done to suppress toll rate increases in this case. The Government of *Italy* granted Autostrade S.p.A. an extension of its concession period in 1968, 1982 and 1996; the 1982 extension, for example, was granted in return for its acquiring financially troubled concessionaires and completing and operating certain uncompleted routes.

83. In recent years, the Conservative Government in *Spain* has shifted a number of transport infrastructure projects to the private sector to help reduce the State deficit so that Spain could join the new European currency union. The General Law on Motorways amended in 1996 extended the life of concessions from 50 years to 75 years.

84. Extension of the concession period has been applied in "bridge financing" concepts in Indonesia. Jasa Marga, the Indonesian public toll road corporation, has tried, with little success, to interest international investors in an approach whereby private firms are asked to accept the uncertainty, cost, and delay of right-of-way acquisition and resettlement in return for an extension of the original concession period.

85. **Construction of Related Facilities.** In addition to land acquisition, the construction of related facilities (e.g., access roads) can be a critical element for a toll road operation. The construction of an approach road to two toll bridges, Second Severn Crossing and Dartford Crossing (*United Kingdom*), provides a typical example of this type of government support. There are three kinds of risk involved in this support: (i) delay in acquiring the necessary land, (ii) delay in construction, and (iii) potential facility defects. The risk of potential defects is generally assumed by the government, but in case of Design, Build, Finance, and Operate

(DBFO) projects in United Kingdom, the consortia participating in the bid are obliged to submit a proposal regarding the magnitude and the methodology of the potential defect risk that they are ready to assume. At least arguably, the Don Muang Tollway Project in *Thailand* provides an example of the government's not fulfilling its obligation of removing a related facility; in this instance, intervening political pressures made it difficult for the government to remove two existing flyovers to facilitate the flow of traffic towards the Tollway, and as a consequence, the company defaulted on its debt service payments.<sup>1</sup>

86. **Revenue Support and Revenue Sharing with Existing facilities.** The ultimate risk, that of traffic, cannot be controlled solely by a private concessionaire; it is especially critical in a greenfield project where demand is most difficult to forecast. A minimum traffic or revenue guarantee, in which the government compensates the concessionaire in cash or in the form of a soft loan if traffic or revenue falls below a specified minimum level, is a relatively common form of government support. Typically, the minimum traffic or revenue threshold is set below the expected level by 10-30 percent in order to reduce government exposure while providing sufficient coverage to support the debt component of the capital structure. Under such a structure the government can support private financing for a road that it would otherwise have to fund on its own, while limiting its financial exposure to the possibility that revenue may fall below the guaranteed minimum. In addition, traffic and revenue guarantees retain the sponsor's financial incentive in the project, provided the minimum revenue stream does not allow for an attractive return on equity.

87. The North-South Expressway in *Malaysia* (soft loan), and many CJV projects in *China* (cash) provide examples of minimum traffic or revenue guarantees. In the case of the Western Harbor Crossing and the Route 3 Country Park Section in the *Hong Kong Special Administrative Region* and *Colombia's* Buga-Tuluva Highway, a more elaborated cap-floor adjustment mechanism was introduced to cope with the traffic risk.

88. Entitlement to revenue from existing toll roads and bridges can considerably lower the start-up risks of a project by providing cash flow that it would otherwise be unable to attain. There are many such examples as the North-South Expressway in *Malaysia*, the Second State Expressway in *Thailand*, the toll bridges in *United Kingdom*, Sydney's Harbor Crossing in *Australia*, and M1/M15 in *Hungary*. The World Bank assisted Toll Road Concession Project in *Colombia* included operation of an existing contiguous tolled section, which will allow for economies of scale in operation, as well as reduce financial support and enhancing project revenues. By including a road opened to traffic in 1995 in the toll road concession package, the Government of Colombia assured that at least one component would generate net revenues from the beginning. *Chile* has allowed bids to include government revenue guarantees, with the government prepared to guarantee minimum revenues over a concession period equal to 70 percent of construction, maintenance, and operating costs. The asset securitization approach (see below) based on the potential cash flow of existing public toll roads may be classified as this type of government support.

89. The guaranteed level of traffic or revenue, however, must be set very carefully based on elaborate sensitivity analyses of traffic and return on equity/debt repayment. This caution also applies when a government introduces the cap-floor mechanism, because determinations of cap

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<sup>1</sup> *Toll Roads in Thailand*, Country Draft Paper prepared by The World Bank, Private Sector Department, 1997.

and floor levels (i.e., threshold maximum and minimum levels) affect the profitability of the concession. It is recommended that the cap-floor mechanism be coupled and integrated with an elaborated toll adjustment formula in order to avoid excessive or inadequate returns for the concessionaire.

90. **Shadow Tolls.** Shadow tolling is an experiment for introducing the BOT model in the toll road sector, whereby a private sector consortium agrees to finance the construction or upgrade of a stretch of road and, for a concession period such as 30 years, is entitled to operate and maintain the road and receive “shadow” toll revenue based on actual levels of traffic. The concept was created for DBFO (Design, Build, Finance and Operate) roads in the *United Kingdom*. The shadow toll is paid to the concessionaire by the government, not charged to motorists. The shadow toll usually consists of two components: an availability payment and a performance/usage payment where the former is paid based on the availability of required capacity (number of lanes) whereas the latter is paid on the basis of vehicle-kilometers achieved.

91. Recently, due to both the inherent difficulty for the private sector of assuming the traffic volume risk of new toll roads and concern on the part of Britain’s Labour Government that shadow tolls based on traffic volumes may lead to increased carbon dioxide emissions, the performance component of the DBFO payment structure is now under review with the prospect of focusing more on the availability component.

92. Sponsors of the shadow toll concept argue that because they are paid over time they may be less of a burden to the government than an up-front grant.<sup>1</sup> Shadow tolls may also have the benefit of mitigating market risk to be assumed by the private sector when the motorists’ willingness to pay is unknown. However, before introduction of the mechanism, the long-term ability of the government to pay shadow tolls, which may increase in amount as the mechanism proliferates, should be closely scrutinized.

93. **Provision of Development Rights and Third-Party Revenues.** This issue often arises with respect to the financing of a project that may generate large economic benefits to society but may have a weak project “economics” for various reasons such as an imbalance between a relatively intensive capital cost and slow traffic growth during early years of the project. The project economics of the *Malaysia-Singapore Second Crossing* was enhanced by the provision of development rights for a new township<sup>2</sup> in the vicinity. The *Hong Kong* government provided the Eastern Harbour Crossing Project rights for commercial development around the stations and residential/commercial development over a part of the covered road section, which were sold to provide revenues that enhanced project economics. The Guangdong Super Highway Project in *China* also involved the provision of development rights at interchanges, but benefits have been affected by a delay in the opening of the Highway.

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<sup>1</sup> See paragraph 5.21 below, however.

<sup>2</sup> The Malaysia-Singapore Second Crossing project is to develop both expressways and a township in south-west Johor Darul Ta’zim called ProLink 2020. During the construction of the bridge, the project company jointly developed a township based on the development agreement and a cost-sharing arrangement with ProLink Development (PD), which is owned by the same parent company as the project company. After the bridge is completed, the project sponsor will transfer all rights, liabilities, and obligations under these agreements to PD for a payment of M\$321million in cash.

94. **Subsidies, Grants, and Subordinated Loans.** While guaranteeing loans and equity create contingent exposure to varying degrees, depending on the expected operational performance of the toll road project, subsidies, grants, and subordinated loans at project start-up as cash or in-kind contributions can provide critical support to project “economics.” A government can fill important gaps in the financial structure between senior loans and equity by providing a subordinated loan. Subordinated loans are repaid after debt service on senior loans before returns to equity.

95. In *Malaysia*, the Government provided the North-South Expressway (NSE) a US\$634 million subordinated loan, or about one fifth of the total project capital of US\$3.192 billion, together with the 310 km of NSE that was already completed and operated by the Government.

96. *Chile* provided a US\$5 million cash grant to the concessionaire of the South Access to Concepción project, or one quarter of total project capital (no provision for repayment).

97. Because the provision of subordinated loans and grants represent direct spending of general tax revenues, a government must be prepared to justify such spending to its citizens. Justification may be provided, for example, by showing that the economic and financial benefits of the project will be more than sufficient to cover the amount of grant and contributions.

98. The World Bank assisted Toll Road Concession Project in *Colombia* was sensibly designed with an up-front capital contribution (determined at the bidding stage) rather than an operational subsidy in order to reduce government exposure throughout the operational period and to increase bid responsiveness, as well as to reduce the financial risks borne by the project sponsors. An up-front subsidy is subject to budgetary approval and hence careful scrutiny, while operational subsidies are not similarly scrutinized even though they may result in higher liabilities in future years.

99. The Government of *Spain* assumed a disproportionate share of the risks associated with the development of the privately concessioned toll roads (*autopistas*) in the period from 1960 to 1981, a consequence of its offering loan guarantees for up to 75 percent of its foreign debt as well as exchange rate assurance. As it happened, the loan guarantees were not drawn upon and were probably essential for attracting financing. In general, lump-sum, up-front subsidies would have been preferable, defined by competitive bidding,<sup>1</sup> with provision for the Government to recoup its investment by sharing in project revenues.

100. **Foreign Exchange Guarantees.** Under an exchange guarantee the government compensates the concessionaire for increases in the local cost of debt service due to exchange rate fluctuations. Because such fluctuations can constitute a significant project risk when foreign capital is involved, government guarantees can have a substantial impact on a project’s ability to raise financing with perhaps a lower interest rate. A foreign exchange adjustment mechanism was built into the toll formula for the Skyway Project in the *Philippines* and the aborted Cikampek-Padalaran project in *Indonesia*. With currency devaluation such as that

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<sup>1</sup> It is unclear whether the toll motorway concessions granted in Spain during the late 1960s and early 1970s were awarded competitively since often only one seriously interested company came forward. José A. Gómez-Ibáñez and John R. Meyer, “The Modern Pioneers: France and Spain,” *Going Private: The International Experience with Transport Privatization*, The Brookings Institution, Washington, D.C., 1993, Chapter 8, pp. 107-45.

which has occurred in many East Asian countries recently, the indexation of foreign exchange rate fluctuations to a toll formula would not mean much to concessionaires, because currency devaluation of such magnitude profoundly damages the entire economy of a country and has considerable impact on domestic interest rates; the impact of the “foreign exchange portion” of the project is only one of many elements that must be negotiated with the government.

101. Foreign exchange rate assurance can be inefficient as in the case of *Spain*. The total exchange losses over the years amounted to five to six times the equity invested by the *autopista* shareholders, and the exchange assurance provided by the Government may have been worth less to the companies than it cost the Government to provide.

102. **Loan (Bond) Issue Guarantee.** Under this approach the government provides a full guarantee of cash-flow deficiency guarantee for repayment of loans. As with an equity guarantee, a loan guarantee entails no public cost as long as the project generates sufficient cash flow to service debt.

103. In *Japan*, toll road projects undertaken by Public Corporations have been financed largely by two types of government guaranteed bonds provided by Treasury Investment and Loans: (i) Government Acceptance Bonds and (ii) Government Guaranteed Bonds. Government Acceptance Bonds are purchased by the Ministry of Finance and the Ministry of Posts and Telecommunications with funds from sources such as postal savings accounts, employee pension funds, national pension funds, and postal life insurance premiums. The Government Guaranteed Bonds are guaranteed by the Government and purchased by private financial institutions.

104. In *China*, limitations with respect to the creditworthiness and commitment of provincial contracting parties in joint ventures has led to long, costly negotiations and has caused foreign institutions to assess risk premiums, with consequent effect on costs.<sup>1</sup> Foreign lenders have required explicit guarantees from government institutions and banks before providing limited recourse financing. In the Guangzhou-Shenzhen Super Highway Project the government provided a cash-flow deficiency guarantee for repayment of loans, guaranteed by Guangdong International Trust & Investment Corporation (GITIC). The project faced difficulty in servicing the debt repayment, and the GITIC guarantee was triggered to compensate the shortfall in the loan payment from the concessionaire to the financiers.<sup>2</sup> It is highly likely that when loan guarantees are exercised extensively by the government, a “moral hazard” will result for both sponsors and financiers, which may ultimately lead to an increase in problem loans in the toll road sector of the country.

105. **Equity Guarantees.** Under an equity guarantee, the concessionaire is granted an option to be bought out by the government with a guaranteed minimum return on equity. Although there is no public cost under this arrangement as long as the project generates the minimum return on equity, the government essentially assumes all of the project risk, and

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<sup>1</sup> For example, the government provided the Guangzhou–Shenzhen Super Highway Project with a cash-flow deficiency guarantee for the \$800 million in senior project debt.

<sup>2</sup> Subsequently, in January 1999 GITIC was allowed by the Government to go bankrupt, leaving US\$4.3 billion in unpaid debts. See C. Smith, “China Scrambles to Overcome History of Economic Blunders,” *Asian Wall Street Journal*, February 24, 1999, pp. 1, 4.

private sector performance incentives are severely reduced. Accordingly, this type of guarantee is not recommended for privately financed toll road projects.

106. **Special Funds.** In some countries, special funds have been established to provide stable funding sources for highway development. The road networks in *Japan* totals more than 1 million kilometers including about 7,900 km (as of FY1998) of national and urban expressways (all toll roads). An earmarked funding system for road works was initiated in 1954 when revenues from a gasoline tax were set aside for the implementation of a “Five-Year Road Improvement Program, which has led to socioeconomic development over several decades. In *France*, to secure sufficient funds for public toll road corporations (SEMCA), Caisse Nationale des Autoroutes (CNA) was established in 1963 as an autonomous public agency to arrange financing for the development of toll roads. It issued bonds in domestic and international capital market.

107. It is also important for the Government to take swift and deliberate steps with respect to troubled projects once they have been given priority status, in order to maintain investor confidence. The establishment of an Infrastructure Development Fund in *Malaysia* is a case in point. However, if the current crisis continues and many projects default, the Government could end up with a large fiscal problem in paying back the debt, while being saddled with underused toll roads for which it lacks the funding and human resources required for their operation. The Government of *Italy* also established a special government account under the Act 813 of 1978 to cross-subsidize financially troubled concessionaires; revenues for this account have been derived from incremental toll revenues from existing toll roads.

## F. TRAFFIC FORECASTING

108. Traffic forecasting, which involves a great deal of uncertainty, is not an exact science. Factors such as planned land development, population growth along the route, and various economic indicators in forecasting models have inherent uncertainties that affect traffic forecasts. Since project viability is directly related to expected traffic volumes, toll road operators, grantors, concessionaires, financiers, and investors are all concerned with estimated traffic volumes. There are many cases where consultants have used parameters calibrated elsewhere without evaluating their transferability to the country for which the forecasts were prepared. In one instance, a grantor used traffic volumes that were estimated by the project proponents without re-examining the figures during negotiations. These problems are partly due to a lack of expertise and budgetary constraints, which relates to the institutional issue. Forecasts of use of existing highway routes are usually more accurate as compared to those for “greenfield” toll road projects. Although accuracy can be improved by refining forecasting methodology, improving the accuracy of estimates of exogenous parameters such as socioeconomic indices, and refining traffic diversion equations (or toll elasticity curves), traffic forecasts should be cross-checked by at least one independent consultant or institution. Sub-issues include: (i) the problem of less-than-forecast traffic; (ii) the need for independent audits of traffic forecasts; (iii) conflicts of interest in contractor-driven projects; (iv) sensitivity analysis; and (v) professional liability issues.



109. **Problem of Less-than-Forecast Traffic.** Over-estimation of traffic has commonly occurred with respect to toll road projects in developing or transitioning countries. In *Hungary*, for example, traffic has been only about 45 percent of that forecast for the development of the M1/M15 toll road concession, since corridor traffic has been less than forecast, due to a lack of market growth, continuing delays at the border between Hungary and Austria due to nonphysical barriers, lower than forecast diversion from elsewhere in the region,<sup>1</sup> and forecasting errors.<sup>2</sup> In this instance, the forecasts were prepared by a subsidiary of a French firm (using parameters suitable for France, but not for Hungary), one of the firms involved in the concession company, a practice that should be avoided;<sup>3</sup> the European Bank for Reconstruction and Development (EBRD) now no longer accepts forecasts from companies affiliated with concession holders or from companies that are not “world class.”<sup>4</sup>

110. *Malaysia* and *Mexico* are also facing issues stemming from overestimation of traffic. In *Malaysia*, the traffic volume on the Malaysia-Singapore Second Crossing was only about one-third of the original estimate as of late 1998, and as a consequence the project company faces the possibility of default on its debt-service payment. This situation has been attributed to both the Singaporean Government’s imposing a toll on their section of the Crossing (despite having originally indicating that they would not), and delays in the development of Bandar Baru Pulai, a new town. Re-negotiation of the basic terms and conditions of the concession contract is ongoing to avoid default by the concessionaire. Traffic studies in *Mexico* did not consider travel variations by time, day, or season, nor by type of vehicle or trip. In addition, demographic and economic conditions and trends influencing travel demand were typically not identified. In several cases, traffic growth rate assumptions were unrealistic and often data from the Secretariat of Communications and Transport were inadequate or unavailable. These traffic study shortcomings in Mexico have generally been attributed to a lack of expertise on the part of the concessionaires, financiers, and their consultants.

111. **Need for Independent Audits of Traffic Forecasts.** Due to possible conflicts of interest or simply poor capability, independent audits of traffic forecasts are advisable. As noted, in the case of the M1/M15 toll road in *Hungary*, forecasts were prepared by one of the firms involved in the concession company, a practice that should be avoided. In this case, an early audit by a Swiss firm utilizing stated preference data suggested that the traffic forecasts were too high, but there was deemed insufficient time between contract signing in April 1993 and financial close in December 1993 for an independent forecast.<sup>5</sup> In *Spain*, the lack of any serious independent evaluation of traffic and financial forecasts during the first phase of country’s development of high-performance highways was a critical factor explaining the

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<sup>1</sup> While the Hungarian government promised to restrict truck through-trips on the competing free routes, problems with police enforcement, municipal control of secondary roads, and the collection of fines have left road transport operators with free route choice.

<sup>2</sup> A major problem was the lack of historical evidence on traffic from Austria, as the border had been opened only relatively recently.

<sup>3</sup> Constraints on resources available for traffic forecasting, which usually occurs at the tendering stage, has also been mentioned as a factor affecting the reliability of forecasts. A solution may be a single, intensive traffic study executed at the pre-tender stage for use by bidders. Rupert Bruce, “Disappointing Returns at the Toll Booth,” *Infrastructure Finance*, October 1996, pp. 29-36.

<sup>4</sup> *PWFinancing* (September 1997, p. 19).

<sup>5</sup> However, M1 was reduced from four to two lanes as a result of the audit.

eventual difficulties experienced by the concession companies, with consequent cost to the Government.

112. **Conflicts of Interest in Contractor-Driven Projects.** Since contractors benefit more from the construction of toll roads than from their operation, consortia led or otherwise driven by contractors may produce overly optimistic traffic forecasts. Construction companies were actively involved in concessions in *Spain*, and inherent conflicts of interest may lead to over-estimation of traffic volumes (and under-estimation of construction costs). While the energy crises of the 1970s may have explained some of the discrepancies between actual and forecast traffic in the Spanish case, the magnitude of the discrepancies (with actual traffic only 36-44 percent of forecast volumes) was too great to be attributable to this factor alone.<sup>1</sup>

113. **Sensitivity Analysis.** It is important to conduct sensitivity analyses—with respect to traffic and traffic diversion as well as other key variables (e.g., toll rates, project costs, implementation period, and a combination of these factors)—in order to assess the effects on the rate of return of variations. In the Dulles Greenway Project in the *United States*, the traffic forecasts upon which financing decisions were made did not accurately address the issue of toll sensitivity, and motorists appeared to be discouraged by the initial toll charge, which was more than double the rate of the connecting Dulles Toll Road. In a more successful example, JHPC, the state toll road corporation in *Japan*, has refined toll diversion equations over many years, to improve the accuracy of traffic forecasting by adjusting toll elasticities.

114. **Professional Liability Issues.** In countries with well-developed legal systems, consultants or others substantially overestimating future traffic may be liable on a theory of professional malpractice. In the case of the Dulles Greenway in the *United States*, despite having a team of well-respected and qualified consultants, the traffic demand model incorporated assumptions that were highly optimistic. The project's creditors made their lending decisions based upon these estimates, and some observers have subsequently suggested holding the consultants legally accountable for the gross overestimation of the project's financial viability.

## G. SETTING AND ADJUSTING TOLL RATES

115. The profitability of a toll road project, especially in inflationary environments, will depend much on the toll level, or increases achievable by the operators. Accumulated world experience suggests a number of general guidelines for setting and adjusting toll rates. Sub-issues relate to: (i) general guidelines for toll setting; and (ii) toll adjustment procedures.

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<sup>1</sup> José A. Gómez-Ibáñez and John R. Meyer, "The Modern Pioneers: France and Spain," *Going Private: The International Experience with Transport Privatization*, The Brookings Institution, Washington, D.C., 1993, Chapter 8, pp. 107-45.

116. **General Guidelines for Toll Setting.** General principles suggested by one World Bank report (for Viet Nam) indicate that (i) tolling is appropriate only when traffic levels exceed 4,000-5,000 vehicles per day; (ii) toll rate levels should not result in excessive traffic diversion—with an upper limit of acceptability considered to be in the range of 10-15 percent; and (iii) under certain conditions, toll rates can be set higher where there is no feasible alternative.<sup>1</sup>

117. It is important to base project revenues on affordable toll rates, as was done in the World Bank assisted Toll Road Concession Project in *Colombia* (e.g., US\$0.0039 for cars for the full 51 km of Section 1 of the Project, in 1997 values, to be increased in line with the consumer price index). While the rates in the Colombian case determined by the Government exceeded short-term marginal costs, they were set at levels considered adequate to avoid excessive traffic diversion. The toll levels established for the various project links were set at levels consistent with existing tolls in the rest of the Colombian network, i.e., at a level that would allow full recovery of routine and periodic maintenance costs. The proposed tolls varied from 9 to 36 percent of user cost savings, with the lowest values corresponding to buses and the highest to medium trucks.<sup>2</sup>

118. Different approaches taken in *Brazil*, *Chile*, and *Mexico* demonstrate the need for affordable toll rates. Tolls in *Brazil* have also been kept at relatively low levels by worldwide standards, usually about US\$0.04 per km, which has helped promote public acceptance of the program. Another instructive example is that of *Chile*, which has endeavored to keep tolls at levels that users are willing to pay for improved services (i.e., about US\$0.025-0.030 per vehicle-km, linked to the consumer price index).<sup>3</sup> The contrast with *Mexico*, for example, a country with comparable GDP per capita as Colombia, Brazil, and Chile and where tolls have been in the US\$0.12-0.50 range, is marked.

119. **Uniform Toll Rate Issue.** An important issue is whether toll rates should be set by individual route or set uniformly across the network. In *Japan*, a toll revenue pooling system has been used for the entire inter-city network system, and independently for each urban expressway system, whereby tolls are set at equal levels for all of the routes within the network, regardless of the construction costs or traffic levels on the individual segment.<sup>4</sup> The use of uniform toll rates was primarily to cross-subsidize less profitable routes with revenues from more profitable ones. Financial viability is thus to be achieved for the entire network, not by route or by segment. Although cross-subsidization may not necessarily require toll rates to be

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<sup>1</sup> The World Bank, East Asia and Pacific Region, Country Department I, Infrastructure Operation Division, *Viet Nam Transport Sector: Serving An Economy in Transition*, Report No. 12778-VN. August 8, 1994, p. 56.

<sup>2</sup> The World Bank, Finance, Private Sector, and Infrastructure (LCSFP), Country Management Unit for Colombia, Ecuador and Venezuela (LCC4C), Latin America and Caribbean Regional Office, *Project Appraisal Document on a Proposed Loan in the Amount of US\$137.1 million to Colombia for a Toll Road Concession Project*, Report No. 17986, June 11, 1998.

<sup>3</sup> However, the toll for use of the El Melón Tunnel in Chile, US\$5.40 for a passenger car and more for commercial vehicles, has led many to continue using the windy, mountainous route alternative. Charles L. Wright and Daniel J. Freire Coloma, "Toll-Road Partnerships: What Works, What Doesn't, and Why?," *Transportation Quarterly*, Vol. 51, No. 4, Fall 1997, p. 92.

<sup>4</sup> While the experience of Japan demonstrates that uniform rates and cross-subsidization may contribute to network expansion, it may result in significant variation in profitability across routes or segments due to the difference in demand and/or construction costs.

uniform, different levels of rates across routes or segments within an integral network would create confusion among users, and charging equal levels of rates would be more politically acceptable. Similarly, tolls for motorways operated by Autostrade S.p.A., the largest toll road concessionaire in *Italy*, have been uniformly set for cross-subsidization.

120. **Differential Toll Rate by Vehicle Categories.** Toll rate setting also involves an issue of specifying the number of vehicle categories to be charged different toll rates and the rate differences across categories. For inter-city motorways and expressways in developed countries including *France*, *Italy*, *Japan*, and *Spain*, there are currently five categories, although ways of classifying them vary somewhat across countries. Experience suggests that a larger number of categories tends to enhance the sense of fairness and thus is more politically acceptable. In *Japan*, the number of categories for inter-city expressways was raised from three to five in the late 1980s. With this change, complaints by users about vehicle categorization decreased.

121. There are, however, cases where a smaller number of vehicle categories would be desirable, primarily for technical reasons. For example, there are only two vehicle categories for urban expressways in *Japan* to minimize time and queue length for toll collection.

122. There is no simple equation or a universal theory to determine rate differences across vehicle types. For inter-city motorways and expressways in selected developed countries (*France*, *Italy* and *Japan*), for example, a fairly substantial variation is observed in the extent of rate differences across these countries. Also it is often argued in developed countries that commercial vehicles including trucks and buses are favored in terms of the toll levels, compared with the capital and maintenance costs incurred by these vehicles. *Malaysia*, on the other hand, introduced a lower rate for buses as part of a transport policy to support public transport operators and to encourage bus use.

123. **Fixed or Distance-Based Toll Rate.** Another issue on toll rate setting relates to the choice of distance-based or fixed toll rates. Although a distance-based toll rate system is generally more reasonable as it better reflects the cost of service, it involves two major problems: requirements for large capacity at exits and leakage in toll collection. Since payments in a distance-based system should be made at exits, land and staff requirements could be large, which has been a primary reason for the use of fixed toll rates for urban expressways in *Japan*. Distance-dependent tolls also create opportunities for users to abuse the system; it may be possible for users running in opposite directions to exchange their tickets on the way and pay less than the actual rates at exits. In *Japan*, measures have been taken against this behavior—e.g., inspecting tickets on route, and checking at exits whether time is too short for the distance traveled. It is expected that these shortcomings of distance-based toll rates will be eliminated by the introduction of an electronic toll collection (ETC) system.

124. **Toll Adjustment Procedures.** One issue is whether toll rate adjustments should be left to a governmental authority's discretion or based on a formula, usually linked to price index changes. In any case, there is a need to follow specified toll adjustment procedures once they have been set; uncertainty creates problems for toll road operators.

125. Toll rate adjustments are at the discretion of the Ministry of Finance in *France*, which tends to approve larger increases for less profitable companies. The French approach avoids

unnecessarily high returns to investors, but at the risk of sacrificing efficiency by undermining incentives to make exceptional efforts to control costs or improve productivity.<sup>1</sup>

126. In *Japan* the appropriateness of toll rates are reviewed periodically by reflecting toll road users' opinion through the use of advisory committee to the Prime Minister. Final adjustments are made based on approval of an Inter Ministerial Meeting charged with responsibility for consumer price issues.

127. The Government of *Italy* set a clear policy requiring users to pay their way, and an automatic toll adjustment mechanism linked to inflation has been used, agreed upon between ANAS (the National Road Agency) and toll road concessionaires. More specifically, a reevaluation is undertaken with respect to the portion of toll rates that corresponds to operation and maintenance costs that are likely to be affected by inflation; with this mechanism, toll rates in *Italy* have been raised nearly every year since the early 1970s.

128. *Spain's* approach to regulating the toll rates of concessionaires, on the other hand, is based on a formula linked to price inflation. The Spanish approach has the merit of promoting new investment and efficiency, and it has only limited risks of unnecessarily high returns to investors, since "excess" profits are moved to a Special Reserve.

129. The experience of the *Hong Kong Special Administrative Region* presents a firm and fair toll adjustment mechanism, perhaps a "best practice," at least, for private sector concessionaires. With the Western Harbour Crossing, the Government and the private franchisee established a straightforward, transparent, fair, and binding Toll Adjustment Mechanism.<sup>2</sup> If traffic and therefore revenue falls below a forecast volume, it will allow the operator to advance the prespecified date of a toll increase. Conversely, if the amount of revenue received by the operator is above the forecast, resulting in a rate of return that exceeds a specified range, a toll increase will be deferred. As part of the mechanism, a toll stability fund has been established to which income above the maximum allowed is channeled, in order to offset the need for future toll increases. Thus, it gives the franchisee the certainty that tolls can be adjusted as the need arises, while providing for a low and stable toll regime; this approach gives the franchisee security in the project's ability to reap a minimum return on the equity investment, while at the same time it gives financiers the assurance that the project will be able to service its debt requirements over the fixed concession period. However, there still may be a problem if the concessionaire's revenues fall short due to slower than expected traffic growth. In this case, a toll increase would just further discourage use without necessarily generating more net revenue. Such is in fact the case with the unprofitable Western Harbour Crossing, as its Toll Adjustment Mechanism is proving to be unworkable in the current negative economic climate.

130. An automatic tariff-adjustment formula applied in the *Philippines* may also be a "best practice" at least for investors. Philippine toll road concession agreements include automatic

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<sup>1</sup> José A. Gómez-Ibáñez and John R. Meyer, "The Modern Pioneers: France and Spain," *Going Private: The International Experience with Transport Privatization*, The Brookings Institution, Washington, D.C., 1993, Chapter 8, pp. 107-45.

<sup>2</sup> Toll adjustments for the Government's initial private-sector toll road projects (the Cross Harbour Tunnel, East Harbour Crossing, and Tate's Cairn Tunnel) are all subject to the approval of Governor in Council and disagreements are settled through arbitration.

tariff adjustments based upon a parametric formula that takes into account many economic factors such as prevailing local and foreign interest rates, the consumer price index, currency values against United States dollars, and a construction materials price index; it is guaranteed by the Government. The project economics-based automatic fare adjustment effectively alleviates one of the most common risks facing toll road investors—that of a predictable revenue stream. However, the strategy does have other implications, such as the fixed escalation of toll rates, which means that future road users will likely subsidize the initial ones. In addition, if investors happen to derive a windfall, there is no profit-sharing clause—the investors obtain all of the reward. This issue is particularly apparent in the case of a toll road project in the Philippines, in which the government has contributed about 50 percent of the total project costs (in the form of a completed segment of the highway). However, the Government maintains that a profit-sharing clause for this BOT project would be a difficult proposition, as they believe that it would imply that there should also be a minimum revenue guarantee to the operator by the Government.

131. In *China*, the Highway Law (effective January 1, 1998) provides that the initial setting and adjustment of highway toll rates are subject to the approval of provincial price bureaus and bureaus of communications. Significantly, the Highway Law provides no specific references to the circumstances under which toll rates may be adjusted. Based on customary practice among existing foreign-invested toll road companies, an adjustment formula, taking into account traffic fluctuations, would be agreed with the local government at the time the project is established.

132. As suggested by the experience of *Indonesia*, *Mexico*, and *Thailand*, uncertainty over toll adjustment procedure may discourage the private investors. Such adjustment procedures are best agreed unambiguously within the concession contract. In *Indonesia*, under Law No. 13/1980, the designation of a road section as a toll road and the determination of initial toll tariffs requires Presidential approval of proposals made by Minister of Public Works. Jasa Marga, the Indonesian toll road agency, undertakes to process such applications through the government regulatory and approval mechanism. Tariff rates are usually determined by comparing user cost savings on the toll road in question with the shortest non-toll alternative; the maximum tariff cannot exceed 70 percent of the vehicle operating cost and time cost savings. The concession company proposes tariff adjustments every two or three years based on a formula incorporating the consumer price index, but approval cannot be guaranteed by the government. In *Mexico* both toll increases and decreases also require approval of the Secretariat of Communications and Transport, which restricted the ability of most concessionaires' to responsively adjust pricing to optimize revenues once the roads were open to traffic. Taking another example, in 1998, the Expressway and Rapid Transit Authority of *Thailand* asked the concessionaire for a new 22 km expressway section to reduce the tolls agreed in its concession contract (i.e., 40 baht or about US\$1 for a four-wheeler) after the Interior Minister stated that they were "too high."

133. An approach for addressing uncertainty can be learned from the *Malaysian* experience, where the Government is attempting to refine its Toll Rate Adjustment Mechanism based on lessons learned from the case of North-South Expressway (for which the Government has had to pay huge sums to the concessionaire due to deferred toll rate increases). The proposed new method is similar to the toll adjustment mechanism applied in the *Hong Kong SAR* in that the forecast traffic volume is annexed to the concession agreement. If the actual traffic level is

more than the forecast level at a specified time, the Government could request either the deferral of a toll rate increase or a lowering of the level of toll rate increase. But if the actual traffic is less than forecast, the concessionaire could request to bring forward the timing of toll rate increases.

## H. FINANCING STRUCTURE AND SOURCES

134. Issues on financing structure and sources are closely related to Government Support issues described above. Sub-issues relate to: (i) toll financing; (ii) equity financing; (iii) subordinated loans; (iv) senior commercial bank loans and debt securities; (v) institutional investors/infrastructure investment funds; (vi) initial public offerings; (vii) asset securitization; (viii) the portfolio approach; (ix) pinpoint equity with indexed infrastructure bond issues; (x) the option concept; and (xi) value capture.

135. **Advantages and Disadvantages of Toll Financing.** An important threshold issue is the relative advantages and disadvantages of toll financing of highways as compared to financing from fuel taxes or other revenues sources, with the latter the predominant approach in *Northern Europe, North America, and Australia*. The decision of whether to toll a particular road or not is important where traffic levels are relatively low, but it has not been adequately considered in many of the case study countries.

136. The decision should be justified by economic analysis since the perceived objectives (e.g., raising additional revenue, fairness in terms of the user pays principle, optimal pricing and resource allocation) are seldom achieved. Also, the costs of establishing a toll system, the collection costs, and the diversion of tolls by collectors (leakage) can be high. For example, the case studies and other evidence indicate that additional construction costs can range between 2-8 percent of initial costs and that operating expenses can range between 5-20 percent of toll revenue, depending on whether an open or closed tolling system is employed.<sup>1</sup> In *France*, tolling has resulted in increased construction costs of about 10 percent and increased operating cost equal to 10-12 percent of revenues, which is considered comparable or lower than the collection costs and economic distortions of alternative revenue sources. Also, tolls in France have not resulted in a misallocation of traffic between toll roads and parallel untolled roads, with only an estimated 6-7 percent of potential toll road users diverted to parallel routes as a result of tolls.<sup>2</sup> A World Bank report for Vietnam suggests the economic costs of raising revenue by tolling—including capital costs, collection costs, leakage plus traffic diversion/suppression cost—should be lower than the cost of raising revenue by alternative means, and these economic costs should not be higher than 15-20 percent in the case of captive traffic.<sup>3</sup>

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<sup>1</sup> Concerning leakage, in the case of one African country, a fuel tax has been instituted because the collection rate was only 60 percent.

<sup>2</sup> José A. Gómez-Ibáñez and John R. Meyer, "The Modern Pioneers: France and Spain," *Going Private: The International Experience with Transport Privatization*, The Brookings Institution, Washington, D.C., 1993, Chapter 8, pp. 107-45.

<sup>3</sup> The World Bank, East Asia and Pacific Region, Country Department I, Infrastructure Operation Division, *Viet Nam Transport Sector: Serving An Economy in Transition*, Report No. 12778-VN. August 8, 1994, p. 56.

137. **Equity Financing.** It is relatively easy to attract domestic capital of both debt and equity for smaller projects, say when the capital cost is less than US\$100 million. Moreover, it is very beneficial for a toll road project to obtain domestic financing to avoid the exchange rate risk between local currency toll revenues and foreign currency debt. However, in many countries, local capital markets are not sufficiently developed to provide the long-term capital required for toll road projects. The current financial crisis in Asia has worsened the situation. Megaprojects present different issues, as shown in the examples.

138. *Malaysia* has been successful in domestic financing of a megaproject. Its North-South Expressway had a total capital cost of US\$3.192 billion, of which US\$755 million was equity (25 percent of the total capital cost) comprised of shareholders' equity and convertible preference shares issued to the contractors, industrial groups, and institutional investors in Malaysia. The project was financed entirely on domestic markets; a generous government support package and the capacity of domestic institutional investors to take large preference share issues played an important role in the successful equity financing of the project.

139. Other examples of megaprojects in the East Asian countries studied were the Second Stage Expressway (SES) in *Thailand* and the Guangzhou-Shenzhen Super Highway in *China*, both of which involved foreign equity and debt financing. Such projects, in order to attract foreign equity, must have a good project structure, good enough to attract foreign commercial bank loans. Although both of these projects later addressed serious problems, the SES structure was backed up by the equity participation of the Asian Development Bank, of major commercial banks in Thailand, and the Royal Property Bureau of Thailand, together with revenue sharing with the First Stage Expressway. The Guangzhou-Shenzhen Super Highway Project secured a firm repayment guarantee of bank loans by GITIC<sup>1</sup> and obtained a government support provision including the acquisition of all necessary land at no cost and commercial development rights at interchanges.

140. Another important issue is the treatment of equity in a contractor-driven project in which the contractor tends to limit the amount of equity, and to sell down its equity as much and as early as possible after the completion of construction. Lenders generally limit such actions in the loan agreement with the concessionaire, but it is always an issue as to how much equity should be injected in the beginning and how long and to what extent the concessionaire should hold it.

141. **Subordinated Loans.** There are two important roles for subordinated loans: (i) to fill the gap between the equity and the senior loans in the original finance structure, and (ii) to provide stand-by financial support in case of revenue shortfalls and cost overruns. They may address the difficulty of procuring equity (due to equity's slowness in recouping investment through dividend payments) by providing a stable cash payment stream with a higher interest rate than senior debts from the beginning years of the project. Because of the subordinate nature of repayment to senior debts, second to the equity injection, government support and sponsors' support in the form of subordinated loans should be more acceptable to the senior debt providers than ordinary loans. This approach, while common, should be applied carefully

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<sup>1</sup> See footnote associated with paragraph 5.27.



since an excessive use of subordinated loans may considerably increase the capital costs and impair the sponsor's commitment to the project.

142. **Senior Commercial Bank Loans and Debt Securities.** Procurement of long-term bank loans for a privately financed toll road projects is a critical issue in developing and transitioning economies. The longest tenure that a toll road project company can obtain in a commercial bank loan in the East Asian countries studied is about five years, which is far too short to recoup the investment, whereas in many developed countries such as the United States and United Kingdom, the tenure of commercial bank loans may extend 15–30 years, i.e., matching the concession period.

143. To address this issue, various measures have been implemented in toll road projects in developing countries. A straightforward, but difficult solution is to have a sufficiently sound contract structure with a hedge mechanism for foreign exchange risk to attract long-term offshore debts. Alternative solutions that have been tried include: (i) long-term loans of government controlled banks, (ii) shareholders loans from an offshore parent company that raises funds on offshore capital markets, (iii) domestic bond issues underwritten by government controlled institutional investors, (iv) credit enhancement with respect to domestic fund raising and direct loans from donor agencies, (v) securitization of existing toll roads, and (vi) credit enhancement through revenue sharing with existing facilities.

144. There are many examples where the approaches set out above have been successfully applied. *Indonesia* used long-term loans of government controlled banks in many of their toll road projects. *China* has used shareholder loans from an offshore parent company that raises funds on offshore capital market, as well as asset securitization of existing toll roads. The North-South Expressway in *Malaysia* and the M1/M15 in *Hungary* adopted domestic bond issues underwritten by government controlled institutional investors. The M1/M15 and M5, the Linha Amarela in *Brazil*, and the Cali-Candelaria-Florida toll road in *Colombia* have adopted credit enhancement of domestic fund raising and direct loans from donor agencies, and credit enhancement through revenue sharing with existing facilities.

145. **Institutional Investors/Infrastructure Investment Funds.** Institutional investors can be a good source of financing for toll road projects since the long-term maturity of their funds matches the duration of a toll road concession. The Employees Provident Fund has invested in *Malaysia's* North-South Expressway and insurance companies in *Hungary* have invested in M1/M15. However, since institutional investors in developing countries are not active in the infrastructure sector in general, foreign institutional investors from developed countries can play an important role in filling the gap. Institutional investors, especially insurance companies and pension funds in the United States, have been actively pursuing investment opportunities in privately financed infrastructure projects in Latin America and Asia. They have invested in toll road projects directly, through various investment funds,<sup>1</sup> and have purchased debt securities such as 144a bonds<sup>2</sup> in private placement.

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<sup>1</sup> E.g., the Asian Infrastructure Fund (AIF), and the Asian Infrastructure Development Company., Ltd. (AIDEC).

<sup>2</sup> This is a kind of global bond that is regulated under [the United States] Securities and Exchange Commission Rule 144a. The procedure for issuance and underwriting was simplified in 1990 and limited only to investors termed "Qualified Institutional Buyers (QIB)," who are professional institutional investors such as insurance companies and pension funds.

146. **Initial Public Offerings (IPOs).** An IPO of a single asset company with a BOT arrangement can be difficult as the duration of future cash flow is limited by the fixed concession period and the enterprise is affected to a great extent by general stock market sentiment at the time of IPO. On the other hand, an IPO based on multiple assets with a portfolio of stable cash-generating toll road projects may become an appropriate solution to fund raising issues in developing countries. *China* has used IPOs, often for multi-asset companies; in many instances both expressway and holding companies listed their shares on the Hong Kong and Shenzhen Stock Exchanges. Examples include: Anhui Expressway (Hong Kong, 11/96), Guangdong A Share (Shenzhen, 1/96), Guangdong B Share (Shenzhen, 8/96), Jiangsu Expressway (Hong Kong, 6/97), Sichuan Expressway (Hong Kong, 10/97), Zhejiang Expressway (Hong Kong, 5/97), Shenzhen Expressway (Hong Kong, 3/97); Holding Companies: Cheung Kong Infrastructure (Hong Kong, 7/96), New World Infrastructure (Hong Kong, 10/95), and Road King Infrastructure (Hong Kong, 6/96).<sup>1</sup> In *Indonesia* Jasa Marga, the public toll road company, planned an IPO but it was postponed due to the Asian financial crisis.

147. **Asset Securitization.** One innovative approach is the leveraging of existing highway assets to raise new funds in capital markets. This approach can be attractive to private investors, since they need assume only limited construction/completion risks and the transactions offer the prospect of high returns. The approach is also attractive to governments, since it permits them to obtain additional financing with relative ease, including for financially less attractive but still economically desirable projects.

148. *China*, the pioneer of this approach, by securitization of existing highway assets, including roads financed with World Bank assistance, has been able to raise large sums of additional capital from foreign investors. Major developments with respect to asset-based capital markets toll highway financing in *China* have included the following:

- (i) the raising of US\$100 million in 1994 by Sichuan Province through the private placement of equity shares in offshore markets to finance the development of the 90 km Chengdu-Mianyang Expressway;
- (ii) an equity offering of B shares on the Shenzhen Stock Exchange by the Guangdong Provincial Expressway Company in 1996;
- (iii) completion of a US\$200 million Eurobond issue by Zhuhai Highway Company Ltd. of Guangdong Province in 1996; and
- (iv) the listing of at least nine China-related highway stocks on the Hong Kong Stock Exchange by 1997, including Cheung Kong Infrastructure and Road King.

149. However, there are some concerns with the asset securitization approach such as the possibility of over-leveraging the asset at the expense of the obligation to repay the original loan. Another problem using the capital markets is that the timing and the volume of fund raising is inherently affected to a great extent by prevailing market sentiment. Investors are

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<sup>1</sup> The share prices of these companies decreased by 30-60 percent from the highest to the lowest prices within the 12-month period starting from January 1997.

very sensitive to the political risk (seen recently in East Asia and the Russian Federation) as well as the features of alternative investment opportunities such as the coupon rate for various bonds, the profitability of stock markets, and ups and downs of real estate markets. Therefore, financing capital-market financing should not be relied upon as a perpetual, stable source of funds.

150. **Portfolio Approach.** The portfolio approach adopted by Road King Infrastructure Limited (RKI)<sup>1</sup> of *Hong Kong* may provide a solution for developing countries where the procurement of foreign debt is difficult and both domestic debt and equity for the financing of the country's toll road development are scarce. RKI leverages the creditworthiness and the track record of their projects in *China*, thereby diversifying its investment portfolio into various regions (high growth centers) and risk profiles, and attaining favorable income distribution and a minimum income undertaking from local partners for most projects.

151. RKI's portfolio approach contains very specific elements such as: (i) its location in the Hong Kong SAR, a quality international financial center; (ii) its parent company's credibility, engineering know-how, and long involvement in the Chinese market; and (iii) its ability to diversify geographically into its existing assets throughout China. RKI's toll road projects in China are financed through a combination of IPO, the cash flow from the existing portfolio, a note issue,<sup>2</sup> and a transferable loan certificate (TLC) issue.<sup>3</sup> At its IPO, the company had interests in ten roads in China, of which eight were in operation and six at different stages of negotiation. The company's interests in these toll road projects were held through wholly owned subsidiaries, which, together with the relevant Chinese joint venture partners, established various cooperative joint venture (CJV) companies for investment in different projects. There are no greenfield toll road projects in the company's portfolio. As of June 1998, its toll road assets were diversified in eight provinces in China, totaling 974.6 km of roads.

152. Road Management Group Limited (RMG) in the United Kingdom has adopted another form of the portfolio approach to toll road development. Two concession companies—Road Management Services (Petersborough) Limited for the A1(M) and Road Management Services (Gloucester) Limited for the A419/A417—entered into DBFO contracts with the Secretary of State for Transport to widen and improve the roads and to operate and maintain them for 30 years. The financing for the two road projects was raised through Road Management Consolidates PLC, a newly created special purpose financing entity, 100 per cent controlled by RMG, which provides funds to the individual RMS companies through back-to-back on-loans. In March 1996, Lehman Brothers and SBC Warburg underwrote a £165 million, 25-year, fixed rate bond issue to partially fund the two projects, and arrange a £111 million, 25-year European Investment Bank (EIB) loan facility to provide the remainder of the required senior debt financing.

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<sup>1</sup> RKI is a subsidiary of a Hong Kong-listed civil construction concern, Wai Kee Holdings, a company with comprehensive interests in civil engineering, building material production and trading, and property and infrastructure investments in Hong Kong and China. Two direct investment funds, AIG Asian Infrastructure Fund and HSBC Private Equity Management Funds, hold major stakes in the company. In April 1998, RKI was joined by Stagecoach, a large transportation company in the United Kingdom, which subscribed for HK\$518 million in convertible preference shares, making it the second-largest shareholder of the company.

<sup>2</sup> Issuance of short-term notes by a company to procure short-term funding based on a mid-term bank loan facility.

<sup>3</sup> A type of certificate issued by an agent bank at the draw down of a bank loan, with which the loan can be transferred to another financial institution.

153. This structure allowed cross application of dividends so each project could support the other. It enabled projected interest coverage levels to be tighter than they would have been otherwise, thus lowering the cost of financing. Combining two different roads diversified the lenders' risks. It eliminated the need for two separate financings, minimized the duplication of documentation and negotiation with financing parties, and created a public bond offering large enough to be liquid and to meet demand at the long end of the sterling bond market. Although the issue here was not the difficulty of fund raising as in the previous example, the approach gives RMG a better risk profile for their business as a whole by having two different DBFO road projects and forms a base for evolving into a large toll road operating company. Distinctive features of the RMG case are as follows:

- first bond offering under the United Kingdom's Private Finance Initiative;
- large magnitude compared to other sterling Eurobond offerings;
- first monoline-guaranteed project finance bond in the United Kingdom;
- bond financing prior to construction;
- acceptance of deferred annuity structure by United Kingdom investors;
- dual project structure with limited cross-collateralization;
- shadow tolls as a basis for project revenue; and
- joint and several guarantees by sponsors with varying credit capacity.

154. Financing the two RMG projects together made sense because it created portfolio diversification and economies of scale. This kind of approach may provide a foundation for a company to grow into a large operating company to perform more pooled financing, and eventually raise funds on its own based on the financial strength of its underlying projects.

155. **Pinpoint Equity with an Indexed Infrastructure Bond Issue.** Pinpoint equity (high debt-to-equity ratio) coupled with inflation-indexed bond issues may be used to relieve investors of the problem of slow returns on their investment through dividends. The issues here are: (i) the need for the investor to flexibly recoup its investment without hindering the opportunity of private financing; (ii) lowering the capital cost to achieve a more affordable toll rate; (iii) the need to provide the investor with incentives that lead to higher returns; and (iv) the need of the investor for liquid investments.

156. This concept was created in *United Kingdom*. The project company of the Second Severn Crossing, Severn PLC, was formed with the minimum allowable equity capital for a private limited company, £100,000, of which the ordinary stock amounted to £50,000 and the preferred shares amounted to £50,000. The debt component comprised £131 million in indexed linked debt, £150 million in European Investment Bank loans, with £150 million in a standby letter of credit, and a £190 million of floating rate bank loan. Although the project company has succeeded in the operation of the existing Severn crossing mitigating the start-up risk of the new project, the equity/debt ratio of the newly constructed portion of the project is only about 0.02 percent.<sup>1</sup> This pinpoint equity approach can free investors from the problem of slow recoupment through dividends and also may lower the cost of capital, in turn lowering the

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<sup>1</sup> Equity/Debt ratio=0.02%=£0.1million/(£131m+£150m+£190m)

required toll rate<sup>1</sup> to facilitate earlier transfer of the bridge back to the Government. In the case of Second Severn Crossing project, this approach was coupled with an RPI-indexed<sup>2</sup> bond issue; the bond was listed so that investors were able to access immediate liquidity in order to address the drawback of the project financing approach of tying up investor's capital over the long term. Although this is a good practice for addressing these issues, it requires a very mature financial market to succeed.

157. **Option Concept.** The option concept is applied in many aspects of toll road financing, e.g., convertible preference shares and bond issues. It has also been used to provide liquidity for shares held by the contractors and the sponsor companies. The option concept is useful in giving flexibility to the financing structure and may broaden the horizon of fund providers for privately financed toll road projects. The North-South Expressway (*Malaysia*) and the M2 motorway (*Australia*) projects involved application of the concept to provide liquidity for shares held by the contractors and the sponsor companies.

158. **Value Capture.** The value capture concept is an approach by which the increase in real estate values created by a transport project, such as a toll road, are "captured" to help pay for the transport infrastructure. The approach is risky, however, because it relies on favorable trends in the real estate market. The concept has been planned or actually applied in a number of contexts, for example, the Guangzhou-Shenzhen Superhighway in *China*, the Hopewell Bangkok Elevated Road and Track System (*Thailand*), and the Malaysia-Singapore Second Crossing (*Malaysia*), with the experience indicating that over-dependence on real estate investment earnings to structure a transport concession is risky given the volatility of real estate markets.

## I. PUBLIC ACCEPTANCE

159. Public acceptance is an important element in successful toll road projects. Sub-issues include: (i) relocation and resettlement; (ii) noise, air pollution, and ecology; (iii) community severance impacts; and (iv) public relations campaigns.

160. **Relocation and Resettlement.** An important issue regarding the public acceptance of toll road development relates to land acquisition and resettlement. Certain countries such as *China* and *Thailand* could benefit from upgraded institutional capacity and compensation to address the resettlement planning issue. Also worth noting here, risks related to land acquisition are best borne by the Government, not the developer, as was the case with the

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<sup>1</sup> Transfer of the bridge is triggered either on the expiration of the concession period or on attaining the targeted amount of revenue from the project.

<sup>2</sup> The bond issue has been indexed to a Retail Price Index of a specified company; the coupon rate was 6 percent per annum.

Guangzhou-Shenzhen Superhighway Project in China. There is a suggestion in the literature that the central government in *France* may have considered private concessions for *autoroutes* (i.e., toll expressways) in urban areas due to the belief that private companies may be better able to resist or moderate the “unreasonable” demands of community or environmental groups, as they would not be seen as having the mixed companies’ (SEMCA’s) extensive financial resources nor the implicit backing of the State. However, the experience with private sector development of *autoroutes* in urban areas does not indicate any reduction in local pressures for costly mitigation measures.

161. **Noise, Air Pollution, and Ecology.** Mitigation of the adverse environmental impacts of toll roads must be an integral part of the planning process. In the case of the M3 toll road in *Hungary*, public hearings were not held to discuss alternatives, in contravention of European Union directives. The Environmental Impact Assessment for the M3 project has also been criticized, for not considering (i) the impact of the road on increased traffic inside Budapest, (ii) increased traffic in residential areas along alternative routes, and (iii) impacts on animal habitats.

162. **Community Severance Impacts.** With the recent opening of a toll road in *Malaysia* that cut through a heavily residential area, there were numerous reports and complaints of communities being disconnected and severed. Access needs for both pedestrian and local vehicular traffic were given low priority and severely impaired in some instances. It has been recognized that there is often a disparity between the access needs of the roadside communities and the needs of the generally longer-distance through traffic when it comes to the design of express highways. As most highway privatization projects have based their economic and financial viability on their ability to increase the speed and lower the journey time of commuting motorists, their emphasis has generally been on ensuring “uninterrupted flow” for through traffic and less so on the conflicting needs of neighboring residents for access and community interaction. The experience in *Malaysia* appears to confirm this imbalance in needs and a bias in favor of through traffic in the highway designs advanced by the concessionaires.

163. **Public Relations Campaigns.** Effective public relations can foster public acceptance of well-conceived toll road projects. As witnessed with respect to the Birmingham Northern Relief Road (BNRR) and other projects in the *United Kingdom*, environmental and community issues must be addressed from the start. This process may involve issues that are most appropriately addressed between the government and its citizens, well before the private sector is introduced. The process often involves achieving consensus on long-range goals and plans for the community—including the overall role of highways in the future transportation and land development plan most desired by local residents. However, the timing for the release of project information to the private sector should be carefully managed, as BNRR has been stalled for several years because of resistance from resident groups related to environmental issues.

164. The high levels of usage of the concessioned toll roads in *Argentina* were reportedly partly a consequence of a successful promotional campaign aimed at overcoming public resistance to tolling by stressing the limited availability of government monies to carry out proper maintenance on a continuous basis. Public relations can aid implementation of toll road programs, but the programs themselves must be well-crafted if they are to be successfully

“sold” to a Skeptical public.<sup>1</sup> In the *Philippines*, public acceptance—of both the highway and its tolls—has been a major issue for all of the toll road operators and investors. Since tolls on the North Luzon and South Luzon Expressways tolls had been so low for so long, Manila area motorists did not have much familiarity paying market-rate tolls. Consequently, the Citra Metro Manila Tollways Corporation (CMMTC) initiated public awareness campaigns in their various highway corridors using print, broadcast, and outdoor media. CMMTC executives are confident that their target market has higher incomes and is aware of the value of their time stuck in traffic.

165. On the other hand, *Hungary* is a case where public relations has been difficult. Issues that were inadequately addressed include public perceptions relating to (i) the relationship between toll levels and local standards and ability to pay; (ii) the perceived “unfairness” of charging tolls on formerly non-tolled facilities, improvements notwithstanding; (iii) the impact of diversions to non-tolled local roads; and (iv) profits earned by investors.

## J. ROLE OF DONOR AGENCIES

166. Aid agencies can address a variety of the financing, institutional, and regulatory issues of toll road development through: (i) long-term loans, (ii) interim financing, (iii) credit enhancement with respect to political risks, (iv) the arrangement of finance, (v) the provision of guarantees, and (vi) technical assistance and human resource development.

167. **Long-Term Loans.** One way in which donor agencies can provide assistance for toll road development is in providing long-term financing. In many developing and transitioning economies, even ones that have large capital markets, it is difficult for domestic capital to cover the costs of needed infrastructure projects mainly because of the lack of long-term financing tools.

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<sup>1</sup> By 1994, 87 percent of the Argentine population had a positive view of the toll road program. Charles L. Wright and Daniel J. Freire Coloma, “Toll-Road Partnerships: What Works, What Doesn’t, and Why?,” *Transportation Quarterly*, Vol. 51, No. 4, Fall 1997, p. 92.

168. The Inter-American Development Bank (IDB) provided long-term loans to *Brazil* and *Colombia*. The National Economic and Social Development Bank (*BNDES*) is the sole provider of long-term financing in *Brazil*, with financing typically for ten years at the Brazilian Long-Term Interest Rate plus a spread of 3-4 percent. Access to long-term international project finance debt may be enhanced by the involvement of a multilateral institution in a project as loans under the umbrella of institutions such as the International Finance Corporation (IFC), regional development banks, or the Export-Import Bank of Japan, are exempt from Bank of International Settlements provisioning requirements and carry less sovereign risk. IDB's participation encouraged the participation of an international commercial bank in the first greenfield toll road project in *Brazil*, Linha Amarela (the Yellow Line Highway), which reached financial closure in 1996; IDB contributed a US\$14 million, 10-year loan at LIBOR<sup>1</sup> plus 375 basis points to this project. IDB also played a critical financial role in the Cali-Candelaria-Florida toll road project in *Colombia*, where long-term financing is very limited and expensive; IDB provided a 10-year loan of US\$10 million, at LIBOR plus 325 basis points and helped mobilize local long-term financing at reasonable cost.

169. **Interim Financing.** Donor agencies can also provide interim financing. *The* European Bank for Reconstruction and Development (EBRD) supported the Budapest Orbital Motorway Project (MO) with two billion Hungarian forint (US\$27 million at the time) in interim financing for the country's Road Fund, which freed up monies for the M1/M15 motorway when preparatory work on the M1/M15 project, an important pilot project in EBRD's view, was stalled due to a lack of reserves in the Fund.

170. **Credit Enhancement with respect to Political Risks.** Donor agencies provide various measures of credit enhancement with respect to political risks, including political risk insurance, Export Credit Agency (ECA) cofinancing and guarantees, and Partial Credit and Risk Guarantees. In *Colombia*, Partial Risk Guarantees (PRG) provided by the World Bank were an option given to bidders that would protect project lenders or bond holders against debt service default due to the Government's inability to meet its payment obligations as a result of the Ministry of Transport not authorizing toll adjustments agreed in the concession contract, political force majeure, or changes in the law adversely affecting the project's ability to service its debt and leading to default; although the successful bidder declined the Bank's PRG in its bid, the offering of PRG assured increased competition with its attendant benefits for the Government.

171. **Arranger of Finance.** A donor agency can play the role of financial arranger. The financing package for the M1/M15 motorway project in *Hungary* was co-arranged by EBRD and Banque Nationale de Paris in December 1993. The syndication loan for the M5 toll motorway project was also arranged by EBRD, Commerzbank, and ING Bank. In the case of the M1/M15, the EBRD issued 5- and 12-year bonds and provided a full guarantee of the bonds launched by the project sponsor.

172. **Provision of Guarantees.** Another role of donor agencies to guarantee loans. For example, for the M5 motorway in *Hungary*, the EBRD offered guarantees to participating banks for the final repayment of their loans.

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<sup>1</sup> London Inter-Bank Offered Rate.



173. **Technical Assistance and Human Resource Development.** Donor agencies, particularly the World Bank, can add value by providing expertise and contributing to training in various areas related to toll road development. For example, the Bank is now actively assisting *China* in the development of a policy framework conducive to attracting private capital for new toll roads; the new BOT framework is to be put forward as a provisional decree on infrastructure projects with private investment, with approval from the State Council pending. The State Development Planning Commission has designated five pilot infrastructure projects to implement the new BOT policy framework, including the Wuhan Junshan Yangtze River Bridge in Hubei Province and a toll expressway in Guangdong Province. The World Bank provided grant funds to conduct a commercial feasibility study of the Yangtze River Bridge, with the aim of enhancing the bankability of the project by the private sector. The World Bank is also funding studies to assess the development of public toll road authorities in Hunan and Hubei Provinces, which would give the provinces the capacity to manage large expressway systems, supplementing the planning, financing, and construction of highways by provincial communications departments.

174. Support for master planning, feasibility studies, and concession contract have been provided as part of technical assistance. Japan International Cooperation Agency (JICA) supported the preparation of highway network master plans in *Malaysia, Thailand, and the Philippines*. *Chile* utilized World Bank support for feasibility studies and the preparation of basic engineering for projects identified by the Ministry of Public Works as candidates for concessions as well as consultant services for the review of the regulatory framework. EBRD was instrumental in improving the drafting of certain parts of the concession contract in *Hungary* (e.g., relating to force majeure and consequences of government action affecting operation). The United States Agency for International Development (USAID) assisted in the establishment of a BOT Center in the *Philippines*, with the responsibilities of information dissemination, training, and provision of assistance for the drafting of bid documents and conducting the bidding; the Center provides technical assistance to various government agencies involved with private sector participation, but has no regulatory role or real power outside that of suggestion.

# 1

## Argentina: Toll Concessions for Maintenance, Rehabilitation, and Construction

### A. Country Background

1.1 Argentina's economic progress has been marked over the last 10 years, with the initiation of regulatory reforms and privatization programs in 1989 and the so-called Convertibility Plan in 1991. GDP increased at an equivalent average annual rate of 8.9 percent between 1990 and 1994, decreased by 4.6 percent during 1995 (the year of the Mexican currency crisis), and then recovered with 4.8 percent annual growth in 1996 and 8.6 percent annual growth in 1997. The consumer price index increased by 10.4 percent from 1991-95, but fell to 0.2 percent in 1996 and 0.5 percent in 1997.

1.2 In the road sector, the private sector has been increasingly involved in road construction, reconstruction, and maintenance, resulting in better roads and a shifting of the financial burden from the public sector to the user through tolling.

### B. Major Toll Road Developments

1.3 Argentina's toll road concession program began when the government concessioned about one-third of the intercity road system to private operators, with a series of concessions awarded in early 1990. A second wave of concessions was initiated in 1992, mainly involving access roads to Buenos Aires to date. Both phases of the Argentine toll road concession program are described in more detail in the following sections, along with some brief discussion of the latest highway development proposal in the country.

1.4 **First Phase of Toll Road Concessions.** In early 1990, in the first phase of its road concession program, 12-year concessions for 9,579.5 km of the country's 28,000 km intercity system were awarded to private firms, mainly domestic construction companies. The most important selection criterion was the highest fee (or *cañon*) paid to the government, but many other criteria were also used (e.g., lowest toll, highest quality, largest investment). The right to collect tolls was granted in return for the duty to carry out a program of maintenance, rehabilitation, and capacity improvements. For all concessions, tolls were set based on a uniform value per kilometer by class of vehicle; toll levels were updated using a formula giving about equal weight to the consumer price index, the wholesale price index, and the value of the United States dollar. The basic tolls for cars was about US\$1.50 per 100 km. The government did not provide revenue guarantees to the concessionaires, but neither did it benefit from upside potential. Performance indicators with respect to operational, maintenance, and investment levels were built into the concession contracts; an index of road servicability was used to set targets for maintenance performance.

1.5 In February 1991, after only five months of operation, the Argentine government suspended the concession contracts and (bilaterally) renegotiated them. This decision was taken for a number of reasons: (i) complaints from users that tolls were being collected before improvements; (ii) the voiding of contract escalation clauses by the Convertibility Law of 1991, which established a fixed peso-United States dollar exchange rate, voided contract escalation clauses; and (iii) the location of toll booths, which tended to create “captive” trips.<sup>1</sup> The renegotiations led to: (i) a 50 percent reduction in tolls (i.e., rolling back the increase due to indexation), (ii) waiving of the *cañon* or lease fee paid to the government, and (iii) provision of US\$57 million equivalent in subsidies to cover the concessionaires’ VAT contributions, in essence a shadow toll as the payments were directly related to traffic volumes.

1.6 Road use on the intercity roads concessioned in the first-phase program more than quadrupled from 1991 to 1996, with toll revenues increasing from US\$60 million to US\$258 million during the period. However, traffic and revenues have been reportedly flat since the “Tequila effect” (Mexican crisis) recession began in early 1995. Maintenance of the intercity highway system has improved significantly, with 92 percent of the publicly administered roads now in good condition; also, the call on government budgets has decreased, although subsidies have increased (from US\$23 million to US\$65 million in 1996) because of political pressures against raising toll levels. On the other hand, investment is behind schedule, a consequence of the renegotiations, and there is no evidence comparing private sector road maintenance performance with that of the public sector.

1.7 **Second Phase of Toll Road Concessions.** Drawing upon the lessons of the first-phase program, the Argentine government initiated a second wave of toll road concessions in 1992, with concessions for 22 years and eight months for improvement and new construction of three strategic highways radiating from the national capital<sup>2</sup> and a concession agreement (without tolls) with a company that had been constructing a road under public contract. One change in approach compared to the initial phase was the longer concession period, which, arguably, provides a more reasonable period for concessionaires to recover costs and earn a fair return. Also, concession terms and bidding criteria were simplified. One bidding criterion, lowest toll, was used, an approach that provides transparency in the bidding process. A comprehensive contract was provided, which among other provisions, assigned the concessionaire responsibility for risks related to land expropriation and required it to build untolled collector streets. Also, the concessionaire must carry out specific works before charging tolls, and other works must be executed during the concession. The concessionaire

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<sup>1</sup> The lack of access alternatives resulting from the spacing of toll booths close together or near urban centers tended to create captive trips.

<sup>2</sup> Acceso Norte (Northern Access), 118.3 km, US\$495 million, estimated traffic of 250,000 vehicles per day; Acceso Ricchieri (Ezeiza-Ricchieri Access), 57.3 km, US\$158 million, estimated traffic of 100,000 vehicles per day; and Acceso Oeste (Western Access), 55.9 km, US\$215.0 million, and estimated traffic of 90,000 vehicles per day. Kennedy School of Government Case Program [Professor José Gómez-Ibañez, Harvard University], *Privatizing Transport in Argentina*, CR1-96-1363.0, 1997, Exhibit 7, p. 17. The International Finance Corporation (IFC) had been involved in the Acceso Ricchieri, but was taken out at the last minute by a local lender, although it was paid a fee for its due diligence work.

may obtain revenues not only from tolls, but also from the commercial exploitation of service areas as authorized by the *Organo de Control de Concesiones*, the regulator.<sup>3</sup>

1.8 Certain projects originally conceived in the second wave of concessions have been stalled, however. For example, the largest, the US\$1.0 billion Colonia Bridge Project, involving a 41.5 km bridge crossing the Rio del la Plata (River Plate) estuary between Argentina and Uruguay and 12 km of connecting roads, has faced opposition from critics pointing to adverse navigation and environmental impacts. For this complicated concession project to proceed, Argentina and Uruguay would need to sign a treaty empowering a joint commission with the legal autonomy to hold a negotiated competition for the BOT concession and sign and enforce long-term projects.

1.9 Provincial roads generally do not offer the traffic potential to attract private financing, although there have been a few exceptions. For example, in recent years the Province of Santa Fe granted a concession to toll, maintain, and improve an intercity expressway, and concession contracts for access roads in Córdoba and Menndoza have proceeded.

1.10 **Latest Development: *Proyecto 10*.** In March 1998 the Menem administration submitted a proposal to the Argentine Congress for the development of a new 10,000 km national highway network over 20 years at an estimated cost of US\$10 billion. *Proyecto 10*, as the proposal is called, would be financed by a new fuel tax, which would substitute for the current toll system.

### C. Major Toll Road Issues and Implications for Best Practices

1.11 The Argentine toll road experience raises a number of major issues with respect to the development of toll roads, particularly via concessions, with important implications for best practices, in Argentina and elsewhere. These issues include:

- the benefits of simple and transparent bidding criteria;
- the benefits of specifying the rules for contract renegotiations;
- the need for sufficiently long concession periods;
- the benefits of public relations campaigns;
- the need for a well-defined legal and regulatory regime; and
- the importance of institutions.

Each is addressed below.

1.12 **Benefits of Simple and Transparent Bidding Criteria.** The Argentine experience demonstrates the benefits of simplified, transparent bidding procedures. While during the first phase of toll road concessions, bidders had to satisfy a large number of technical and financial criteria, a single criterion—lowest toll offered— was used in the second phase, providing transparency and avoiding the difficulty of trading off many disparate factors.

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<sup>3</sup> The improvement of the roads radiating from Buenos Aires has stimulated housing and commercial development in the suburbs.

**1.13 Benefits of Specifying Rules for Contract Renegotiations.** To the extent possible, it is better to specify the rules governing contract renegotiations. In Argentina, this was not done until 1995, when the conditions under which changes in concession contracts may be allowed were set out clearly and in a manner recognizing that the concessionaire's financial rate of return should not be reduced due to factors beyond its control. While the concession contracts had to be renegotiated bilaterally during the first phase (i.e., before enactment in 1995 of the rules governing contract renegotiations), terms of renegotiations are now set in guidelines of general application.

**1.14 Need for Sufficiently Long Concession Periods.** Toll road operators require a reasonable time period to generate sufficient revenues to recoup their investment and earn some return. In Argentina, where mainly existing roads were concessioned in the first phase but some greenfield projects were included in the second phase, the concession period was increased from 12 years in the (first phase) to 22 years and eight months (the second phase).

**1.15 Benefits of Public Relations Campaigns.** The high levels of usage of the concessioned toll roads in Argentina were reportedly partly a consequence of a successful promotional campaign aimed at overcoming public resistance to tolling by stressing the limited availability of government monies to carry out proper maintenance on a continuous basis. Public relations can aid implementation of toll road programs, but the programs themselves must be well-crafted if they are to be successfully "sold" to a doubting public.<sup>4</sup>

**1.16 Need for a Well-Defined Legal and Regulatory Regime.** The Argentine case demonstrates the need for well-defined laws and regulations covering bidding documents, administration and enforcement of concession contracts, and pricing mechanisms. In Argentina, such detailed regulations already existed in other sectors (e.g., power, telecommunications, water), but were lacking in transport until they were developed in the mid-1990s. What is important is that there be a legal and regulatory regime in place, one that is well-drafted and covers basic concerns.<sup>5</sup>

**1.17 Importance of Institutions.** The experience in Argentina also shows the importance of institution building. The Dirección Nacional de Vialidad (DNV), which is now the planning and coordination agency for national roads, lacks sufficient capacity to adequately supervise the concessionaires. The Secretariat of Public Works, the responsible agency for access roads, reportedly suffers from a similar deficiency.

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<sup>4</sup> By 1994, 87 percent of the Argentine population had a positive view of the toll road program. Charles L. Wright and Daniel J. Freire Coloma, "Toll-Road Partnerships: What Works, What Doesn't, and Why?," *Transportation Quarterly*, Vol. 51, No. 4, Fall 1997, p. 92.

<sup>5</sup> If these criteria are met, a law of general application may be preferred, to ensure equal treatment of concession holders in various sectors, to allow for learning from the related experience of other sectors, and to conserve scarce legislative energy. John D. Crothers [Gide Loyrette Nouel], "Project Financing of Toll Motorways in Central and Eastern Europe: A Signpost for Transition," *Law in Transition* [an EBRD newsletter on legal cooperation and training], p. 7.

#### D. Sources

*The Toll Road Program in Argentina: Road Sector Development Within a Maturing Domestic Capital Market*, Draft Country Paper prepared by The World Bank, Private Sector Department, 1997.

*Toll Road Program in Argentina: A Policy and Financial Review*, Draft Country Paper prepared by The World Bank, Private Sector Department, 1997.

Antonio Estache and José Carbajo, “Designing Toll Road Concessions—Lessons from Argentina,” *Public Policy for the Private Sector*, The World Bank, Private Sector Development Department, Note No. 99, December 1996.

The World Bank, *Argentina – Transport Privatization and Regulation*, Report No. 14469, 1996.

Kennedy School of Government Case Program [Professor José Gómez-Ibañez, Harvard University], *Privatizing Transport in Argentina*, CR1-96-1363.0, 1997.

*IFC To Finance Private Toll Roads in Argentina*, IFC Press Release, April 17, 1975.

Inter-American Development Bank, *Environmental and Social Impact Brief, Access Roads Network to Cordoba City*, April 9, 1998.

“Argies Pan Uruguay Span” [sic], *Transport Finance No. 115*, June 12, 1998, p. 21.

Various articles from *PWFinancing*, “IFC Trumped on Rio Road,” May 1997, p. 13; “Buenos Aires-Colonia Bridge,” June/July 1995, p. 10; “IFC Finances Argentine Developer,” January 1995, p. 12; “Argentine Toll Concessions,” December 1993, p. 27.

Charles L. Wright and Daniel J. Freire Coloma, “Toll-Road Partnerships: What Works, What Doesn’t, and Why?,” *Transportation Quarterly*, Vol. 51, No. 4, Fall 1997, pp. 85-101.

The Economist Intelligence Unit, *Country Report: Argentina*, 3<sup>rd</sup> Quarter 1998, 1998.

The Economist Intelligence Unit, *Country Report: Argentina*, 2<sup>nd</sup> Quarter 1998, 1998.

The Economist Intelligence Unit, *Country Profile: Argentina, 1997-98*, 1997.

## 2

### **Brazil: Infrastructure Priorities Uncertain in Wake of Economic Crisis**

#### **E. Country Background**

2.1 Brazil is South America's leading nation in terms of land area, population, and economic activity. After a deep recession in the early 1990s, domestic reforms put in place in 1993 and 1994 ushered in an economic recovery leading to an equivalent average annual economic growth of 3.9 percent from 1994 to 1997. Central to these reforms was President Fernando Henrique Cardoso's "Real Plan" of 1994, which loosely pegged the value of the Brazilian currency, the real, to the United States dollar as a means to suppress inflation by controlling the money supply. In response, the value of the real remained relatively stable, decreasing slowly from 0.9 to 1.2 reals per dollar between 1994 and 1998. Direct foreign investment soared from US\$2 billion at the Real Plan's inception to US\$36 billion in 1998. The strategy was also extremely successful at reducing consumer price inflation, which dropped from nearly 1,900 percent in 1993 and 2,500 percent in 1994, to just 6.4 percent in 1997 and less than one percent in 1998. In spite of these achievements, Brazil's economy was stagnant for most of 1997 and 1998, with unemployment at near-record levels, exports falling, and the trade deficit up sharply. Early in 1999, the nation's troubles precipitated what some have feared may be an "Asian-style" collapse that could weaken economies throughout the region, including that of the United States.

2.2 A preemptive US\$41.3 billion international bailout of Brazil in late 1998 failed to effect economic reforms, a situation which fueled fears that the country would not be able to meet its international debt payments and touched off a speculative run on the Brazilian currency. In mid-January 1999, the Government abandoned the Real Plan of 1994 by deciding to allow the currency to trade freely against the dollar.<sup>6</sup> The currency promptly lost more than 35 percent of its value, falling from 1.2 reals per dollar in early January to around 1.9 in mid-February, while short-term interest rates soared to about 40 percent. By late April, however, Brazil's situation was looking more stable, as the real's value had bounced back to about 1.7 to the dollar, while interest rates had eased back to less than 34 percent. Nevertheless, the country's GDP is still predicted to decline by six to eight percent for 1999.

2.3 Prior to the monetary crisis of 1999, demand for new infrastructure investments in Brazil was projected to be about three percent of GDP for the next few years, or on the order of US\$15 billion each year. A significant share of this amount was expected to be required for highways, since nearly 60 percent of freight is transported by road.<sup>7</sup> However, even before the crisis, the Government faced inadequate funds for infrastructure development and

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<sup>6</sup> In an unsuccessful effort to maintain the value of the real, Brazil's foreign reserves, which must also be used to pay foreign debt, had dwindled from \$75 billion to \$30 billion in the last five months of 1998 and the first few weeks of 1999.

<sup>7</sup> New rail and waterway links have also been proposed along with an ambitious program of railway privatization.

competing demands from social and other economic sectors, leading it to turn increasingly to the private sector to meet its infrastructure needs.

## F. Major Toll Road Developments

2.4 Since the early 1990s, major toll road programs have been implemented at both the Federal and State levels in Brazil. Each are described below.

2.5 **Federal Program.** The Brazilian central government began its Federal Road Concession Program<sup>8</sup> in 1993 under Ministerial Act No. 10/93. The program was initiated by a working group of the Ministry of Transportation (MOT), the Executive Group for the Integration of Transportation Politics (GEIPOT), and the National Department of Roads (DNER). This group conducted a study of all 52,000 km of paved highways in Brazil, in order to determine which were most suitable for operation by the private sector and to establish procedures for soliciting concessions for about 13,000 km of privately developed and managed roads. Program principles were developed and a Proclamation for solicitation of the first five highway concessions was issued. Table 1 summarizes the first-phase concession projects, the largest of which was for the President Dutra Highway linking Rio de Janeiro and São Paulo. These five roads totaled more than 850 km in length and required an expected investment of US\$1.1 billion by the private sector.

**Table 2-1 The Five First-Phase Projects (Federal Program)**

Road Segment	Length (km)	Date of contract signature	Term of concession (years)	Tariff / km (US cents) at opening	Estimated investment (US \$ mn)	Estimated Traffic (AADT)
Rio Niterói Bridge	13.2	29 Dec 94	20	5.7	70	100,000
Rio de Janeiro – Petrópolis – Juiz de Fora	179.7	31 Oct 95	25	3.2	150	15,000
Rio de Janeiro – São Paulo (Dutra)	406.6	31 Oct 95	25	2.4	720	30,000
Rio de Janeiro – Petrópolis – Além Paraíba	144.4	22 Nov 95	25	n/a	150	9,000
Osório – Porto Alegre	112.3	4 Mar 97	20	2.3	20	12,000
Total or Average	856.4		23	3.4	1,110	33,200

Source: “Brazilian Toll Road Programme,” *Proceedings of the 1995 Annual Meeting & Exhibition – IBBTA*, International Bridge, Tunnel, and Turnpike Association, September 16-20, 1995, New York, p. 72.

2.6 Key features of the *Presidente Dutra* Toll Road Concession, which is representative of all of the first-phase projects, include the following:

- the concession was awarded to the bidder presenting the lowest toll;
- the financing structure is 32 percent from equity and 68 percent from debt, the latter consisting of 45 percent from the National Economic and Social Development Bank (*BNDES*), 10 percent as suppliers’ credit, and 13 percent from the International Finance Corporation (IFC) and foreign banks;

<sup>8</sup> PROCROFE is the Portuguese acronym for the program.



- the concession contract spells out in detail the construction and maintenance work to be undertaken by the concessionaire, and daily fines are imposed if the specified timetable is not achieved;
- the concessionaire is authorized to start collecting tolls after the initial work is completed, about 4-6 months after award of the concession;
- the concessionaire assumes the traffic risks but has a right to have toll levels reviewed if costs change significantly;
- traffic along the route is mainly centered on urban areas, rather than long distance, with volumes around 25,000-30,000 in the State of São Paulo and 15,000-20,000 in the State of Rio de Janeiro, and in the range of 80,000-150,000 close to the cities of São Paulo and Rio de Janeiro;
- the same basic toll is charged at each of the four toll plazas along the route; and
- the concessionaire is granted the right to collect ancillary revenues, primarily from commercial developments related to the concession (e.g., service stations).

2.7 In May 1996 the Directorate of Road Concessions (DNER) was created to oversee future toll roads and to manage the ongoing concessions. DNER subsequently identified 34 new routes suitable for toll road concessions, totaling more than 10,300 km in length. In 1997, Law No. 9.277 authorized the delegation of federal highway responsibilities to the states, subject to their commitment to developing suitable concession programs in keeping with the national initiative. With this law, the toll road initiative was extended to 15,493.8 km in length, 856.4 km of which have already been granted by the federal government, and the remainder of which are to be split, 7,096.3 km to the federal DNER and 7,541.1 km to the state governments. The second phase of Federal Highway concessions will see the further development of nearly 5,000 km of 13 toll roads in 12 states. While these highways were initially scheduled for bidding in 1998, the recession and monetary crisis has made it necessary to restructure the terms of the bid documents. It is now intended for the bids to be awarded later in 1999.

**2.8 State Programs.** As explained above, a number of Brazilian states are also implementing toll road concession programs. The most ambitious program is being advanced by São Paulo, with the intent of ultimately concessioning over 5,000 km of roads in São Paulo State. Details on the initial projects of the largest state-sponsored toll road concession program are set out in Table 2.<sup>9</sup>

2.9 The Anhanguera-Bandeirantes road, the first concession awarded to the private sector in São Paulo State, was already tolled and the award was made to the bidder promising to pay the State Government the highest concession fee expressed as a percentage of the lifetime revenue stream.<sup>10</sup> State regulations fix toll levels, at least initially, at US\$0.04 per km for passenger cars and US\$0.04 per km per axle for trucks.

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<sup>9</sup> The Inter-American Development Bank is also now undertaking due diligence review and appraisal of a loan for the Castello-Raposo Toll Road, a US\$500 million project to construct, rehabilitate, upgrade, operate, and maintain a 160 km highway.

<sup>10</sup> Bids are generally expected to approach 10 percent of the value of the projected lifetime revenues.

**Table 2-2 Details of the Initial São Paulo State Projects**

Road	Length (km)	Term of concession (years)	Tariff / km (US cents)	Total Investment (US \$ mn)	Traffic (AADT)
Anhanguera/Bandeirantes (São Paulo – Campinas)	551	20	3.6	400	100,000
Anchieta / Imigrantes (São Paulo – Santos)	140	20	3.6	500	200,000
Castelo Branco (São Paulo)	310	20	3.2	140	180,000
Raposo Tavares	162	20	N/A	107	30,000
Total/Average	1,163	20	3.5	1,147	127,500

Source: “Brazilian Toll Road Programme,” *Proceedings of the 1995 Annual Meeting & Exhibition – IBBTA*, International Bridge, Tunnel, and Turnpike Association, September 16-20, 1995, New York, p. 72.

2.10 The state concessions often combine one or more profitable toll road routes with some unprofitable or even untolled facilities. Other Brazilian states with their own toll road concession programs include:

- *Santa Catarina*, with four state roads awarded in its first concession;
- *Rio de Janeiro*, including the 15-km Yellow Line beltway financed in part with a US\$14 million loan from the Inter-American Development Bank;
- *Rio Grande do Sul*, featuring an extensive program; and
- *Minas Gerais*, with plans to concession seven corridors.

### G. Major Toll Road Issues and Implications for Best Practices

2.11 The Brazilian toll road experience raises a number of major issues with respect to the development of toll roads, with important implications for best practices, in Brazil and elsewhere. These issues include:

- the role of multilateral development banks, particularly in providing long-term financing;
- the use of cross-subsidies to fund unprofitable roads or road segments;
- the use of relatively low toll rates to foster public acceptance; and
- early effects of the economic crisis.

Each is addressed below.

2.12 **Role of Multilateral and Bilateral Development Banks, Particularly in Providing Long-Term Financing.** Although the Brazilian capital market is large, the lack of long-term financing tools makes it difficult for domestic capital to cover infrastructure projects. The National Economic and Social Development Bank (BNDES) is the sole provider of long-term finance in Brazil, with finance typically for ten years at the Brazilian Long-Term Interest Rate plus a spread of 3-4 percent. Access to long-term international project finance debt may be enhanced by the involvement of a multilateral institution in a project as loans under the umbrella of institutions such as the International Finance Corporation (IFC), the Inter-American Development Bank, or the Export-Import Bank of Japan, are exempt from Bank of International Settlement provisioning requirements and carry less sovereign risk.

**2.13 Use of Cross-Subsidies To Fund Unprofitable Roads or Road Segments.** A principal innovative practice employed in Brazilian toll road development is the use of cross-subsidies, whereby the operating profits of a heavily traveled toll route are used to cover losses incurred by less-traveled (or untolled) links in the highway network. As noted, certain state concessions include one or more profitable toll roads along with some unprofitable or untolled facilities. Cross-subsidies are also employed on individual toll roads, as in the case of the *Dutra*, on which long-distance traffic pays tolls while in some local areas motorists may enter and exit without charge.

**2.14 Use of Relatively Low Toll Rates To Foster Public Acceptance.** Brazilian tolls have been kept at relatively low levels by worldwide standards, usually about US\$0.04 per km. This has helped to promote both public acceptance of the overall program and use of the roads. It is in marked contrast with Mexico for example, a country of comparable GDP per capita, but where the tolls have been in the US\$0.12-0.50 range, and usage has been much lower than expected.

**2.15 Early Effects of the Economic Crisis.** The January 1999 devaluation of the real, combined with the increasingly depressed Brazilian economy, is likely to delay the ambitious toll road development schedule proposed by the Federal and State governments. It is anticipated that the continued financing of the projects currently under development will be increasingly difficult due to the weakened value of the real, the currency in which revenues will be earned. Now that federal deficit is equivalent to about 8 percent of the GNP, federal lending for infrastructure may also be less reliable. In fact, BNDES is expected to be hard-pressed to increase its lending volumes or reduce interest rates much further. Nevertheless, its lending budget for 1999 has grown to US\$20 billion, up US\$3 billion from last year, and the bank intends to invest more than 30 percent of this amount in infrastructure.

**2.16** The concession terms and regulations for toll road projects are also expected to change as a result of the economic situation. The government is expected to shift the criteria for the award of concessions away from the lowest toll criterion, and towards the highest fee to be paid up front. It is also expected to approve concession terms that allow for increased foreign participation, both in terms of financing and operations, as well as granting permission for increased tariffs from the levels recommended in the original bidding documents.

## H. Sources

Ministério dos Transportes, *Programa de Concessão de Rodovias Federais* (Resumo) [in Portuguese], Brasilia, June 1, 1998.

Paulo Celso De Chiara, "The Complexities of Concession Contracts in Brazil," 1997 Annual Meeting & Exhibition—IBBTA, International Bridge, Tunnel and Turnpike Association, October 11-15, 1997, Denver, pp., 15-43.

Charles L. Wright and Daniel J. Freire Coloma, "Toll-Road Partnerships: What Works, What Doesn't, and Why?," *Transportation Quarterly*, Vol. 51, No. 4, Fall 1997, pp. 85-101.

The World Bank, Country Department I, Latin America and the Caribbean Region, Jeff Ruster, *Economic Notes: Finance Options for Infrastructure Development*, June 1997.

“Brazilian Toll Road Programme,” *Proceedings of the 1995 Annual Meeting & Exhibition – IBBTA*, International Bridge, Tunnel, and Turnpike Association, September 16-20, 1995, New York, pp. 69-80.

Various articles in *PWFinancing*: “Brazil’s Devaluation, Spending Cuts Threaten Concessions,” January 1999, p. 24; “Brazil offers 13 Highway Concessions,” November 1998, p. 22; “IDB Eyes Brazil’s Castello-Raposo Toll Road,” September 1998, p. 17; “Minas Gerais Road Concessions,” September 1998, p. 17; “Via Dutra Toll Road Financed,” September 1997, p. 20; “Sao Paulo Infrastructure,” September 1996, pp. 12-14; “IADB Loan for Rio Toll Road,” February 1996, pp. 10-11.

Inter-American Development Bank, “IDB Signs First Loan for Private Sector in Brazil,” July 18, 1996.

International Finance Corporation, *Brazil-Concessionaria Da Rodovia Presidented Dutra, Project Document*, July 25, 1996.

Larry Rother, “Brazil’s Once-Jittery Economy Is Getting Under Self-Control,” *The New York Times*, 23 April 1999.

The Economist Intelligence Unit, *Country Report: Brazil*, 2nd Quarter 1998, 1998.

The Economist Intelligence Unit, *Country Profile: Brazil, 1997-98*, 1997.

# 3

## Chile: Mobilization of the Private Sector for Modernization of the Road Sector

### I. Country Background

3.1 Chile's GDP increased at an equivalent average annual rate of about six percent over the last 15 years, with year-on-year growth of 7.1 percent in 1997. The consumer price index has decreased gradually since 1990, with the inflation rate falling to 6.6 percent in 1996 and 6.1 percent in 1997. With sharply rising demand for road infrastructure as a result of increased economic activity, in 1991 the Government of Chile enacted a law allowing for the award of concessions for the construction, maintenance, and operation of toll roads, tunnels, and related infrastructure under a BOT scheme. The experience to date with this program is summarized in this paper based on the available literature.

### J. Major Toll Road Developments

3.2 Since the early 1990s Chile has been actively engaged in concessioning road infrastructure projects to the private sector, with *indicative* projects listed in Table 1. Building on this experience, the Government of Chile plans to put about \$4 billion of BOT toll road concession projects out to tender in the period from 1997 to 2000, resulting in a modern motorway network.

### K. Major Toll Road Issues and Implications for Best Practices

3.3 The Chilean toll road experience includes a number of features that raise issues with respect to the development of toll roads and/or are suggestive of best practices, in Chile and elsewhere. These features include:

- focusing goals on the development of adequate road infrastructure at the lowest possible costs and greatest efficiency, avoiding goals irrelevant to these considerations;
- transparent and competitive bidding procedures, with the terms of the contract clear and equal for all participants, leaving as little as possible to future negotiations;
- preparation of basic information (e.g., traffic estimate for the base year, basic engineering, basic design, soil studies) by the government;

Table 3-1 Indicative Chilean Toll Road Concessions

PROJECT TYPE/ NAME	DESCRIPTION	PUBLIC SPONSOR	PRIVATE SPONSOR/ DEVELOPER	LEAD BANK/ UNDERWRITER	COST; CONTRACT TYPE	STATUS
<b>Toll Motorway: Costanera Norte Motorway</b>	27km, 6-lane east-west bypass of Santiago: 17 intersections, parallel 1.2 km tunnels, 2.5 km cut in urban zone, 4 km elevated.	Ministry of Public Works	NA	NA	Construction cost US\$154m; BOT/BTO	Bidding cancelled on 31 Dec 1998 when only one bid was offered, by Transroute. No date yet for re-bid.
<b>Toll Motorway: North Access to Concepción Motorway</b>	31yr concession for 101-km motorway extending Pan American highway to the southern city of Concepción and its ports.	Ministry of Public Works	JV, Neut Latour and Tribasa Cono Sur	8.5% financing, \$100m 4-year loan arr. by Higgins Bank; refin. with \$102m bonds (local and BofA).	Construction cost US\$212m; concession	Construction underway. Contract awarded 8/95. First foreign involvement Chilean infrastructure concessions.
<b>Toll Motorway: Route 5: Santiago-Los Vilos</b>	20-yr concession for 218km toll road; widening 155km to four-lane toll motorway, 200km frontage roads, 12 bridges, 11 rail overpasses, 300m tunnel, along Route 5 alignment northward from Santiago's ring road.	Ministry of Public Works	Tribasa Cono Sur SA/ ENDESA/ American International Group; Advisors: Steer Davies Gleeve	NA	Construction cost US\$272m; concession	Contract awarded 10/96. Financing underway. To be completed in 3/2000.
<b>Toll Motorway: Route 5: Talca-Chillan</b>	10-yr BOT upgrade 192 km of Route 5 from Talca to Chillan. 87 km 4-lane highway; repave 147 km; 2,140m bridges; 21 intersections; service roads; lighting and safety.	Ministry of Public Works	Cintra (30%)/Delta (30%)/Cruz Blanca (35%)	Banco Santander	Construction cost US\$150m; BOT/BTO	Contract awarded 2/95. Construction underway mid-96. To be completed 10/99.
<b>Toll Motorway: Santiago Airport Approach Road</b>	Concession to build/upgrade a 2 km approach road to Santiago airport.	Ministry of Public Works	Aerovias/Ingecol/Sical	NA	Construction cost US\$ 11m; concession	Contract awarded 10/96
<b>Toll Motorway: Santiago-San Antonio</b>	A 23-yr contract for 100-km highway connecting Santiago with the port of San Antonio, 63km of which exists but needs upgrading.	Ministry of Public Works	Infracstructura 2000: ENDESA/Besalco/Construtora Fe Grande/Larrain Vial	8-yr credit lines totaling \$100m from Banco Santander, Banco de Chile, and State Bank.	Construction cost US\$160m; BOT/BTO	Contract awarded '95. Operational 9/98. Starting toll US\$1.95. Maximum toll set and minimum traffic guarantee backed by Gov't.
<b>Toll Motorway: South Access to Concepción (Forestry Road)</b>	25-yr BOT upgrade, extend 112km 2-lane highway connecting southern city of Concepción to forestry area, and the De La Madera Highway.	Ministry of Public Works	Empresa Constructora BELFI/Asesorias E Inversiones/Las Americas Administradora de Inversiones. Advisors: Louis Berger Int'l	Banco del Estado del Chile, 8-10 yr peso loan at UF+8.5%.	Construction cost US\$27m; BOT/BTO	Contract awarded in 1994 to the sole bidder. The Gov't. has put up a US\$4m subsidy for the project. Operating since 1996.
<b>Toll Tunnel: El Melon Tunnel</b>	23-yr BOT contract for a 2.5- km toll tunnel north of Santiago on the Panamerican Highway, an alternative to an existing mountain road.	Ministry of Public Works	Empresa Nacional de Electricidad SA (Endesa) (Chile), with Agroman Empresa Construtora (Spain) and construction contractor DELTA	Banco del Estado \$14m, 12-yr nonrecourse loan; sponsors, \$5.4m equity and \$10m short-term loan from Endesa.	Construction cost US\$50.8m; BOT/BTO	Awarded 8/92. Operational 9/95.
<b>Toll Motorway: Route 5: Chillan-Collipulli</b>	22-yr concession for 230km toll road; widen 161 km, 44km frontage roads, 23 grade-separated interchgs.	Ministry of Public Works	Tribasa Cono Sur SA	NA	Construction cost US\$250 million; concession	Contract awarded 7/97. Completion mid-2000.
<b>Toll Motorway: Route 68 Santiago-Valparaso-Viña del Mar</b>	20-yr concession for motorway extension. 110 km plus 21 km ring road in Valparaiso. 2 new tunnels.	Ministry of Public Works	Sacyr	NA	Construction cost US\$378 million	Contract awarded 4/98. Operational in 2000.

Source: *PWFinancing*, November 1996, August 1997, April 1998, October 1998, and January 1999.

- endeavoring to keep tolls at levels that users are willing to pay for improved services (i.e., about US\$0.025-0.030 per vehicle-km, linked to the consumer price index);<sup>11</sup>
- reducing construction risk, with the government giving bidders reference designs, which are about 90 percent complete, although variations are permitted;
- allowing bids to include government revenue guarantees, with the government prepared to guarantee minimum revenues over a concession period equal to 70 percent of construction, maintenance, and operating costs;
- providing government subsidies for projects where necessary (applied at the capital investment stage, not to operation and maintenance), with US\$4 million provided in the case of one US\$25 million project;
- expropriation of land where necessary, either prior to bidding or after award upon specification of exact requirements depending on the detailed engineering work undertaken by the concessionaire;
- allowing concessionaires to develop ancillary revenue streams that do not adversely affect the improvement in infrastructure;
- allowing the private sector to propose new projects, and in certain cases providing for repayment of costs incurred by private firms for the development of project concepts adopted by the government for competitive procurement; and
- utilizing World Bank support for feasibility studies and the preparation of basic engineering for projects identified by the Ministry of Public Works as candidates for concessions as well as consultant services for the review of the regulatory framework.

3.4 Also worth noting here is the (yet to be used) proposal by three Chilean economists of road concession franchises offered on the basis of least-present-value-of revenue (LPVR) auctions, an approach deemed particularly suitable for investments in which demand is unresponsive to efforts made by the franchise holder.<sup>12</sup>

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<sup>11</sup> However, the toll for use of the El Melón Tunnel, US\$5.40 for a passenger car and more for commercial vehicles, has led many to continue using the windy, mountainous route alternative. Charles L. Wright and Daniel J. Freire Coloma, "Toll-Road Partnerships: What Works, What Doesn't, and Why?," *Transportation Quarterly*, Vol. 51, No. 4, Fall 1997, p. 92.

<sup>12</sup> Eduardo Engel, Ronald Fischer, and Alexander Galetovic, "A New Method for Auctioning Highways," in The World Bank, *The Private Sector in Infrastructure—Strategy, Regulation, and Risk*, September 1997.

## L. Sources

Alejandro Magni Ortega [Planning Director, Ministry of Public Works], "Chilean Infrastructure Concessions," *International Supplement to RCC's Public Works Financing*, July/August 1993.

Eduardo Engel, Ronald Fischer, and Alexander Galetovic, "A New Method for Auctioning Highways," in The World Bank, *The Private Sector in Infrastructure—Strategy, Regulation, and Risk*, September 1997.

Charles L. Wright and Daniel J. Freire Coloma, "Toll-Road Partnerships: What Works, What Doesn't, and Why?," *Transportation Quarterly*, Vol. 51, No. 4, Fall 1997, pp. 85-101.

The World Bank, *Project Information Document, Chile – Third Road Sector Project*, March 1994.

The World Bank, Operations Evaluation Department, "Highway Improvements in Chile," *OED Précis*, June 1994.

"Chile Pulls Costanera Norte Toll BOT," *PWFinancing*, January 1999, p. 11.

"Cintra Taps Local Chilean Financing," *PWFinancing*, January 1999, p. 19.

"1998 International Major Projects Survey," *Public Works Financing*, October 1998, p. 54-56.

"Chile Road to Sacyr," *PWFinancing*, April 1998, p. 10.

"Chile Toll Concession," *PWFinancing*, July-August 1997, p. 9.

"Chile Roads: \$2 Billion," *PWFinancing*, November 1996, p. 16.

"Concession Projects Listing," downloaded from <<http://www.mop.cl/inter/mop/mopenglish/list.html>> on May 14, 1998.

Bank of America, "Chile: Economic Trends and Outlook," downloaded from <<http://www.tradeport.org/ts/countries/chile/trends.shtml>> on October 15, 1998.

The Economist Intelligence Unit, *Country Profile: Chile, 1998-99*, 1998.



# 4

## China: Emergence of a New Policy Framework with Support from the World Bank<sup>13</sup>

### M. Country Background

4.1 4.1 China's GDP increased at an equivalent average rate of 11.0 percent between 1993 and 1997,<sup>14</sup> and it may be able to achieve its targeted economic growth rate of 8 percent in 1998 according to independent forecasts. Road transport has been growing in importance, with the mode accounting for 51 percent of passenger volume and 13 percent of freight volume in 1995, up from 39 percent of passenger volume and 10 percent of freight volume in 1985.<sup>15</sup> However, over the last ten years, road length has increased by only 2.1 percent per year, i.e., significantly below the country's GDP growth rate.

4.2

4.3 4.2 China's road network presently exceeds 1 million km, of which just over 20 percent are paved. As of late 1997 the country had 4,771 km of high-capacity expressways and another 14,637 km of four-lane highways.<sup>16</sup> China's railway network comprises more than 62,000 km of track, of which nearly 10,000 km are electrified.

4.4

4.5

### N. Major Toll Road Developments

4.6 4.3 **Overview.** China has planned a major highway development program to address under-capacity in the sector. With road traffic forecast to increase by 70 percent between 1994 and 2000, the Ninth Five-Year Plan prepared by the State Development Planning Commission (SDPC) has called for the construction of 130,000 km of new roads by 2000, including over 10,000 km of expressways and other high-capacity highways during this period. By 2020, China plans a 35,000-km system of trunk highways requiring investment of US\$150 billion, although there remains a substantial shortfall in the financing available for implementation. Nevertheless, China has been laying the foundation for substantial and long-lasting private sector participation in its express highway sector.

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<sup>13</sup> The paper draws most extensively from nearly a dozen papers by Alfred Nickesen [Senior Transport Specialist, East Asia and Pacific Region, The World Bank] and Mitchel Stanfield [Mitchel Stanfield & Associates, Inc.]. These and other sources are cited in Section D.

<sup>14</sup> The Economic Intelligence Unit, *EIU Country Report 4<sup>th</sup> Quarter 1998 China Mongolia*, 1998.

<sup>15</sup> The relative growth of road transport in China is explained by (i) increased demand for flexible door-to-door travel under a more market-oriented, less centrally planned system; (ii) the rise of industrial areas and export processing zones requiring more short- and medium-term travel to and from urban centers; (iii) increased labor mobility and business-related travel; and (iv) expanding township enterprises, which are unable to compete with state enterprises for limited railway quotas.

<sup>16</sup> The first toll expressway in China, the Shenyang-Anshang section of the Dalian-Shenyang Expressway, was opened in 1987.

4.7 4.4 The 35,000-km National Trunk Highway System (NTHS) planned by SDPC includes a network of 12 trunk highways that will link all of the provincial capitals and most cities with populations of greater than 500,000 by 2010. The first phase of the NTHS, totaling about 14,500 km, comprises four of the 12 national trunk highways, as shown in Table 1. Two of the priority trunk highways will run from east to west (i.e., Lianyungang in Jiangsu Province to Huocheng in Xinjiang Province and from Shanghai to Chengdu in Sichuan Province) and two will run from north to south (i.e., from Tongjiang in Heilongjiang Province to Sanya in Hainan Province and from Beijing to Zhuhai in Guangdong Province). The Ministry of Communications has estimated the cost of completing the four priority trunk highways at US\$52 billion, with the Ministry targeting foreign investors for US\$5 billion of capital in the period up to 2000. However, the burden of financing expressway projects in China has shifted from the central government to the provincial authorities, which are to access private funds and foreign capital markets.

**Table 4-1 List of China's Planned National Trunk Highways**

Highway Name	Length (km)	Priority Status
North – South Highways		
1. Tongjiang, Heilongjiang – Sanya, Hainan	5,200	Yes
2. Beijing – Fuzhou, Fujian	2,500	
3. Beijing – Zhuhai, Guangdong	2,400	Yes
4. Erenhoc, Inner Mongolia – Hekou, Yunan	3,600	
5. Chongqing – Zhanjiang – Guangdong	1,400	
East – West Highways		
6. Sufenhe, Heilongjiang – Manzhouli, Inner Mongolia	1,300	
7. Dandong, Liaoning – Lhasa, Tibet	4,600	
8. Qingdao, Shandong – Yinchuan, Ningxia	1,600	
9. Lianyungang, Jiangsu – Korgas, Xinjiang	4,400	Yes
10. Shanghai – Chengdu, Sichuan	2,300	Yes
11. Shanghai – Ruili, Yunnan	4,000	
12. Hengyang, Hunan – Kunming, Yunnan	2,000	
Total	35,500	14,500

Source: Ministry of Communications of the PRC and J.P. Morgan

4.8 4.5 **Toll Road Project Companies.** Most of the project companies (concessionaires) for the privately financed toll roads have taken the form of joint ventures with public entities such as Guangdong's Provincial Highway Construction Company (in the case of the Guangzhou-Shenzhen Superhighway, profiled below). Technically there are three forms for a privately financed toll road project company in China: (i) wholly foreign-owned entities (WFOE), (ii) equity joint ventures (EJV), and (iii) cooperative joint ventures (CJV). Of these, CJVs are the most common, as the rights and obligations between the foreign and local parties can be determined flexibly based upon a contractual agreement—in a similar manner to that of limited partnerships in many developed countries. Some of the advantages of CJVs are: (i) the amount and timing of returns can be determined irrespective of the amount of equity injected;<sup>17</sup> (ii) flexible depreciation methods can be utilized; and (iii) tax abatements or reductions can be granted for the early years of the project.

<sup>17</sup> In this manner, it can be arranged for the foreign investor to enjoy profits from the project earlier than the local party, while still recouping the investment costs.

**4.9 4.6 Guangzhou-Shenzhen Superhighway.** One of the first private toll roads to be completed in China was the Guangzhou-Shenzhen Superhighway, connecting the Pearl River Delta in Guangdong Province to Hong Kong. The project's initial phase, a 122.8-km dual three-lane facility, was constructed on a BOT basis with a 30-year concession period. The developer for this phase was Hopewell Holdings, Ltd. of Hong Kong, in joint venture with Guangdong's Provincial Highway Construction Company (GPHC), and negotiations went on for eight years before China's State Council gave its approval to the project. In the final arrangement, Hopewell was required to accept substantial pre-construction risk, including land acquisition, in return for commercial property development rights at 15 interchanges. The total project cost was US\$1.9 billion, with US\$800 million in debt financing from syndicated foreign bank loans having eight-year maturities, US\$922 million in equity from Hopewell, and US\$200 million in equity from GPHC.

4.10 4.7 However the project was beset with sluggish traffic growth and expensive changes, such as the unanticipated needs to acquire more land than expected and to elevate a 30-km section of the highway due to soft ground conditions. As a result, the final project cost was more than twice the initial budget. Most recently, in January 1999, the provincially owned Guangdong International Trust & Investment Company (GITIC) was allowed to go bankrupt by the Government, leaving US\$4.3 billion in unpaid debts. GITIC had provided a cash-flow deficiency guarantee for repayment of subordinated debt to the Guangzhou-Shenzhen Superhighway project, which has been called upon. As of March 1999, toll road project sponsor Hopewell was working to replace GITIC with the Bank of China as obligor, and in the meantime had promised to cover any payment shortfalls using its internal reserves.

4.11 4.8 **Toll Road Finance in China.** Traditional project finance approaches are rarely used to finance Chinese toll road projects. The majority of foreign financing is undertaken through equity investments and shareholder loans to the CJV in China from the parent company abroad (which raises funds through a public offering of equity shares, issuing debt securities, and/or long-term commercial loans). Typical examples of this structure include companies like Road King Infrastructure Ltd. (RKI),<sup>18</sup> New World Infrastructure Ltd. (NWI),<sup>19</sup> and Cathay International Ltd.<sup>20</sup> Some of the projects have been financed on project finance structures involving foreign lenders, but in many cases construction risks and political risks have been assumed by the parent companies. In some cases, a normal project finance structure with foreign lenders has been achieved on the basis of the public sector effectively guaranteeing the revenues of the project company.

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<sup>18</sup> RKI's toll road interests are held through wholly-owned subsidiaries that, together with the relevant Chinese joint venture partners, establish various cooperative joint venture companies for investment in different projects. There are no greenfield toll road projects in RKI's portfolio. RKI's toll road assets are currently diversified in eight Chinese provinces, totaling 974.6 km of highway as of June 1998.

<sup>19</sup> NWI was established by New World Development Co. Ltd. in mid-1995, and acquired its parent's infrastructure projects including roads, bridge, power plants, and airport-related projects in China, as well as interests in tunnel and container port facilities in Hong Kong.

<sup>20</sup> Cathay International, a Hong Kong-based company, was formed in 1991 to hold joint venture interests in infrastructure projects in China. In most cases, the company's investments focus on minimum-return undertakings, generally with local government-owned enterprises. Through its joint venture subsidiaries, the company currently holds bridge and tunnel interests in the city of Guangzhou and the Zhaoqing Road/Expressway, as well as power and water projects.

4.12 4.9 Major recent private sector toll road finance-related issues in China have centered around the use of asset-based capital markets. A few examples include:

- the raising of US\$100 million in 1994 to finance the development of the 90 km Chengdu-Mianyang Expressway in Sichuan Province through the private placement of equity shares in offshore markets;
- an equity offering of B shares on the Shenzhen Stock Exchange by the Guangdong Provincial Expressway Company in 1996;
- the completion of a US\$200 million Eurobond issue by Zhuhai Highway Company Ltd. of Guangdong Province in 1996; and
- the listing of at least nine China-related highway stocks on the Hong Kong Stock Exchange by 1997, including offers by Chueng Kong Infrastructure and Road King.

However, in what has been seen as a backlash from the bankruptcy of GITIC, three power sector infrastructure companies have been forced to cancel their early 1999 plans to list on the Hong Kong Stock Exchange due to bearish investor sentiment. Although there have been no attempts at equity offerings by toll road companies so far in 1999, it may be assumed that investor response would be no better than that shown for the power companies.

4.10 **Effects of the Asian Economic Crisis.** Of all the East Asian countries, China appears to have been the least affected by the recent financial crisis. Its annual GDP growth was 7.8 percent in 1998, just off from its 8 percent target, but down from 8.8 percent in 1997. There has also been little indication of toll road project suspensions or postponements in China due to the economic crisis. There has thus far been no currency devaluation against the United States dollar as the Government has maintained its exchange rate controls. Also, the central government has ordered state banks to increase lending in order to achieve its growth targets. At least for the short term, these developments are expected to cater to the financing requirements of ongoing infrastructure projects across the country. However, as mentioned above, foreign financiers are becoming extremely cautious about investing in new toll road projects in China, particularly in light of the heavily leveraged state of many provincial governments—the dangers of which have been illustrated most clearly by the case of Guangdong Province and the January 1999 collapse of GITIC.

### O. Major Toll Road Issues and Implications for Best Practices

4.13 4.10 **Overview.** The toll road experience in China raises a number of major issues with respect to the development of toll roads, with important implications for best practices in China and elsewhere. These issues include:

- the leveraging of existing highway assets to raise new funds in capital markets;
- the need for a legal and regulatory environment conducive to private financing for new toll highways;
- the need for adequate institutional capacity and compensation for land acquisition and resettlement;
- issues related to the creditworthiness and commitments from public entities;

- the need for flexible forms of project companies in order to facilitate foreign investment;
- the need for transparent contracting procedures; and
- the role of multilateral bank support, particularly from the World Bank.

4.14

Each is addressed below.

4.15 4.11 **Leveraging of Existing Highway Assets To Raise New Funds in Capital Markets.** Through the securitization of existing highway assets, including roads financed with World Bank assistance, China has been able to raise large sums of additional capital from foreign investors. This approach has been attractive to private investors, since they must assume only limited construction/completion risks and the transactions offer the prospect of high returns. The approach has also been attractive to the central and provincial governments, since it allows them to obtain additional financing with relative ease, including for financially less attractive but still economically desirable projects. However, there are still some concerns with the asset securitization approach, e.g., the possibility of over-leveraging the asset at the expense of the obligation to repay the original loan. Another problem with using capital markets is that the timing and the volume of the fund raising is inherently subject to the investors' attitudes at the time of the public offer. The investors may be very sensitive to political risks (which has occurred in Asia and Russia recently), conditions for alternative investment opportunities such as bond rates, the profitability of the stock market, the cyclical nature of the real estate market, and so on. Therefore, financing through the capital market should not be considered as an ongoing and stable source of fund raising.

4.16 4.12 **Need for a Legal and Regulatory Environment Conducive to Private Financing for New Toll Highways.** China's privately financed toll road program has been hindered by the country's legal and regulatory environment. Specific issues include: (i) the generally unclear line of authority between the central and provincial governments;<sup>21</sup> (ii) the "unconvertibility" of the Chinese currency (the renminbi) and the lack of guarantees that foreign exchange will be available when required;<sup>22</sup> (iii) limits on the amount of security a foreign-invested enterprise may provide to a foreign party, which can affect the determination of how highly leveraged a project foreign lenders are willing to finance; (iv) regulations restricting the availability of guarantees to foreign parties, including regulations that limit the capacity of the Chinese party to a joint venture from guaranteeing a foreign party's investment return (which makes it difficult to use deficiency payments); (v) the questionable legality of non-competition agreements (e.g., with respect to competing roads and other modes of transport); and (vi) the lack of automatic toll rate adjustments in concessions,

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<sup>21</sup> Both private investors and provincial governments generally avoid central government involvement because their approval process is complex and ambiguous, leading to project delays and increased costs. Toll roads must be longer than 40 km, but central government approval is necessary for projects of more than US\$30 million. As a consequence, there are many toll road initiatives that are composed of a bundle of small projects satisfying both conditions in order to avoid central government involvement.

<sup>22</sup> This issue has received increased significance in the wake of the collapse of GITIC, as related investigations have been thought to have made government officials more attentive to the provisions of China's 1998 "Safe Administration of Foreign Exchange" measure. This measure calls for the prohibition of all "disguised" financing schemes, including guaranteed fixed-returns to foreign investors. Many local governments in China have in recent years tried to attract foreign investments by structuring minimum guaranteed returns—although the legality and enforceability of such guarantees has been ambiguous all along.

leaving project sponsors and lenders with no assurance that costs can be recovered over the life of the concession.

4.17 4.13 **Need for Adequate Institutional Capacity and Compensation for Land Acquisition and Resettlement.** Land acquisition and resettlement has resulted in delays and other implementation problems for highway projects in China. Upgraded institutional capacity and compensation are required to address this issue. Also, risks related to land acquisition are best borne by the Government, not the developer.

4.18

4.19 4.14 **Issues Related to the Creditworthiness and Commitments from Public Entities.** Limitations regarding the creditworthiness and commitment of provincial contracting parties in joint ventures has led to long, costly negotiations and has caused foreign institutions to impose risk premiums, with consequent effects on costs. Foreign lenders have required explicit guarantees from government institutions and banks before providing limited recourse financing, and little progress has been achieved in developing road facilities in the inland provinces.

4.20 4.15 **Need for Flexible Forms of Project Companies in Order to Facilitate Foreign Investment.** The use of CJVs as project companies in China has attracted many foreign investors by effectively addressing some of the critical problems that they face, such as slow recoupment of investments through dividend payments and low returns on investment during the start-up years of the project. In addition, flexible depreciation may be used to leverage project losses in the early years.

4.21 4.16 **Need for Transparent Contracting Procedures.** By developing its toll road program on a project-by-project basis, China had lacked a structured process founded in government policy decisions. This has resulted in a lack of standard documents and fixed procedures, and private negotiation of contracts rather than the use of transparent competitive bidding procedures. The negotiation process can also be time consuming (e.g., eight years in the case of the Guangzhou-Shenzhen Superhighway) and “assurances” received during private negotiations may be more likely to later come under political pressure to be rescinded.

4.22 4.17 **Role of Multilateral Support, Particularly from the World Bank.** Multilateral donors, particularly the World Bank, are playing a helpful role in supporting the toll road development process in China. Bank support for highway infrastructure in the country commenced in December 1985, and since then nearly a score of highway projects have been developed with Bank support, with the focus on the national trunk highway system. Also, through provincial expressway offerings, the Bank has leveraged private financing for highway construction from institutional investors in North America and Europe. The Bank considers its comparative advantage in continued assistance to China’s highway sector development in the future to lie in the institutional, management and finance, regulatory, and systems operations arenas.

4.23

4.24 4.18 The Bank is now actively assisting China in the development of a policy framework conducive to attracting private capital for new toll roads; a new BOT framework is to be put forward as a provisional decree on infrastructure projects with private investment, pending approval from the State Council. The State Development Planning Commission has also designated five pilot infrastructure projects to implement the new BOT policy framework,

including the Wuhan Junshan Yangtze River Bridge in Hubei Province and a toll expressway in Guangdong Province. The World Bank provided grant funds to conduct a commercial feasibility study of the Yangtze River Bridge, with the aim of enhancing the bankability of the project by the private sector. The World Bank is also funding studies to assess the development of public toll road authorities in Hunan and Hubei Provinces, which would give these provinces the capacity to manage large expressway systems, and supplement the current planning, financing, and construction of highways by the provincial communications departments.

## P. Sources

Alfred Nickesen [Senior Transport Specialist, East Asia and Pacific Region, The World Bank], “The Evolving Policy Framework for World Bank Supported Private Toll Highway Financing in China,” The Economist Conferences, Financing and Building China’s Highways, Beijing, May 25-27, 1997.

Alfred Nickesen [Senior Transport Specialist, East Asia and Pacific Region, The World Bank] and Mitchel Stanfield [Mitchel Stanfield & Associates, Inc.], “Innovative Capital Market Toll Highway Finance in Guangdong Province China,” 1997.

Alfred Nickesen [Senior Transport Specialist, East Asia and Pacific Region, The World Bank], “Innovative Toll Highway Finance in China—Recent Experience and Future Directions,” 1997.

Alfred Nickesen [Senior Transport Specialist, East Asia and Pacific Region, The World Bank] and Mitchel Stanfield [Mitchel Stanfield & Associates, Inc.], “Wuhan Junshan Yangtze River Bridge BOT Project,” 1997.

Alfred Nickesen [Senior Transport Specialist, East Asia and Pacific Region, The World Bank] and Mitchel Stanfield [Mitchel Stanfield & Associates, Inc.], “Capital Markets Financing of Toll Highways in China,” 1997.

*Private Sector Development and the Financing of Toll Roads in China*, Country Draft Paper prepared by The World Bank, Private Sector Department, 1997.

Alfred Nickesen [Senior Transport Specialist, East Asia and Pacific Region, The World Bank], “China: SPC Model Documents for BOT Toll Highway Projects,” 1996.

Alfred Nickesen [Senior Transport Specialist, East Asia and Pacific Region, The World Bank] and Mitchel Stanfield [Mitchel Stanfield & Associates, Inc.], “Asset-Based Financing of Toll Highway Projects in China,” 1997.

Alfred Nickesen [Senior Transport Specialist, East Asia and Pacific Region, The World Bank], Mitchel Stanfield [Mitchel Stanfield & Associates, Inc.], and Tomoko Matsukawa, “The Evolving Framework for Private Toll Highway Finance in China,” 1996.

Alfred Nickesen [Senior Transport Specialist, East Asia and Pacific Region, The World Bank], "Issuance of B-Shares on Shenzhen Stock Exchange for Fo-Kai Expressway: A Model for Innovative Toll Highway Finance in China and Elsewhere," 1996.

Alfred Nickesen [Senior Transport Specialist, East Asia and Pacific Region, The World Bank], "Draft Terms of Reference for Model Bidding Documents, Standard Concession Agreement, and Procurement Procedures for BOT Toll Highway Projects in China," 1995.

Standard & Poor's: *Infrastructure Finance: Policy Changes Underscore Need for Caution on Chinese Infrastructure*, March 1999; *Infrastructure Finance: Project Finance, Utilities and Concessions, Criteria and Commentary*, September 1998; *Infrastructure Finance: Traffic Stream (BVI) Infrastructure Ltd.*, May 1998.

J.P. Morgan Securities Asia Ltd. Equity Research, *Industry Report: China Highway Sector, Hong Kong*, May 30, 1997.

Paul D. McKenzie and Christopher Walcott [Baker & McKenzie, Hong Kong], "Financing Highway Projects in the People's Republic of China," *PFI Asia Pacific Review*, March 1998, pp. 27-29.

Edward L. Turner III and Edward Lam [Shearman & Sterling, Hong Kong and London], "New Rules on Commercial Loan Borrowing in China," *PFI Asia Pacific Review*, March 1998, pp. 30-32.

Various articles from *PWFinancing*: "Flotations Falling in China," February 1999, p. 13; "New World Joins Sichuan Expressway," April 1998, p. 13; "Shenzhen Expressway Seeks Partners," April 1998, p. 13; "Chengyu Beltway to New World," February 1998, p. 18; "Cheung Kong's Bridges," November 1997, p. 17; "New World Infrastructure Still Buying," November 1997, p. 27; "Road King Turns Silk to Gold," September 1997, pp. 22-23; "China Tolloed Ring Road," July-August 1997, p. 23; "Beijing Expressway Notes Rated BB," July-August 1997, p. 23; "China Blossoms for New World," February 1997, p. 15; "Hebei Assets Assessed," February 1997, p. 15; "Chinese Toll Partnership Formed," January 1997, p. 15; "Trans-Asia Toll Road," December 1996, p. 15; "Gungdong Bridges," December 1996, pp. 15-16; "China Toll Road Stock Listed," July-August 1996, p. 23; "China Floats Stock to Finance Roads," April 1996, pp. 24-25; "Hopewell's Wu Takes a New Tack," January 1996, p. 19; "Hopewell's Wu Forced To Sell Assets," November 1995, p. 23; "Wu's Superhighway Tolls Up 50-100%," September 1996, p. 25; "Wu's Superhighway Value at \$5 Billion," April 1995, pp. 1-2; "Beijing Toll Securitization Hung Up," November 1994, pp. 18-19; "Bechtel Develops Chinese Toll Road," July-August 1994, pp. 12-13; Thomas H. Pyle, "The New Jersey Turnpike of China," September 1996, pp. 17-19; and "Hopewell Holdings Rides the Wave but the Road to Riches is Perilous," February 1994, pp. 19-21.

Articles from *Project Finance International*, "Chengdu Ranks Bidders," Issue 142, April 8, 1998, p. 13; "Anhui Rolls Out Road Plans, Issue 142, April 8, 1998, pp. 13-14; "High Times with High Yield – New Routes for Toll-roads," (*PFI Yearbook 1998*), pp. 21-22.

Articles from *World Highways*, "When the Car is King," September 1998, p. 43-44; "Look Before You Leap," September 1998, p. 46-47; and "Strait Structures," September 1998, p. 52.



Craig Smith, "China Scrambles to Overcome History of Economic Blunders," *Asian Wall Street Journal*, 24 February 1999, p. 1.

"Asian Economic Survey 1998-99, China," *Asian Wall Street Journal*, 26 October 1998, p. S16.

Merrill Lynch: *China: Economics, In-depth Report*, 26 August 1998; *China Snapshot*, 11 September 1998.

## 5

### Colombia: The World Bank Assisted Toll Road Concession Project<sup>23</sup>

#### Q. Country Background

5.1 Colombia's GDP increased at an equivalent average annual rate of 4.3 percent between 1993 and 1997, with year-on-year growth of 3.3 percent in 1997. The consumer price has increased at an equivalent average annual rate of 20.9 percent during this period, while the Colombian peso-United States dollar exchange rate deteriorated from 917.3 in 1993 to 1293.6 in 1997<sup>24</sup> and 1446 (forecasted) in 1998.<sup>25</sup>

5.2 A study undertaken by the National Department of Planning estimated that Colombia invested less than 1 percent of its GDP in infrastructure between 1960 and 1993, resulting in incremental costs to the economy equal to 5.3 percent of GDP, or about 2.7 percent considering only the under-investment in the road subsector. However, since the early 1990s the Government of Colombia has committed itself to an ambitious program of promoting private sector participation in infrastructure, including roads. While this change has brought about reductions in transport costs, critical weaknesses remain in the road transport system, which serves more than 90 percent of the country's freight transport, excluding pipelines.

#### R. Major Toll Road Developments

5.3 The Government of Colombia's toll road concession program called for about US\$1.2 billion in private investment for the period from 1995 to 1998. Between 1994 and 1998, a dozen concession contracts were awarded for rehabilitation of 1,080 km and (new) construction of 250 km. The final targets, with an horizon beyond 1998, involve the modernization of 4,900 km of roads, i.e., about 30 percent of the national network for which the National Institute of Highways (INVIAS) is responsible.<sup>26</sup>

5.4 Until recently, most of the financing for privately funded road projects in Colombia had come from local banks, but these institutions offer maturities and interest rates that are costly

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<sup>23</sup> A complete list of the sources of this paper is presented in Section D. However, the paper draws most extensively from The World Bank, Finance, Private Sector, and Infrastructure (LCSFP), Country Management Unit for Colombia, Ecuador and Venezuela (LCC4C), Latin America and Caribbean Regional Office, *Project Appraisal Document on a Proposed Loan in the Amount of US\$137.1 million to Colombia for a Toll Road Concession Project*, Report No. 17986, June 11, 1998. This excellent document provides a number of useful insights into the best practices for implementing toll road concession projects, not only for Colombia but worldwide.

<sup>24</sup> The Economic Intelligence Unit, *EIU Country Profile, Colombia 1998-99*, 1998.

<sup>25</sup> The Economic Intelligence Unit, *EIU Country Report 3<sup>rd</sup> Quarter 1998, Colombia*, 1998.

<sup>26</sup> INVIAS, under the Ministry of Transport, is the national road agency, responsible for both nontolled and tolled roads.

and unsecure for road projects. Larger projects require tapping both local and foreign capital markets for the required amounts and maturities of debt financing.

5.5 Against this background, the World Bank has assisted a US\$572.2 million Toll Road Concession Project in Colombia, with the overall purpose of improving transport conditions along a strategic road corridor linking *Bogotá* with *Medillin* and the ports on the country's north coast through an effective, sustainable private-public partnership. The financing for the project includes US\$395.1 million from private project sponsors (i.e., equity and debt committed to initial investment, one-quarter the former and three-quarters the latter), US\$137.1 million from an IBRD loan to the Republic of Colombia for the Government's capital contribution, and US\$40.1 million from net revenue generation from operation of roads under the Project. The project consists of (i) the operation and maintenance of the existing road from *El Vino* to *Villeta* (51 km); (ii) the rehabilitation, operation, and maintenance of the existing, winding road from *Villeta* to *Honda* (72 km); (iii) the construction, operation, and maintenance of a new 68.4-km highway from *Tobiagrande* to *Puerto Salgar*, including about 15 tunnels and 37 bridges and viaducts; and (iv) the operation and maintenance of the existing road from *Honda* to *San Alberto* (580 km).<sup>27</sup> The project is estimated to have an economic rate of return of 19.5 percent, a Project financial return of 8.3 percent, and an equity rate of return of 12.0 percent, with the latter two based on the sponsor's base case.

5.6 The public-private sector partnership will allow INVIAS to expand its concession program to larger projects that are not fully financeable by the private sector under prevailing terms. The project has been crafted to provide the level of government support required for the project subject to market testing through competitive bidding.

5.7 Support offered during the bidding process included:

- (i) an up-front government capital contribution, with the amount of contribution required to be decided by competitive bidding;<sup>28</sup>
- (ii) minimum government revenue support, with the bidders to bid on the level necessary, and the support to be available only for the first nine years, including the four-year construction period, with any government compensation under this limited revenue obligation to be counted against the revenue target set in the concessionaire's bid;<sup>29</sup>
- (iii) government support for tunnel contingencies,<sup>30</sup> with the concessionaire to absorb the first 20 percent of such contingencies and INVIAS to cover costs above that level; and
- (iv) Bank Partial Risk Guarantees (PRG), an option given to bidders that would protect project lenders or bond holders against debt service default due to INVIAS' inability to meet its payment obligations as a result of the Ministry of

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<sup>27</sup> The project also includes the transfer of about 200 hectares of sub-Andean land as a natural forest reserve in order to preserve the environment along the right-of-way of the new road.

<sup>28</sup> The government is to partially finance construction costs, with the concessionaire to reimburse the government in kind when the facility is returned to the government at the end of the concession term or as soon as cumulative revenues reach the revenue target in the concessionaire's bid, whichever comes first.

<sup>29</sup> Government funds would only be used if there is a revenue shortfall to be covered.

<sup>30</sup> Additional works that could not be foreseen at the design stage (e.g., changes in geologic or hydrological conditions).

Transport not authorizing toll adjustments agreed in the concession contract, political force majeure, or changes in the law adversely affecting the project's ability to service its debt and leading to default.<sup>31</sup>

5.8 Bidders were asked to quote in their bidding documents (i) the cost of annual capital contributions requested from the Government, (ii) the cost of 11 work activities associated with geologic risk in tunnel construction, (iii) the amounts requested for Minimum Revenue Support during the first nine years of the concession, (iv) the maximum portion of this Minimum Revenue Support that would become available to the concessionaire through the Liquidity Mechanism to be funded by the Bank, and (v) the Total Expected Revenue that the concessionaire plans to realize during the concession term.<sup>32</sup> The bidding documents set caps on items (i), (iii), and (iv).

5.9 The bidding documents required the concession contract to be awarded to the bid that represented the least expected cost to the Government. As it happened, the successful bidder requested only the up-front capital contribution, but declined the Government covering a share of tunnel contingencies (to be supported by the Bank), minimum revenue support, a liquidity mechanism (to be supported by the Bank), and the Bank Partial Risk Guarantee.<sup>33</sup> On the other hand, deterioration in the government's fiscal position since the bidding stage led the government to request the Bank to provide a loan to finance its capital contribution to the project.

5.10 Table 5, drawn from the project appraisal document, summarizes Government undertakings in earlier concessions in Colombia, at the Project Bidding Stage, and as a result of the Project Bidding.

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<sup>31</sup> The risks to be covered under the proposed PRG were only political and regulatory risks over which the Government has direct control.

<sup>32</sup> Upon achievement of Total Expected Revenue the concession would revert to INVIAS even if the contractual concession term (about 24 years) had not yet expired. If Total Expected Revenue is not reached at the end of the 20-year operational period, INVIAS would have the option of extending the concession annually for up to five years, or partially compensating the concessionaire for the non-realized portion of Total Expected Revenue.

<sup>33</sup> Two of the four bidders requested use of all instruments supported by the Bank (including the PRG), and a third requested use of one of the instruments, indicating that the support offered by the Bank was necessary to assure competition.

**Table 5-1 Comparison of Government Undertakings in Colombian Road Concessions**

Government Undertaking	Earlier Concessions in Colombia	Project (Bidding Stage)	Project (Bidding Outcome)
<i>Capital Contribution</i> :	For large projects exceeding financial viability, part of investment undertaken with public funding outside the concession, and transferred to concessionaire for exploitation upon completion.	Up front capital contribution during construction stage in the form of a grant. The specific amount subject to bidding.	Lowest
Construction Cost Increases:			
- Roads and bridges:	Full compensation of cost increases up to 30% of bid cost, and 75% of cost increases between 30-50% over bid cost	No coverage granted	
- Tunnels:	Initially no tunnels considered under concession (undertaken outside concession)	Limited to geologic risk. First 20% to be absorbed by concessionaire.	Not taken by successful bidder
Minimum Revenue Support:			
- Size and duration:	Historic traffic throughout concession term	Ceilings (targeted at debt). Nine years out of 24 year term (ramp-up period).	Not taken by successful bidder
- Form of compensation	(i) term extension; (ii) toll increase;	Cash payment	
Maximum Revenue or Recapture Mechanism	50-50% share of additional revenue over 125% of historic traffic	Capped at total expected revenue by successful bidder.	Highest

Source: The World Bank, Finance, Private Sector, and Infrastructure (LCSFP), Country Management Unit for Colombia, Ecuador and Venezuela (LCC4C), Latin America and Caribbean Regional Office, *Project Appraisal Document on a Proposed Loan in the Amount of US\$137.1 million to Colombia for a Toll Road Concession Project*, Report No. 17986, June 11, 1998.

### S. Major Toll Road Issues and Implications for Best Practices

5.11 The experience of the Colombian Toll Road Concession Project raises a number of major issues with respect to the development of toll roads, with important implications for best practices, in Colombia and elsewhere. These issues and/or best practices include:

- the use of a private-public sector partnership to bring additional resources to the project and increase efficiency;
- the use of competitive bidding to minimize governmental support and residual risk-bearing by the government;
- the need to base project revenues on affordable toll rates;
- the benefits of providing an up-front capital contribution rather than an operational subsidy;
- the benefits of including existing tolled facilities in the concession package;
- the need to allow concessionaires to take a position in the project's future upside revenue;
- the importance of quality project preparation; and
- the helpful role played by an international development bank, in this case The World Bank.

Each is addressed below.

**5.12 Use of a Private-Public Sector Partnership to Bring Additional Resources to the Project and Increase Efficiency.** A private-public sector partnership was crafted for the Colombian Toll Road Concession Project in order to (i) bring additional resources to the project and complete it in a shorter time, freeing scarce governmental resources for other investments;<sup>34</sup> and (ii) increase the efficiency in construction and project operation, through market discipline, assuring that the project is completed on schedule and within the budget. Moreover, the private-public sector partnership approach assures adequate maintenance of one of the most strategic road corridors in the country.

**5.13 Use of Competitive Bidding to Minimize Level of Governmental Support and Residual Risk-Bearing.** While infrastructure privatization in Colombia and elsewhere has typically involved unnecessarily large subsidies and extensive residual risk-bearing by governments, which reduces efficiency benefits and confronts governments with large potential liabilities, the Colombian Toll Road Concession Project effectively used competitive bidding to minimize the level of governmental support and reduce residual risk-bearing by the Government. For example, the Government's (up-front) capital contribution was determined by competitive bidding, at the minimum level sufficient to make the project attractive to private investors and compensate them for externalities associated with the project. As a result, INVIAS was able to award the Project concession with significantly less exposure than envisaged and shift a greater burden to the private sector, since the successful bidder asked for the lowest capital contribution and declined the Bank's PRG in its bid.

**5.14 Need to Base Project Revenues on Affordable Toll Rates.** Learning from the international experience with toll road concessions, the Government of Colombia adopted the sound policy of basing project revenues on affordable toll rates, e.g., US\$0.0039 for cars for the full 51 km of Section 1, in 1997 values, to be increased in line with the consumer price index. While the rates determined by the Government exceeded short-term marginal costs, they were set at levels considered adequate to avoid excessive traffic diversion. The toll levels established for the various project links were set at levels consistent with existing tolls in the rest of the Colombian network, i.e., at a level that would allow full recovery of routine and periodic maintenance costs. The proposed tolls varied from 9 to 36 percent of user cost savings, with the lowest values corresponding to buses and the highest to medium trucks.

**5.15 Benefits of Providing an Up-Front Capital Contribution Rather Than an Operational Subsidy.** The Colombian Toll Road Concession Project was sensibly designed with an up-front capital contribution (determined at the bidding stage) rather than an operational subsidy in order to reduce government exposure throughout the operational period and to increase bid responsiveness, as well as to reduce the financial risks borne by the project sponsors. An up-front subsidy is subject to budgetary approval and hence careful scrutiny, while operational subsidies are not similarly scrutinized even though they may result in higher liabilities in future years.

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<sup>34</sup> With no private financing of the road, the Project would represent 12-18 percent of the investment budget for the national road network during the construction period; however, with partial private financing, it will require only 4-6 percent of the investment budget for national roads.

**5.16 Benefits of Including Existing Tolled Facilities in the Concession Package.** The concession package included operation of an existing contiguous tolled section, which will allow for economies of scale in operation, as well as reducing financial support and enhancing project revenues. By including a road opened to traffic in 1995 in the toll road concession package, the Government of Colombia assured that at least one component would generate net revenues from the beginning.

**5.17 Need to Allow Concessionaires To Take a Position in the Project's Future Upside Revenue.** In designing the Colombian Toll Road Concession Project, a revenue recapture mechanism that would require the concessionaire to physically surrender to INVIAS all or part of excess revenue after the minimum revenue protection period expires was rejected as it would prevent bidders in taking a position in the project's future upside potential, which in turn would have provided bidders with the incentive to request a higher level of Minimum Revenue Support and to seek larger up-front contributions from the government. Also, under such an approach the concessionaire would have lost the flexibility and incentive to use excess revenue to enhance project performance, and if traffic exceeds forecast levels, required capacity expansions would be unnecessarily postponed.

**5.18 Importance of Quality Project Preparation.** Generally, the Colombian Toll Road Concession Project demonstrates the importance of quality project preparation, as evidenced by the following:

- selection of a project with strong economic and financial justification, in view of its transport system impacts;
- the retaining of financial advisors with international experience to structure the project and prepare the legal documentation;
- designing of the bidding process to attract quality international investors, e.g., through carrying out a well-targeted promotional campaign and using clear bid evaluation criteria focused on the few parameters most related long-run efficiency;
- providing bidders with detailed engineering data, while giving them the time to prepare their own estimates;
- state-of-the-art traffic forecasts;
- advance consideration of social and environmental issues;
- advance purchase of right-of-way, i.e., before financial close; and
- drafting a concession contract with incentives to improve performance and flexibility to manage uncertainty while avoiding opportunistic renegotiations.

**5.19 Helpful Role Played by The World Bank.** The World Bank played a useful role in the Colombian Toll Road Concession Project, in project design, in the procurement of private sponsors, and in allowing for more secured private financing. As detailed in the project appraisal documents, the Bank's involvement allowed (i) the Government to remove concession design and financing constraints that had hindered implementation of its toll road concession program, (ii) attract more qualified bidders, (iii) design concessions with reduced government risk-bearing, and (iv) help establish a track record to attract private investors in the future with less governmental involvement. INVIAS will use this experience in designing new road concessions, with the Bank to continue strengthening the agency's capacity by bringing worldwide knowledge of best practices.

## T. Sources

The World Bank, Finance, Private Sector, and Infrastructure (LCSFP), Country Management Unit for Colombia, Ecuador and Venezuela (LCC4C), Latin America and Caribbean Regional Office, *Project Appraisal Document on a Proposed Loan in the Amount of US\$137.1 million to Colombia for a Toll Road Concession Project*, Report No. 17986, June 11, 1998.

*Private Financing of Investment in Infrastructure: Issues and Alternatives in Colombia*, Draft Paper prepared by The World Bank, Private Sector Department, 1996.

“World Bank Approves \$137.1 Million Loan for Toll Road Concession Project in Colombia,” Press Release No. 99/1871/LAC, July 2, 1998.

“Colombia Toll Road Study,” *PWFinancing*, July-August 1997, p. 9.

“El Vino-Puerto Salgar Toll Road,” *PWFinancing*, July-August 1997, p. 9.

Bank of America, Colombia: Economic Trends and Outlook, downloaded from [www.tradeport.org](http://www.tradeport.org) on October 15, 1998.

The Economist Intelligence Unit, “Colombia: ticket to ride,” February 4, 1998, downloaded from [www.eiu.com](http://www.eiu.com) on October 21, 1998.

The Economist Intelligence Unit, *Country Report: Colombia, 3<sup>rd</sup> quarter 1998*, 1998.

The Economist Intelligence Unit, *Country Profile: Colombia, 1997-98*, 1997.



## 6

### France: A Process of Trial and Error<sup>35</sup>

#### U. Country Background

6.1 France's toll road program, dating back to the 1950s, has involved both public and private concession companies in the construction of high-performance motorways or *autoroutes*. About 6,700 km of toll motorways are in service, mainly on intercity routes (with most such routes tolled)<sup>36</sup> although there have been some recent developments of tolled facilities in Paris and Lyon. While such motorways account for only 4 percent of the national road network, they carry 40 percent of the road traffic. Road transport is responsible for moving 70 percent of France's freight and 90 percent of its passenger traffic.

6.2 The development of France's motorway system has involved a number of changes in course (as detailed below), partly in response to exogenous shocks (e.g., the energy crises of the 1970s, but also due to changes in the nation's political leadership).

#### V. Major Toll Road Developments

6.3 The development of high-performance roads in France may be divided into four phases. In the first phase, from 1955-69, France made a commitment to the use of tolls for financing motorway construction by public companies. The second phase, one of liberalization and privatization, lasted from 1969 to 1981. The third phase, from 1982 to 1993, involved crisis management through a state takeover and a national system of cross-subsidies. The current phase, commencing in 1993, is one of planning agreements and consolidation within the public sector. Each phase is discussed below.

6.4 **Commitment to Tolls with Public Companies, 1955-69.** With competing budgetary demands preventing the French Government from fully funding a special dedicated road fund that it had established in 1951, the Government enacted a law in 1955 that allowed toll

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<sup>35</sup> A complete list of the sources of this paper is presented in Section D. However, the paper draws most extensively from (i) José A. Gómez-Ibáñez and John R. Meyer, "The Modern Pioneers: France and Spain," *Going Private: The International Experience with Transport Privatization*, The Brookings Institution, Washington, D.C., 1993, Chapter 8, pp. 107-45; (ii) José A. Gómez-Ibáñez and John R. Meyer [Taubman Center for State and Local Government, John F. Kennedy School of Government, Harvard University], *The Political Economy of Privatization: Successes, Failures and Lessons from Developed and Developing Countries*, Final Report, Part II, Privatizing Infrastructure: High Performance Highways, Final Report prepared for the U.S. Department of Transportation, September 1992, Chapter 8; (iii) Alain Fayard, "Toll Financing, Risk Financing, How to Fit the Needs without Dogmas: The French Experience," presented at The East-West European Road Conference, Varsovic, September 22-24, 1993; (iv) Ministry of Public Works, Housing, Transportation and Tourism, Directorate of Roads, *The French Experience in Highway Concession* [sic], 1997; and (v) Caisse Nationale des Autoroutes, *Annual Report of the Board of Directors*, 1996.

<sup>36</sup> There are exceptions, mainly in Brittany and Lorraine, where *untolled* high-performance highways have been built to promote regional development.

financing of motorways (*autoroutes*) in special circumstances. Public control was to be maintained by granting concessions only to a local public organization, a chamber of commerce, or a “mixed” company in which public interests have a majority of shares. While the 1955 law stated that the use of *autoroutes* was to be, in principle, free, the exception became the rule within a decade and between 1956 and 1963 five so-called mixed companies (*sociétés d'économie mixte concessionnaires d'autoroutes* or SEMCAs) were established.<sup>37</sup> While the SEMCAs were established initially for only short motorway segments (i.e., 50-70 km), a concession was granted in 1963 for the priority south-north link between Lille–Paris and Paris-Lyon (130-km and 160-km segments).

6.5 The SEMCAs were capitalized with relatively nominal equity, of the order of ECU 100,000-300,000 (US\$117,000-US\$351,000), since the shareholders were only public bodies (i.e., the term “mixed” was a misnomer).<sup>38</sup> The central government held a small equity stake in each SEMCA, usually about 20 percent.

6.6 Initial financial assistance was provided to the SEMCAs, partly in recognition of their limited equity. This assistance included: (i) loan guarantees, (ii) cash “advances” (i.e., interest-free loans)<sup>39</sup> to cover a portion of construction costs, (iii) in-kind advances (*advances en nature*) of rights-of-way or roadways already owned by the State, and (iv) cash balancing advances (i.e., interest-free bridge financing) to cover early-year operating losses if necessary. Items (ii) and (iv) were to be repaid, but (as noted) without interest, and only after cash flow was sufficient to service debt, cover operating costs, and build up adequate reserves. The construction cost advances were significant during this period, amounting to about 30-40 percent of construction costs.

6.7 Nevertheless, motorway construction during this period lagged the schedule called for in a 1960 master plan, mainly as a consequence of the Ministry of Finance’s control over the amount of debt that the SEMCAs could issue. Road building was not a priority for the Ministry during this period.

6.8 To secure sufficient funds for SEMCAs, Caisse Nationale des Autoroutes (CNA) was established in 1963 as an autonomous public agency to arrange financing for the development of toll roads. It issued bonds in domestic and international capital market.

6.9 **Liberalization and Privatization, 1969-81.** A number of reforms were enacted beginning in 1969, when private companies were allowed to compete for new concessions and the existing SEMCAs were strengthened and given more autonomy and responsibility including the granting of concessions to companies owned by the private sector. Four awards were made to private toll companies between 1970 and 1973 for 300-500 km of motorways each except for one case involving a 63-km concession; the new concessionaires were all consortia involving major French construction companies as well as banks; the construction companies expected to earn a reasonable profit from building the motorway, while the banks wanted to support contractors with whom they had links as well as to issue bonds.

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<sup>37</sup> Such mixed companies are also referred to as SEMs in some of the literature.

<sup>38</sup> In one memorable quotation, a Minister referred to the SEMCAs as the “false nose of the State.”

<sup>39</sup> There are two type of “advances,” one with a fixed amount of principal, and another with the principal amount scaled according to the index of public works costs.

6.10 At this time (1970), the SEMCAs jointly established a new company, the Société Central d'Etudes et Realisations Routiers (SECTAROUTE), to serve as their prime contractor for *autoroute* construction, maintenance, and research. Also, the SEMCAs coordinated their maintenance services through their own association, Union des Sociétés Françaises d'Autoroutes à Peage (USAP). The SEMCAs were awarded a number of new routes or segments during the first half of the 1970s, but not through a competitive process.

6.11 Governmental assistance was less generous during this development phase than it had been during the 1960s, with new construction "advances" (i.e., interest-free loans) offered only for segments that the Government deemed unprofitable and were to be repaid with interest. Nevertheless, the aid offered was significant. For example, the first private company, COFIROUTE, which received a concession from the Ministry of Finance, had only 10 percent of its construction costs covered by equity, with 10 percent by in-kind advances from the State, 65 percent by State-guaranteed loans, and 15 percent by loans without guarantees. Also, the SEMCAs continued to receive interest-free loans of 10-50 percent for some new segments.

6.12 Over time, the concession companies were expected to subsidize new routes with surpluses derived from older segments that had higher traffic and had been built at lower cost. In return for accepting a new motorway, the expiration dates of older and more profitable concession were extended. In this way, a system of cross-subsidization within companies developed.

6.13 While the concession contracts with the private companies stated that toll rates would be set based on certain limits stated in the contracts, in 1975 the Ministry of Finance, citing a 1945 law, declared that it would regulate toll rates. This action was later upheld by a French court.

6.14 **Crisis Management through a State Takeover and Cross-Subsidies, 1982-93.** By the early 1980s, the French motorway system was confronted with a serious cash deficit problem, (only) partly as a consequence of the energy crises of the 1970s. The Government nationalized three of the four private toll road companies and indemnified their shareholders, although it was not required to do so. In 1982, the Government established a Special Fund for Public Works, with authority to issue bonds. Also in 1982, a new Government agency, Autoroutes de France (ADF), was established as a clearinghouse for the issuance of new advances (government loans) to and the receipt of repayment of previous advances from the SEMCAs. The creation of ADF allowed the Government to engage in cross-subsidies between and among companies. Also, a policy of "toll harmonization" was instituted, with the aim of reducing toll differentials among concessions from a maximum of 3 to 1 to 2 to 1. In 1986, the Freedom of Prices and Competition Law was enacted, which (among other things) provided for administrative control of all toll levels. In 1987 the Government announced a capital infusion of 2 billion French francs (US\$350 million) to ADF to increase the State's equity in SEMCAs, with the effect of increasing central Government control. By the end of the period from 1982 to 1993, the French Government recognized the renewed strength of the concession companies and decided that future motorway construction would be commissioned without governmental support.

**6.15 Planning Agreements and Consolidation within the Public Sector, 1993 to Present.** In November 1993, the French Government decided to accelerate the completion of its motorway master plan, from 15 years to 10 years, for the construction of the remaining 2,600 km called for in the plan. Key features of this new development included:

- recapitalization of the SEMCAs, by increasing capital by US\$5.6 million equivalent to US\$206 million equivalent, utilizing remaining State funds;
- the forming of three regional operating units, in such a way as to maintain a “balance” among units (e.g., in terms of revenues); and
- establishing long-term contractual links between the State and the motorway system, with five-year planning agreements between the State and the regional units stipulating the parties’ commitments in terms of works and investment, toll rates, and financial objectives.

**6.16** In 1995, a law was enacted requiring revision of the motorway master plan so that no part of France would be more than 50 km or 45 minutes by car from the entry/exit of a high-performance roadway.

### **W. Major Toll Road Issues and Implications for Best Practices**

**6.17** The experience in France raises a number of major issues with respect to the development of toll roads, with important implications for best practices elsewhere. These issues and/or best practices include:

- the relative advantages and disadvantages of motorway financing through cross subsidies;
- the relative advantages and disadvantages of toll financing of highways;
- the efficiency of private concessions for highways;
- the dilemma of regulating toll rates of concessionaires;
- the importance of guarding against potential conflicts of interest when construction companies participate in concessions;
- the relative ability of public and private sector companies to take environmental considerations into account; and
- the “moral hazard” problem.

Each is addressed below.

**6.18 Relative Advantages and Disadvantages of Cross Subsidies.** France constructed an extensive motorway system connecting all of its primary cities and many of its secondary urban centers, with a system of cross-subsidies within companies in the 1970s and among companies in the 1980s.<sup>40</sup> The system resulted in expansion of the toll road network and toll harmonization in France. The critical issue raised by such cross-subsidies is whether the social and economic advantages of having an extensive network of high-performance

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<sup>40</sup> An analysis of traffic volumes on the motorways operated by three profitable companies shows a range of volumes from less than 10,000 vehicles per day to as many as 50,000 vehicles per day, depending on the route segment.

highways rather than a smaller network in which each individual segment is self-supporting justifies the loss of financial discipline and the possible misallocation of scarce resources through the use of such subsidies.

**6.19 Relative Advantages and Disadvantages of Tolling Highways.** A second, general issue presented by the French experience concerns the relative advantages and disadvantages of toll financing of highways as compared to financing from fuel taxes or other revenues sources, with the latter the predominant approach in Northern Europe, North America, and Australia. Tolling in France has resulted in increased construction costs of about 10 percent and increased operating cost equal to 10-12 percent of revenues, which is considered comparable or lower than the collection costs and economic distortions of alternative revenue sources. Also, unlike in Spain, tolls in France have not resulted in a misallocation of traffic between toll roads and parallel untolled roads, with only an estimated 6-7 percent of potential toll road users diverting to parallel routes as a result of tolls.

**6.20 Efficiency of Concessions to Private Companies for Highways.** Another general issue raised by the French experience concerns the relative advantages and disadvantages of offering concessions to private companies as opposed to public companies for highways. The French experience, at least with respect to COFIROUTE, suggests that private companies can build highways more efficiently than can public companies; consider, for example, that COFIROUTE's construction costs per km were 23 percent less than those of the SEMCAs in the early 1970s, a consequence of a more cost-sensitive roadway design (10 percentage points of the 23 percent cost advantage) and higher labor and equipment productivity (13 percentage points of the cost advantage). However, COFIROUTE's relative productivity may be explained by the traffic volumes on its routes, and the failure of the other three private companies suggests that privatization involves some risks.

**6.21 Dilemma of Regulating Toll Rates of Concessionaires.** France has left toll rate adjustments to the discretion of the Ministry of Finance, which tends to approve larger increases for less profitable companies, in contrast to Spain's approach to regulating the toll rates of concessionaires based on a formula linked to price inflation. The French approach avoids unnecessarily high returns to investors, but at the risk of sacrificing efficiency by undermining incentives to make exceptional efforts to control costs or improve productivity.

**6.22 Relative Ability of Public and Private Sector Companies to Take Environmental Considerations into Account.** There is a suggestion in the literature that the central government may have considered private concessions for *autoroutes* in urban areas due to the belief that private companies may be better able to resist or moderate the "unreasonable" demands of community or environmental groups, as they would not be seen as having the SEMCA's extensive financial resources nor the implicit backing of the State. However, the experience with private sector development of *autoroutes* in urban areas does not indicate any reduction in local pressures for costly mitigation measures.

**6.23 "Moral Hazard" Problem.** Finally, again, the French experience demonstrates the "moral hazard" problem presented by national toll roads, which like banks, are too big and important to let fail. In the early 1980s the French central government nationalized three private sector concessionaires, and indemnified their shareholders, although it was not required to do so.

## X. Sources

José A. Gómez-Ibáñez and John R. Meyer, "The Modern Pioneers: France and Spain," *Going Private: The International Experience with Transport Privatization*, The Brookings Institution, Washington, D.C., 1993, Chapter 8, pp. 107-45.

José A. Gómez-Ibáñez and John R. Meyer [Taubman Center for State and Local Government, John F. Kennedy School of Government, Harvard University], *The Political Economy of Privatization: Successes, Failures and Lessons from Developed and Developing Countries*, Final Report, Part II, Privatizing Infrastructure: High Performance Highways, Final Report prepared for the U.S. Department of Transportation, September 1992, Chapter 8.

Alain Fayard, "Toll Financing, Risk Financing, How to Fit the Needs without Dogmas: The French Experience," presented at The East-West European Road Conference, Varsovic, September 22-24, 1993.

Ministry of Public Works, Housing, Transportation and Tourism, Directorate of Roads, *The French Experience in Highway Concession* [sic], 1997.

Caisse Nationale des Autoroutes, *Annual Report of the Board of Directors*, 1996.

Caisse Nationale des Autoroutes, *La Caisse Nationale des Autoroutes, 1963-1993*, undated.

Charles M. Yates, "Private Sector Finance for Roads in Europe," in PTRC, *Financing Transport Infrastructure*, ed. by Sheila Farrell, 1994, pp. 47-56.

J.P. Munro-Lafon and J.W. Musset, "European Inter-Urban Toll Roads," in PTRC, *Financing Transport Infrastructure*, ed. by Sheila Farrell, 1994, pp. 57-63.

B. Holzschuch, "The French Expressway Toll System," in PTRC, *Financing Transport Infrastructure*, ed. by Sheila Farrell, 1994, pp. 65-75.

Bernard Val, "The French System of Public Concessions," 1997 Annual Meeting & Exhibition, International Bridge, Tunnel and Turnpike Association, Denver, October 11-15, 1997.

P. Garnier, "Communication of the Highway World in France," 1997 Annual Meeting & Exhibition, International Bridge, Tunnel and Turnpike Association, Denver, October 11-15, 1997.

Various articles from *PWFinancing*, "Bouyges Toll Concession Voided," February 1998, pp. 14-15; "Go-Ahead for Paris Toll Tunnel," February 1996, p. 15; "France Plans More Toll Motorways," July-August 1994, pp. 5-6; "More French Toll Road History," April 1994, pp. 6-7.

Japan International Cooperation Agency, *Progress Report 1 for The Toll Highways Development Study in the Kingdom of Thailand*, May 1990, pp. 7-2 to 7-15 [review of motorways in France].

Walter Hook, *Wheels Out of Balance, Suggested Guidelines for Intermodal Transport Sector Lending at The World Bank, A Case Study of Hungary*, July 1996, p. 31.

The Economist Intelligence Unit, *Country Report: France*, 3<sup>rd</sup> Quarter 1998, 1998.

The Economist Intelligence Unit, *Country Profile: France, 1997-98*, 1997.

## 7

## Hong Kong SAR: A Sophisticated Toll Adjustment Mechanism—But is it Enough?<sup>41</sup>

### Y. Background

7.1 Despite having initially thwarted the economic downturn that began affecting neighboring countries in 1997, China's Hong Kong Special Administrative Region (SAR) has seen its economy become increasingly strained since 1998. Annual GDP growth for the Territory-turned-SAR fell from 4.9 percent in 1996 and 5.3 percent in 1997 to -5.2 percent in 1998, and is projected to decline another 2.2 percent in 1999. The Hong Kong stock market has maintained its key role in international equity markets, but has fluctuated lately both in response to strengthened ties with the increasingly market-oriented economy of mainland China, as well as to the economic maladies of China's Asian neighbors. The Hong Kong dollar, long pegged to the United States currency, has come under growing devaluation pressure. Hong Kong's largest employers remain in the wholesale, retail and import/export trade, and restaurant and hotel sectors, although growth has been more rapid in finance, real estate, and business services. Manufacturing's importance to the labor market continues to decline and now employs approximately one-third of its mid-1980s peak. As the SAR's economic growth has slowed, unemployment increased to 5.3 percent in the final quarter of 1998, more than double the 2.2 percent average for all of 1997.<sup>42</sup>

7.2 Despite its small size, transportation plays a huge role in Hong Kong's economy. Freight transport between the SAR's major seaport facilities and mainland China, as well as tremendous urban passenger traffic concentrations, have resulted in a large demand for land and sea-based modes, including several high-capacity highways and railways. Hong Kong's roads rank among the most densely traveled in the world. In early 1998, there were over 500,000 licensed vehicles sharing 1,838 km of roads (422 km on Hong Kong Island, 425 km in Kowloon, and 991 km in the New Territories). This high vehicle density, combined with difficult terrain, dense building development, and significant freight transport demand, imposes constant challenges to the highway infrastructure authorities. The region's railway network comprises 34 km of mixed passenger and freight lines, plus more than 50 km of metro lines; Hong Kong's railways are also among the most densely utilized in the world.

### Z. Major Toll Road Developments

7.3 **Overview.** As Hong Kong has industrialized since the 1950s, its population and economy have grown rapidly, bringing significant traffic demands. In response, the Hong Kong Government (HKG) adopted a plan for the private development of public infrastructure

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<sup>41</sup> A complete list of the sources for this paper is presented in Section 4.

<sup>42</sup> GDP and employment statistics are from the Economist Intelligence Unit, *EIU Country Report 4<sup>th</sup> Quarter 1998 Hong Kong Macao*, 1998.



at an earlier date than many of its neighbors. Hong Kong opened its first privately built and operated toll tunnel in 1972. While HKG utilized lease-type structures in its initial projects, it has more recently been adopting a more standard BOT-style approach.

7.4 Interestingly however, HKG's motives for introducing BOT procedures for infrastructure development have differed from those of developing countries. A lack of public funding was not the primary concern of HKG, the Government sought to introduce BOT as a means to:

- introduce innovative technology;
- build up needed infrastructure more rapidly than would have been possible using conventional methods;
- build and operate infrastructure in a more efficient manner than it was thought that the public sector alone would be able to do; and
- retain public funds for needs that might arise after Hong Kong reverted to the People's Republic of China.

7.5 Toll road projects in Hong Kong are franchised on a project-by-project basis, under Ordinances authorized by the Parliament. The following five projects are representative of the BOT endeavors that have been completed in the highway sector thus far:

- Cross Harbour Tunnel;
- Eastern Harbour Crossing;
- Tate's Cairn Tunnel;
- Western Harbour Crossing; and
- Route 3 Country Park Section.

These projects are examined briefly in the subsequent paragraphs.

7.6 **Cross Harbour Tunnel and Eastern Harbour Crossing.** The Cross Harbour Tunnel is an immersed tube carrying a four-lane highway under Victoria Harbour between Wan Chai on Hong Kong Island and Hung Hom on Kowloon Peninsula. The Cross Harbour Tunnel Ordinance of June 1969 authorized The Cross Harbour Tunnel Corporation (CHTC) to build and operate the 1.9-km tunnel for 30 years from the start of construction. CHTC was established using local capital, including British capital in Hong Kong.<sup>43</sup> The HK\$356 million Cross Harbour Tunnel opened to traffic in 1972, and much higher than expected use enabled it to break even after four years of operation and turn a profit every year since then.

7.7 By 1983, the traffic volume in the Cross Harbour Tunnel (CHT) was 110,000 vehicles per day, well in excess of the 70,000 - 80,000 vehicles per day for which the facility was designed. The excessive use of the tunnel resulted in seemingly permanent traffic jams at both ends of the tunnel, which in turn led to increased automobile congestion throughout the entire city of Hong Kong. In response to this situation, in 1984 the Kumagai Gumi Company Ltd. of Japan put forward a private proposal to HKG for building an Eastern Harbour

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<sup>43</sup> CHTC was formed by majority shareholder Wheelock Marden & Co. Ltd. of Hong Kong (59%), HKG, the Hong Kong & Shanghai Banking Corp., and two private investment companies. The Government sold its shares when CHTC went public in 1974.

Crossing. This 2.3-km facility was to be a combined road and mass rail transit tunnel crossing Victoria Harbour from Cha Kwo Ling on Kowloon Peninsula to Quarry Bay on Hong Kong Island.

7.8 After a tendering process that involved nine international consortiums, the New Hong Kong Tunnel Corporation (NHKTC)<sup>44</sup> was awarded a franchise to build and operate the combined road and railway tunnel. HKG's Eastern Harbour Crossing Ordinance of August 1986 required NHKTC to build both the road and rail facilities during a 42-month period, and then operate the road for a period of 30 years (from the start of construction) and the railway tunnel for 18.5 years (from the start of rail operations by the Mass Transit Railway Corporation).

7.9 The Eastern Harbour Crossing (EHC) was opened to traffic in 1989, four months ahead of schedule and at a total project cost of HK\$3.4 billion—within the original budget. Upon operation, NHKTC revenues comprised tolls<sup>45</sup> collected from the road users and a lease fee from the railway. However, since the entire project was not projected to be financially viable from toll revenues and lease fees alone, HKG granted NHKTC the rights to develop a residential and commercial estate around the new railway station that was part of the project. As of mid-1998, EHC traffic was just under its 90,000 vehicles per day capacity, while CHT traffic had returned to its early 1980s' levels of more than 110,000 vehicles per day. Tunnel tolls are HK\$10 for CHT and HK\$15 for EHC.

7.10 **Tate's Cairn Tunnel.** The Tate's Cairn Tunnel project provided twin two-lane tunnels, 4 km in length, between Diamond Hill and Sha Tin on Kowloon Peninsula, together with extensive approach roads linking the tunnels to the existing road systems at both ends. Since 1977 traffic volumes between Kowloon and Sha Tin had been growing at a rate of 12 percent per annum, resulting in heavy congestion on the existing Lion Rock Tunnel and Tai Po Road. The capacity of the Lion Rock Tunnel was about 3,400 vehicles per hour in each direction and it was deemed infeasible to increase this throughput.

7.11 In 1986, a joint venture between Gammon Construction Ltd.<sup>46</sup> of Hong Kong and Nishimatsu Construction Ltd. of Japan put forward a BOT proposal to HKG to develop a 4-km tunnel under Tate's Cairn, linking the urban areas of Kowloon with Sha Tin, Tai Po, and other developing new towns to the north and northeast. In May 1987, HKG issued a project brief that outlined a "conforming scheme," and proposals were received from six consortia, including The Gammon-Nishimatsu joint venture.<sup>47</sup> With the Tate's Cairn Tunnel Ordinance of February 1988, HKG awarded the franchise to build the tunnel and its approach roads to Gammon-Nishimatsu's Tate's Cairn Tunnel Company (TCTC). The franchise called for construction to be completed within 37 months, and for the facility to be operated by TCTC

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<sup>44</sup> NHKTC was a joint venture between Kumagai Gumi and Marubeni Corporation of Japan; CITIC and Paul Y Construction Co. of Hong Kong, and Lilley Construction Co. of the UK.

<sup>45</sup> Tolls are specified by a schedule set forth in NHKTC's contract, but may be modified by agreement between the Governor in Council and NHKTC.

<sup>46</sup> Gammon Construction Ltd. was jointly held by Trafalgar House of the UK and Jardine Matheson of Hong Kong.

<sup>47</sup> As active promoters of the project, the Gammon-Nishimatsu joint venture sought support from several preeminent Hong Kong companies to take equity stakes in the Tate's Cairn Tunnel Company (TCTC). Under their shareholder's agreement, the contractors who would build the project held 47 percent of TCTC shares. China Resources and New World of Hong Kong, and Itochu of Japan also participated in TCTC as investors.

for 30 years from the start of construction. Construction commenced in July 1988, tunnel boring was completed by August 1989, and the underground road link opened to traffic in July 1991, two months ahead of schedule. The total project cost of HK\$2.15 billion was within the original budget, and the tunnel is now due to be handed over to HKG in 2018.

7.12 TCTC's project finance comprised shareholder's equity of HK\$600 million, a term loan facility of HK\$1.55 billion, and income generated from vehicle tolls upon completion of construction. The initial toll levels were based on vehicle classifications for private cars, light goods vehicles, and medium and heavy goods vehicles and buses. Subsequent toll increases during the 30-year franchise period are subject to the approval of Hong Kong's Governor in Council. Despite having no equity stake in the company, HKG's contract and the ordinance allows them to appoint two of TCTC's board members. While the tunnel is currently meeting traffic estimates, it is increasingly losing highly profitable truck traffic to the competing Government-run Lion Rock Tunnel, whose toll rates have remained fixed since the opening of the Tate's Cairn Tunnel.

7.13 **Western Harbour Crossing.** The Western Harbour Crossing is a dual, three-lane, immersed tube road tunnel connecting the West Kowloon Reclamation area and Sai Ying Pun on Hong Kong Island. At 1.36 km in length, it is the longest underwater road tunnel in Southeast Asia; including the approach sections, the total length of the tunnel from portal to portal is 2 km. The crossing has a design capacity of approximately 180,000 vehicles per day and it is intended to increase vehicular capacity across Victoria Harbour—particularly to the reclamation areas en route to the new Chek Lap Kok Airport. Through the Western Harbour Crossing Ordinance of July 1993, HKG granted the Western Harbour Tunnel Corporation Ltd. (WHTC)<sup>48</sup> the franchise to build and operate the new crossing for 30 years from the start of construction in August 1993. WHTC was given 48 months to build and begin operating the tunnel, and arranged turnkey construction contracts with Nishimatsu Construction and Kumagai Gumi. The Crossing was opened to traffic in April 1997, two months ahead of schedule and within the original budget.

7.14 WHTC financing for the HK\$7.5 billion BOT project was split into a HK\$3.2 billion term loan and HK\$2 billion in revolving credit. The facility features a spread that varies from 1.00 percent during project construction to 1.25 or 1.50 percent during the concessioned operations period. The deal is better priced than similar structured financing in the region because there is not the same revenue risk usually attending Asian transport projects. The partners in WHTC all had a wealth of experience with toll facilities in Hong Kong, and this helped them negotiate a toll adjustment mechanism (TAM) that is expected to free them from the cash flow constraints suffered by the other privatized tunnel projects. The TAM agreed to by both the Hong Kong and Chinese governments is a cash flow-based formula that allows WHTC to raise tolls in order to meet a defined rate of return to investors of a minimum of 15 percent and a maximum of 18.5 percent. Though more flexible than the simple provisions contained in the other franchise agreements, the principle of the return on equity investment being "reasonably but not excessively remunerative" still applies.

7.15 The TAM set out in the 1993 Western Harbour Crossing Ordinance includes a schedule of the initial tolls for eight different categories of vehicle. There are then six

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<sup>48</sup> WHTC is a joint venture established by CITIC, the Cross Harbour Tunnel Co Ltd., the Kerry Group, and the China Merchants Group (all of Hong Kong).

specified dates upon which toll increases in specified amounts are anticipated to occur. The Ordinance also specifies “minimum,” “upper,” and “maximum” estimated net revenue figures for each year of the operating period. The timing of actual toll rate adjustments is determined as follows:

- If actual net revenue always remains between the “minimum” and “upper” estimated net revenue, then the specified toll increases will occur on the specified dates.
- If actual net revenue falls below the “minimum” estimated for any year, the franchisee can apply for the next anticipated toll increase to be brought forward to twelve months after the end of the year in which the shortfall occurs.
- If actual net revenue for the year preceding a scheduled increase exceeds the “upper” estimate, the scheduled increase can be deferred (and further deferred if the same occurs in subsequent years) for 12 months.
- If actual net revenue exceeds the “upper” estimated net revenue but does not exceed the “maximum” estimated net revenue, then WHTC must pay into a separate toll stability fund 50 percent of the amount in excess of the “upper” estimated net revenue for any year.
- If actual net revenue exceeds the “maximum” estimated net revenue, the WHTC must pay into a separate toll stability fund the amount in excess of the “maximum” estimated net revenue and an amount to 50 percent of the difference between the “upper” estimated net revenue and the “maximum” estimated net revenue for any year.

7.16 Money in the separate toll stability fund is to be used to defer toll increases—either scheduled or advanced. In short, the TAM made WHTC’s basic risk a traffic risk, rather than a traffic and revenue risk. One year after opening, just 30,000 vehicles per day were paying the HK\$30 toll to use the new Western Harbour Crossing.

7.17 **Route 3 (Country Park Section).** Route 3 (Country Park Section) is a 10.1-km dual three-lane expressway that serves the western part of the New Territories area running from Ting Kau in the south to Au Tau, near Yuen Long, in the north. It consists of the 3.8-km Tai Lam Tunnel (the longest in Hong Kong) and the 6.3-km Yuen Long Approach Road. The route forms a comprehensive network with the new Ting Kau Bridge, Lantau Link, West Kowloon Expressway, and Western Harbour Tunnel, which are expected to become the primary road transport facilities between southern China, the northwest New Territories, and Hong Kong’s existing and planned seaports and airport.

7.18 The tender process was different from the past tunnel projects in Hong Kong in that HKG first issued a request for expressions of interest, and then issued a detailed project brief only to the interested parties in December 1993. The project brief essentially required that all prospective franchisees submit a proposal that conformed with the Government’s proposed route and preliminary designs. Conforming proposals also had to contain a Western Harbour Crossing-style TAM based broadly on principles set out in the project brief. However, alternative proposals incorporating different designs or alternative toll adjustment mechanisms were permitted and indeed encouraged, provided that they were still BOT arrangements and that the road would maintain a dual three lane configuration.

7.19 At the beginning of April 1994 proposals were received from six separate consortia. After a number of technical clarification meetings, the proposals were assessed according to HKG's pre-determined criteria. In November 1994, Route 3 (CPS) Company Ltd.<sup>49</sup> was selected to proceed to the next stage of approvals and, by means of the Route 3 Country Park Section Ordinance, was ultimately awarded the right and obligation to design, construct, commission, maintain, and operate Route 3 (CPS) and to collect tolls from vehicles using the project throughout the operating period. The whole of the tender process was closely monitored by the Central Tender Board and the Independent Commission Against Corruption.

7.20 The Route 3 (CPS) Company Ltd. consortium invested HK\$7.25 billion in the construction and operation franchise, representing the largest Hong Kong core infrastructure project ever undertaken by private developers. The 30-year BOT franchise began on May 31, 1995, as did a 38-month period within which the franchisee was to complete construction. The toll road was completed within budget and two months ahead of schedule, and was opened to traffic on May 25, 1998. Traffic is reported to be increasing steadily.

7.21 One of HKG's most important aims for this project was to achieve a low but stable toll regime while providing the franchisee with a reasonable but not excessive return on its investment. The project brief included a model toll adjustment mechanism that was based upon, but included refinements of, that used for the recent Western Harbour Crossing. In fact, the development of the TAM concept for the Western Harbor Crossing project helped HKG to attract highly competitive bids for the franchise to develop Route 3 (CPS) on a BOT basis. In turn, the presence of several eager bidders placed HKG in a position to negotiate better toll levels.

7.22 The toll adjustment mechanism ultimately included in the Ordinance has the following main features. It includes a schedule of the initial tolls for eight different vehicle categories, and three specified dates upon which toll increases in specified amounts are anticipated to occur. The Ordinance also specifies "minimum" and "maximum" estimated net revenue figures for each year of the operating period. The timing of actual toll rate adjustments is determined as follows:

- If actual net revenue always remains between specified "minimum" and "maximum" estimated net revenue figures, then the specified toll increases will occur on the specified dates.
- If actual net revenue falls below the "minimum" estimated for any year, then the franchisee can apply for the next anticipated toll increase to be brought forward to twelve months after the end of the year in which the shortfall occurs.
- If actual net revenue for the year preceding a scheduled increase exceeds the "maximum" estimate, then the scheduled increase can be deferred (and further deferred if the same occurs in subsequent years) for 12 months.

7.23 Actual net revenue in excess of the "maximum" estimate for any year is to be paid into a separate toll stability fund administered by a committee, and money in the fund can be used

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<sup>49</sup> Sun Hung Kai Properties Ltd. (SHKP), a major Hong Kong property developer, is the leading shareholder of Route 3 (CPS) Company Ltd., owning 50 percent of the development consortium. The other shareholders are Bank of China Group Investment Ltd., China Resources (Holdings) Ltd. and China Travel Service (Holdings) Hong Kong Ltd.

to defer toll increases—either scheduled or advanced—by sums within it being paid to the franchisee to make up any shortfall against the “minimum” estimated net revenue

### AA. Major Toll Road Issues and Implications for Best Practices

7.24 **Overview.** The experience in Hong Kong raises a number of major issues with respect to the development of toll roads, with important implications for best practices elsewhere. These issues and/or best practices include:

- identification of BOT projects based on a long-term master plan;
- clear risk-sharing based legislative ordinances enacted for each project;
- transparent tendering and selection procedures, and independent monitoring of the tender process;
- the importance of allowing the private sector maximum flexibility in route selection and design;
- addressing revenue risks through firm and fair toll adjustment mechanisms;
- concession expiration and “re-bidding;”
- maintaining the flexibility to utilize such tools as development rights to supplement project economics; and
- the importance of using experienced contractors for technologically sophisticated projects.

Each is addressed below.

7.25 **Identification of BOT Projects Based on a Long-Term Master Plan.** In order for HKG to attain its objectives for private sector involvement in infrastructure development, it was necessary for them to first prepare a long-term master plan for road development. This allowed the Government to carefully identify the most viable projects for implementation on a BOT basis, and allocate limited public funds more wisely towards the development of projects that have weaker financial viability, despite economic benefits.<sup>50</sup>

7.26 **Clear Risk-Sharing Based Legislative Ordinances Enacted for Each Project.** In Hong Kong, the rights and obligations of the government and the concessionaire are regulated by legislative Ordinances that are enacted on a project-by-project basis. Each Ordinance clearly authorizes the concessionaires’ legal rights of toll facility operation and specifies in considerable detail the terms and conditions for allocating specific project risks. Clear risk-sharing, backed up by legislation that subjects each project to detailed regulations, appears to be a highly effective way to facilitate private sector participation in infrastructure development—particularly when a comprehensive regulatory framework for BOT does not exist.

7.27 **Transparent Tendering and Selection Procedures, and Independent Monitoring of the Tender Process.** While the Government provides land for the toll facilities at no cost,

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<sup>50</sup> Following standard terminology in the development field, “economic” benefits are benefits to society at large (e.g., travel time and vehicle operating cost savings), while “financial” viability is based on revenues (financial benefits) to the enterprise or operator.

and also often a substantial investment in access roads, it is the policy of HKG to make available no further government assistance nor guarantees such as compensation for cost overruns, assumption of traffic level risks, or assurance of a return on equity. However, the regulatory framework has been developed so as to ensure a “level playing field” through such means as a clear and straightforward tender process and criteria for proposal assessment, in addition to the long-term master planning and legislated project Ordinances described above. In addition, the whole of the tender process is always monitored closely by the Central Tender Board and the Independent Commission Against Corruption. The resulting “competition” for procurement has meant that equity participation in the bidding teams over the years has included not only the major contractors but also other interests such as land developers (apparently depending on which institutions had funds to invest at the time the bid was made).

**7.28 Importance of Allowing the Private Sector Maximum Flexibility in Route Selection and Design.** Although a variety of significant constraints may have to be imposed upon the route location and project design, allowing the private sector maximum flexibility within those constraints has undoubtedly led to more creative approaches and maximized the overall benefit of the private sector’s contribution to Hong Kong’s BOT toll facilities.

**7.29 Addressing Revenue Risks Through Firm and Fair Toll Adjustment Mechanisms.** HKG has never had a comprehensive tariff policy. Toll adjustments for the initial private sector toll road projects (the Cross Harbour Tunnel, East Harbour Crossing, and Tate’s Cairn Tunnel), have all been subject to the approval of Governor in Council and disagreements have had to be settled through arbitration—a disincentive for private investment. With the Western Harbour Crossing (WHC) though, HKG and the private franchisee took a great leap forward with the establishment of a straightforward, transparent, fair, and legally binding Toll Adjustment Mechanism (TAM). If traffic and therefore revenue falls below a forecast volume, the TAM will allow the operator to advance the prespecified date of a toll increase. Conversely, if the amount of revenue received by the operator is above the forecast, resulting in a rate of return that exceeds a specified range, a toll increase will be deferred. However, the new TAM policy does not apply to the pre-WHC toll facilities.

**7.30** As part of the mechanism, a toll stability fund has also been established to which income above the maximum allowed is channeled, in order to offset the need for future toll increases. Thus, it gives the franchisee the certainty that tolls can be adjusted as the need arises, while providing for a low and stable toll regime. This approach gives the franchisee security in the project’s ability to reap a minimum return on the equity investment, while at the same time it gives financiers the assurance that the project will be able to service its debt requirements over the fixed concession period. On the whole, then, the WHC-style TAM appears to be advantageous to private investors and the Government alike, as it provides considerable flexibility and security to each party. However, its major (and perhaps intractable) shortcoming is that, despite being allowed to raise toll rates, the concessionaire may still be pressed if it finds itself short of revenues (due to slower than expected traffic growth, for instance). This is because the price elasticities of the toll facility users would probably be such that a toll increase would not necessarily generate more net revenue in such a circumstance. This is exactly the situation in which the unprofitable WHC finds itself presently, as the TAM is proving to be unworkable in the current negative economic climate.

**7.31 Concession Expiration and “Rebidding.”** As the first BOT toll facility in Hong Kong (and all of Asia), CHT will soon be again charting new regulatory ground when its initial 30-year concession expires in August 1999. Still the most profitable and congested of the three harbor crossings, its franchise will be highly sought after. However, the Government is coming under pressure to equalize tolls between the three crossings, in order to distribute traffic more evenly between them and ideally to improve the finances of the ailing WHTC (which has plenty of spare capacity). To allow itself more time to make a final decision on the future relationship between the three tunnels, the Hong Kong Government is now soliciting bids for the short term management, operation, and maintenance of CHT under a two year contract. While the tender must be open and fair, some observers have predicted traffic chaos unless the current operator, CHTC, bids successfully.

**7.32 Maintaining the Flexibility to Utilize Such Tools as Development Rights to Supplement Project “Economics.”** As was the case with the Eastern Harbour Crossing, if cash flow through project revenues alone will be insufficient, then allowing the concessionaire alternative sources of revenue may be advisable. This may take the form of development rights for project-related real estate, or other strategies.

**7.33 Importance of Using Experienced Contractors for Technologically Sophisticated Projects.** All of the BOT projects examined in Hong Kong involved significant and complex engineering challenges, particularly related to immersed or bored tunnel construction. It is instructive to note that in each case the contractors involved finished all construction within budget and several months ahead of the original schedule. Especially in cases where a specific civil engineering technology (i.e., tunnels or bridges) is necessary, it is extremely important that project promoters use experienced and reliable contractors.

## BB. Sources

“Cross Harbour Tunnel Ordinance,” June 1969.

“Eastern Harbour Crossing Ordinance,” August 1986.

“Tate’s Cairn Crossing Ordinance,” July 1988.

“Western Harbour Crossing Ordinance,” July 1993.

Kouji Mitsunaga [of Nishimatsu Construction Ltd.], “Structuring of BOT projects—Our Experience,” October 1998.

J.L. Carlile [formerly Group Managing Director, Gammon Construction Ltd. and Managing Director, Dartford River Crossing Ltd.], *Private funding of public highway projects*, April 1994.

Trevor Butcher [Partner, McKenna & Co.], “Route 3 Country Park Section—a case study,” *Project Finance International*, No. 77, July 1995.

“Western Harbour Tunnel on its way,” *Project Finance International*, No. 30, August 1993.



Angela Tam, "Hong Kong Tunnel Concession Rebidding Hitch," *Public Works Financing*, February 1999, p. 18.

Roger J. Allport, *Developing Best Practices for Promoting Private Sector Participation in Infrastructure: Expressways*, Draft Final Report (Appendix B: Case Studies), Asian Development Bank, TA No. 5733-REG, June 1998.

## 8

### Hungary: Toward Public-Private Partnerships?<sup>51</sup>

#### CC. Country Background

8.1 Hungary's GDP increased at an equivalent average annual rate of 1.9 percent between 1992 and 1997, with year-on-year growth increasing to 4.4 percent in 1998 and reaching 4.9 percent during the first quarter of 1998. The consumer price index increased by 18.3 percent (1997) to 28.2 percent (1995) during this period, while the Hungarian forint-United States dollar exchange rate deteriorated from 91.9 in mid-1993 to 186.6 in 1997 and 216.2 in mid-October 1998. During the ongoing period of economic transition in Hungary, road transport has replaced railway as the primary mode of freight haulage, reflecting improvements in the road system and a lack of major investments in the state-owned railway; car ownership has also increased in Hungary in recent years, from 187 per 1,000 population in 1990 to 219 per 1,000 in 1995.

#### DD. Major Toll Road Developments

8.2 With the need to reduce public spending and improve its road infrastructure, Hungary turned in the early 1990s to the development of a toll motorway network on a BOT basis. However, as outlined below, Hungary's pioneering experience in pursuing the BOT option has not been without difficulty, and the trend is more in the direction of a private-public partnership approach to the development of road infrastructure, while some observers question the need for development of a full-scale motorway network in the country at this stage.

8.3 Hungary's toll road motorway program was initiated in the national highway plan of 1992, which called for the development of four motorway corridors:

- (i) the M1/M15 corridor, with M1 connecting Budapest and Vienna and M15 connecting to the Slovak Republic;
- (ii) M5 toward the southeast, to Serbia and Romania;
- (iii) M3/M30 toward the east, to Ukraine and Belarus; and
- (iv) M7 to the southwest, toward Slovenia and Croatia.

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<sup>51</sup> A complete list of the sources of this paper is presented in Section D. However, the paper draws most extensively from two excellent sources: (i) *The Toll Road Program in Hungary: A Policy and Financial Review*, Country Draft Paper prepared by The World Bank, Private Sector Department, 1997; and (ii) Miklós Muranyi and Arpád G. Siposs [Hungarian Bureau for Motorway Development], "Private Financing of Roads in Hungary under Continuous Change," *Privatisation International*, June 1998, pp. 45-47.

8.4 Each is described below along with a review of the M9 Danube toll bridge at Szekszárd. The first two motorways listed above were the initial toll concessions in the region, although there have been more recent developments in Poland, the Czech Republic, the Slovak Republic, and Croatia.<sup>52</sup>

8.5 **M1/M15 Project.** The M1/M15 project, the first motorway concession in the region, involves 43 km on M1 (the last missing link of the 260 km motorway between the Hungarian and the Austrian capitals) and 14 km on M15 (a branch toward Bratislava), with the complete design and construction of a dual carriageway. The procurement notice was published in September 1991, a 35-year concession contract was finalized in April 1993 and become effective in January 1994, and the project reached financial closure in December 1993. The concession company, ÉLMKA (Élso Magyar Koncessziós Autópálya Rt., First Hungarian Motorway Concession Co., Ltd.), involved French, Austrian, and Hungarian operators, contractors, oil companies, and banks. In the financing structure—involving EBRD plus eleven Western European and two Hungarian banks lending ECU329 million (US\$366 million)—equity represented 17 percent, long-term debt 81 percent, and generated cash 2 percent; 50 percent of the debt is financed with local currency, arranged or provided by EBRD, two foreign banks, and two Hungarian banks. Government support for the project included preliminary design, building permits, and environmental clearance; land acquisition, amounting to 5 percent of project costs; undertaking of no tolls on the existing 126 km of motorway prior to 2005; acceptance of a phased approach, e.g., M15 second carriageway; and some restrictions on heavy goods vehicle movements on a parallel road. The M1 section opened in January 1996 (on schedule and within budget) and the M15 section was to be completed by mid-1998. There was no state guarantee for traffic or cash-flow levels, and 15 percent of the profits were to be paid to the Government's Road Fund.

8.6 Traffic volumes on the M1 section have been about 6,350 vehicles per day or about 45 percent less than forecast; there has been little truck traffic, perhaps a consequence of poor project design, since a relatively short tolled motorway section between two untolled sections can easily be avoided. Generally, corridor traffic has been significantly less than forecast, due to a lack of market growth, continuing delays at the border between Hungary and Austria due to nonphysical barriers, lower than forecast diversion from elsewhere in the region,<sup>53</sup> and forecasting errors.<sup>54</sup>

8.7 The allowed maximum toll rate, set in the contract, was ECU0.13/km (US\$0.146 for Category 1 vehicles (i.e., automobiles and bicycles), with a 30 percent higher rate permitted for certain vehicles during the summer peak. Rates were to be escalated based on the

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<sup>52</sup> However, experience to date suggests that upgrading to full motorway standards is likely to be economically and financially viable for only a very few (if any) sections in Central and Eastern Europe in the short to medium term, if rigorous evaluations are conducted. European Bank for Reconstruction and Development, *Transport Operations Policy*, 1997, Annex D, p. 1.

<sup>53</sup> While the Hungarian government promised to restrict truck through-trips on the competing free routes, problems with police enforcement, municipal control of secondary roads, and the collection of fines have left road transport operators with free route choice.

<sup>54</sup> A major problem was the lack of historical evidence on traffic from Austria, as the border had been opened only relatively recently.

domestic consumer price index and/or the exchange rate differential in proportion to loans in United States dollars and German marks.<sup>55</sup>

8.8 In response to a legal action brought by the head of the legal committee of the Hungarian Automobile Club, in May 1998 an appeals court upheld a lower court ruling that the tolls, amounting to about a days' salary for an ordinary worker, were too high and therefore ordered a 50 percent reduction in the toll rate, apparently without any government compensation to the concessionaire.<sup>56</sup> While the ruling does not directly set aside the toll regime, it does open the door for further challenges, making the concession, in the words of an EBRD banker cited by *PWFinancing* (June 1998, p. 24), "de facto...not sustainable."

8.9 With the revenue shortfall well below the "worst-case scenario" level defined in the concession contract, i.e., revenues 30 percent less than the target), the concession company will require restructuring as it cannot meet its principal payments. As of September 1998, negotiations were underway to address the problem. A new coalition government led by the Federation of Young Democrats (Fidesz)-Hungarian Civic Party was said to be considering nationalizing the highway,<sup>57</sup> although bankers thought that some restructuring of the existing concession was more likely (e.g., doubling the length of the toll concession by adding the existing section of M1 to Budapest, although this option would require new equity to construct toll plazas and make improvements to "justify" tolling an existing road).

8.10 **M5 Project.** The M5 project, the second toll motorway concession in Central and Eastern Europe, involves 157 km from Budapest to the southern border and onward to Belgrade-Sofia-Istanbul (i.e., "pointing in the wrong direction"). The project includes the complete design of 30 km of existing dual carriageway, to be followed by construction of 27 km of single and 40 km of dual carriageway, all in the first phase; two subsequent phases were to involve a total of 60 km of dual carriageway. The procurement notice was published in April 1992, the 35-year concession contract signed in May 1994, and the concession company, established by French, Austrian, and Hungarian contractors (AKA), reached financial closure in December 1995. Project costs have been estimated at ECU570 million (US\$634 million), with lenders including EBRD, 16 Western European, and four Hungarian banks.

8.11 A substantial government contribution—estimated at 30-40 percent of project costs—was provided in the form of (i) land acquisition and delivery; (ii) provision of existing road sections to be operated as a toll road after their rehabilitation or reconstruction; (iii) a standby, semi-annual, and totally capped operational subsidy, disbursed from the Road Fund, available for the initial six years of operation as a cash-flow deficiency guarantee;<sup>58</sup> (iv) construction of

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<sup>55</sup> However, in a recent year (1996) the toll level was increased by 11 percent while the annual inflation rate was 20 percent.

<sup>56</sup> The lower court judge had "reasoned" that since 70 percent of the users prefer the slower, more dangerous alternative route, the toll road did not provide value for money. The Hungarian Automobile Club brought another action, before the country's competition watchdog, claiming that the concession holder was misleading consumers by not providing road signs indicating non-tolled alternative routes; this action was unsuccessful.

<sup>57</sup> The new Prime Minister has stated that existing toll gates on motorways should be demolished; he has expressed a preference for the Austrian or Swiss approach by which an annual road fee is charged and a sticker on the windshield provides proof of payment.

<sup>58</sup> This guarantee became necessary after an independent traffic study commissioned by the lenders forecast relatively low traffic.

a 15 km, two-lane connecting road to channel excess traffic from Road No. 4 to M5; and (v) some restrictions on heavy goods vehicle movements on a parallel road.

8.12 This substantial government contribution was the result of renegotiations occasioned by an updated traffic forecast reflecting the effects of civil instability in the former Yugoslavia; in return, the government has a profit-sharing arrangement with the concession company. However, the first dividend payments to shareholders are permitted only 10 years after financial closing. The financing involved 20 percent equity, 75 percent long-term debt, 5 percent generated cash, and a 10 percent extra standby facility. Subsequent phases of the concession are to be triggered when certain financial criteria are met (e.g., FIRR).

8.13 Tolls on the M5 are automatically escalated based on the domestic consumer price index and/or the exchange rate differential with the French franc; tolls on the road, lower than those on M5, have been deemed reasonable by the courts. After opening of the toll road, residents along a parallel road protested against the new facility because of the adverse impacts of the diverted traffic on the free road; traffic increased by 30 percent on these roads as local residents and trucks from Ukraine and Turkey sought to avoid tolls. Political pressures led to negotiations with the concession company, which agreed to extend an existing commercially based system of toll discounts for local users, with the state offering cash support to cover losses from these non-commercial discounts.

8.14 Traffic volumes in 1997 were about 7,650 vehicles per day, about 97 percent of estimated. It is expected that only about 25 percent of the operational subsidy will need to be used, and concessionaires and lenders are considering a second and third phase.

8.15 **M3/M30 Project.** The M3/M30 project, towards the east, involves improvement of a 56 km existing section and 256 km of new construction. A procurement notice was published in November 1992, but the government cancelled the concession tender in October 1995. The bidders could only propose phased implementation, with unconditional implementation of only 43 km, and that with a government guarantee of a standby facility.

8.16 In May 1996 the wholly state-owned ÉLKMA was established with ECU12 million (US\$14 million) of capital to foster development of the region. It has initiated work on two sections, 43 km and 62 km, with State, European Investment Bank (EIB), and German Government (Kreditanstalt für Wiederaufbau, KfW) support; the 43 km section was to be completed by September 1, 1998. By government decree a maximum toll rate of ECU0.045 per km has been set for Category 1 vehicles. In response to a campaign against charging tolls on this project road, the government has postponed collection from 1998 to 1999, although it remains to be seen whether this will facilitate eventual toll collection.

8.17 **M7/M70 Project.** The M7/M70 project, towards the southwest and the Lake Balaton tourist area, involves improvement of 93 km of existing road and 142 km of new construction.<sup>59</sup> A procurement notice was issued in October 1993 but the concession tender was declared unsuccessful in June 1997. Project cost was estimated at ECU830 million (US\$923 million). The work and financial requirements could not be adequately addressed by the proposals. The work for reconstruction and tolling of the existing sections is to be

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<sup>59</sup> Slovenia, the country southwest of Hungary, is strategically located to serve as an alternative route for Western European trucks seeking to bypass the Swiss and Austrian Alps.

financed by the central government, while a new concession is to be launched for the remainder, with the reconstructed section and additional government support offered. The toll is to be maintained at the “socially acceptable” level of ECU0.045/km.

**8.18 M9 Danube Toll Bridge at Szekszárd.** For a concession for a 920 m bridge over the Danube and 20 km of approach roads, a procurement notice was issued in November 1991 and a concession contract signed in December 1993 with UDHK, a joint venture of French and Hungarian contractors. However, likely traffic was deemed insufficient to support the ECU110 million (US\$122 million) project, and the concession became invalid in February 1998. A public-private partnership solution is now said to be in the works.

### **EE. Major Toll Road Issues and Implications for Best Practices**

8.19 The Hungarian toll road experience raises a number of major issues with respect to the development of toll roads, with important implications for best practices, in Hungary and elsewhere. These issues include:

- the need for reliable traffic forecasts;
- the importance of public acceptance;
- the importance of well-drafted concession laws;
- the appropriateness of Government contributions of rights-of-way;
- potential conflicts of interest in contractor-driven projects;
- the role of multilateral bank support; and
- the transition toward the public-private partnerships (PPP) approach.

Each is addressed below.

**8.20 Need for Reliable Traffic Forecasts.** Underestimated traffic has proved to be a major problem with the development of the M1/M15 toll road concession, for which traffic has been 45 percent of forecast levels, for a number of reasons (stated above). The forecasts were prepared by a subsidiary of Transroute (using parameters suitable for France, but not for Hungary), one of the firms involved in the concession company, a practice that should be avoided;<sup>60</sup> in fact, *PWFinancing* (September 1997, p. 19) reported anecdotally that EBRD no longer accepts forecasts from companies affiliated with concession holders or from companies that are not “world class.”<sup>61</sup>

8.21 In the M1/M15 case, an early audit by a Swiss firm (Prognos) utilizing stated preference data suggested that the traffic forecasts were too high, but there was deemed insufficient time between contract signing in April 1993 and financial close in December 1993 for an independent forecast, although M1 was reduced from four to two lanes as a result of the audit. In the case of the M5 toll concession, a credible traffic study was performed

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<sup>60</sup> Constraints on resources available for traffic forecasting, which usually occurs at the tendering stage, has also been mentioned as a factor affecting the reliability of forecasts. A solution may be a single, intensive traffic study executed at the pre-tender stage for use by bidders. Rupert Bruce, “Disappointing Returns at the Toll Booth,” *Infrastructure Finance*, October 1996, pp. 29-36.

<sup>61</sup> Of course, traffic estimation is not an exact science; there is a limitation to the accuracy that can be achieved, especially regarding new links.

during the tendering period, but later adjusted to reflect new circumstances, mainly reflecting emerging civil instability in the former Yugoslavia.

**8.22 Importance of Public Acceptance.** The Hungarian experience also points to the importance of achieving public acceptance of BOT and PPP approaches, which may be a particular problem in transitioning economies, although it is one also experienced in “advanced” jurisdictions (e.g., Washington State). Issues that were inadequately addressed in Hungary include public perceptions relating to (i) the relationship between toll levels and local standards and ability to pay; (ii) the “unfairness” of charging tolls on existing non-tolled facilities, improvements notwithstanding; (iii) the impact of diversions to non-tolled, local roads; and (iv) profits earned by investors.

**8.23** In the case of the M3 toll road, founded by EIB and KfW loans, public hearings were not held to discuss alternatives, in contravention of European Union directives. The Environmental Impact Assessment for the M3 project has also been criticized, for not considering (i) the impact of the road on increased traffic inside Budapest, (ii) increased traffic in residential areas along alternative routes, and (iii) impacts on animal habitats.<sup>62</sup>

**8.24 Importance of Well-Drafted Concession Laws.** The Hungarian concession law (Act XVI of 1991)—which applies for all concessions, not only for toll motorways<sup>63</sup>—was not clear enough to prevent a successful challenge to a toll rate calculation method that was clearly fixed in the concession contract. The challenge based on a contradictory provision in the Hungarian Civil Code that permits a judge to “adjust” a contract in “exceptional” circumstances in which the price is considered disproportionate to the service provided.

**8.25** The Hungarian concession law is not without its positive features, however. For example, one useful provision is found in Section 3(1) of the law, which states that the grantor may conclude a concession contract with “domestic or foreign natural persons or legal entities, *and with the unincorporated associations thereof*” (emphasis added), which allows bidding by international consortia that may forego the time- and cost-consuming obligation of forming a special purpose concession company until after selection of the winning bidder. Another useful feature is the 35-year (initial) concession period provided in Article 12, with the possibility of an extension without separate tender for an additional period of up to one-half of the original period.

**8.26 Appropriateness of Government Contributions of Rights-of-Way.** The Hungarian Motorway Directorate has contributed rights-of-way without charge to projects, having resolved all resettlement and environmental issues before the concession agreement is signed. This practice is generally recommended because to have these matters outstanding puts project sponsors at risk for decisions and actions best assumed by the Government.

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<sup>62</sup> Walter Hook, “Fighting the M3 Highway in Hungary,” *Sustainable Transport*, pp. 18, 21, and 23.

<sup>63</sup> What is important is not that there be a general concessions law or a specific law governing toll motorways, but that there be a law in place, one that is well-drafted and covers basic concerns. If these criteria are met, a law of general application may be preferred, to ensure equal treatment of concession holders in various sectors, to allow for learning from the related experience of other sectors, and to conserve scarce legislative energy. John D. Crothers [Gide Loyrette Nouel], “Project Financing of Toll Motorways in Central and Eastern Europe: A Signpost for Transition,” *Law in Transition* [an EBRD newsletter on legal cooperation and training], p. 7.

8.27 **Potential Conflicts of Interest in Contractor-Driven Projects.** The M5 toll concession is led by contractors, a consequence of provisions allowing dividend payments only 10 years after financial closing, perhaps reflecting the typically slow revenue buildup of the project. However, in such a contractor-driven project, conflicts of interest are unavoidable and difficult to address contractually; concessions involving transport operators are more likely to reflect long-term interests.

8.28 **Role of Multilateral Bank Support.** Multilateral banks—EBRD in the case of Hungary—can and do play a useful role in toll road development by the private sector, typically by assuring a fair allocation of risks and the application of long-term debt capital to promote project “bankability.” For example, in the case of the M1/M15 motorway, EBRD supported local financing instruments so that about half of the debt was denominated in local currency, a “best practice” that limits exposure to currency devaluation and inflation risks.

8.29 In addition, EBRD was instrumental in improving the drafting of certain parts of the concession contract (e.g., relating to force majeure and consequences of government action affecting operation). Also, when preparatory work on the M1/M15 project was stalled due to a lack of reserves in the Hungarian Road Fund, EBRD supported the Budapest Orbital Motorway Project (MO) with two billion Hungarian forint (US\$27 million at the time) in interim financing for the Fund, which freed up monies for the M1/M15 motorway, an important pilot project in EBRD’s view.

8.30 **Transition toward the Public-Private Partnership Approach.** Hungary has moved in the direction of the so-called Public-Private Partnership (PPP) approach, which refers to a commercial company in which both the private and public sectors hold stakes, with managerial control in the hands of the private sector. A PPP may be distinguished from a BOT in that (i) equity in a PPP is typically held by both private and public interests, and (ii) a PPP is more flexible regarding project implementation.<sup>64</sup>

8.31 The Hungarian Government has moved ex post facto toward the PPP approach, for political and financial reasons (e.g., limited public acceptance of BOT concessions, the requirement for the Government to make a substantial contribution to toll road projects to make them “bankable”), which make a more private-sector approach difficult to implement. Hungary must still consider, however, the desirability of proceeding with its ambitious toll road program in the short to intermediate term, even with a PPP approach, in view of the limited economic returns to date (see Section 3.2 above).

## FF.Sources

*The Toll Road Program in Hungary: A Policy and Financial Review*, Country Draft Paper prepared by The World Bank, Private Sector Department, 1997.

Miklós Muranyi and Arpád G. Siposs [Hungarian Bureau for Motorway Development], “Private Financing of Roads in Hungary under Continuous Change,” *Privatisation International*, June 1998, pp. 45-47.

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<sup>64</sup> European Bank for Reconstruction and Development, *Transport Operations Policy*, p. 23.



European Bank for Reconstruction and Development, *Transport Operations Policy*, 1997.

John D. Crothers [Gide Loyrette Nouel], "Project Financing of Toll Motorways in Central and Eastern Europe: A Signpost for Transition," *Law in Transition* [an EBRD newsletter on legal cooperation and training], pp. 6-11.

European Bank for Reconstruction and Development, Project Evaluation Department, *Operation Performance Evaluation Review of Budapest Orbital Motorway, Hungary (A State Sector Investment Operation)*, December 1996.

Various materials provided by ÉLMKA, the M1/M15 concessionaire (e.g., ELMKA, *Opening of the M1 Concession Motorway*, January 4, 1996; *National Report: Motorway Network in Hungary*, 1998)

Asian Development Bank [by Roger J. Allport], *T.A. No. 5733-REG, Developing Best Practices for Promoting Private Sector Participation in Infrastructure, Draft Final Report: Expressways*, June 1998, pp. 54-56.

Walter Hook, "Fighting the M3 Highway in Hungary," *Sustainable Transport*, pp. 18, 21, and 23.

Various articles from *PWFinancing*, "Hungarian Toll Crisis Peaks," June 1998, p. 24; "Hungary Guarantees M1-M15 Loans," September 1997, pp. 18-19; "Hungary Says Private Tolls Too High," May 1997, p. 18; "Banks Halt Hungary Toll Road Financing," December 1996, p. 11; "EBRD Key to Toll Revenue Debt Financing," May 1996, p. 20; "East Europe's First Toll Road Awaits Truckers," May 1996, pp. 18-19; "M5 Gets EBRD OK," June/July 1995, pp. 14-15. "Help for A1 Polish Toll Road Concession," September 1997, pp. 17-18; "Croatia Signs Mega-Highway Deal," May 1998, p. 19; "Croatian Road Deal," November 1997; "Bouyges Bets on Croatian Toll Roads," November 1995, p. 19; "Bulgarian Toll Road Study," September 1995, p. 23; "Czechs Abandon BOT Approach," February 1994, p. 10.

Peter Reina, "Case Study—Hungary's M1-M15 Toll Road: Eastern Europe's First Go at B-O-T," *International Supplement to RCC's Public Works Financing*, April 1994.

"Bids for Romanian Toll Motorway," April 1998, pp. 17-18.

Walter Hook, *Wheels Out of Balance, Suggested Guidelines for Intermodal Transport Sector Lending at The World Bank, A Case Study of Hungary*, July 1996.

Robert L. Drake [Baker and McKenzie], *Case Study of the M5 Toll Motorway Project*, undated.

Rupert Bruce, "Disappointing Returns at the Toll Booth," *Infrastructure Finance*, October 1996, pp. 29-36.

"The EIB and the Financing of European Infrastructure," *PFI European Market Report*, p. 3.

CEE bankwatch network [sic], *Blueprints for Sustainable Transportation in Central and Eastern Europe, Regional Report*, prepared by Dorian Speakman, May 1997, downloaded from <<http://www.zpok.hu/mirror/bankwatch/transport.htm>> on May 18, 1998.

The Economist Intelligence Unit, *Country Report: Hungary*, 3<sup>rd</sup> quarter 1998, 1998.

The Economist Intelligence Unit, *Country Profile: Hungary, 1997-98*, 1997.

## 9

**Indonesia: Coping with Political and Financial Crises<sup>65</sup>****GG. Country Background**

9.1 Within the last decade, Indonesia has experienced rapid economic growth, driven by continuing expansion of non-oil exports including rubber and palm oil, textiles, and plywood. Industrial output is based on diverse natural resources including crude oil, natural gas, timber, metals, and coal. Indonesia was able to maintain an average annual GDP growth rate of 6 percent between 1984 and 1995, with GDP per capita increasing from 1.1 per annum to 6.6 over the same period.<sup>66</sup> However, while impressive, this growth was still not sufficient to cut underemployment while absorbing the 2.3 million workers annually entering the labor force. Then in late 1997 the Asian financial crisis hit Indonesia severely, sending a significant share of the population back into poverty. The United States dollar value of the Indonesian currency fell from Rp 2,500 in 1997 to Rp 14,000 in the first half of 1998 (although it has since recovered to around 9,000 Rp). The past year has also seen significant social unrest with large-scale rioting in the streets and ongoing political changes and turmoil in its wake. The political instability and social chaos have further exacerbated the country's current economic woes and the future remains uncertain.

9.2 The transport system of Indonesia is multimodal, comprising a public road network of about 267,000 km (about 50 percent paved); railway networks on Java and Sumatra totaling 6,458 km; an extensive inter-island and coastal shipping network; an extensive domestic and international air transport network; and inland waterway systems on the islands of Kalimantan, Sumatra, and Irian Jaya. Road transport is the dominant mode, accounting for more than half of all freight ton- and passenger-kilometers. Inter-island sea transport is the second major mode, while air and rail account for the remainder of motorized transport in Indonesia. The country's transport system and flows have been shaped by the economic resource base of the islands and the distribution of population across the nation; this is evident in the relatively large sea transport system serving the Indonesia's numerous islands, as well as the concentration of land-based transport infrastructure (both road and rail) on Java, where nearly 60 percent of the Indonesian population inhabits less than 7 percent of the nation's land area. Overall, the various transport modes tend to complement one another, as significant intermodal competition can only be found on Java and in just a few transport corridors on the other islands.

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<sup>65</sup> This case study draws most extensively from information collected during a field visit to Indonesia in October 1998. A complete list of the sources for this paper is presented in Section 4.

<sup>66</sup> *EIU Country Profile – Indonesia 1997-98, 1992-3, 1986-7*, The Economic Intelligence Unit

## HH. Major Toll Road Developments

9.3 **Highway Planning in Indonesia.** Strong economic and wage growth, coupled with a slow pace of improvement in public transport, led to a dramatic increase in the demand for transport by private vehicles over the past decade. This trend has caused many Indonesian roads, particularly in urban areas, to become increasingly congested<sup>67</sup> and has compelled the Government of Indonesia to place a high priority on increasing highway investment and toll road construction. Indonesia's Sixth National Economic Development Plan, *Repelita VI*, envisaged the construction of 688 km of toll roads by 1999, and 1,935 km by 2020. By mid-1997, the total number of toll roads in service had reached 472 km in 15 sections, of which 148 km had been built and were under operation by private-sector concessionaires. At the same time, 237 km of toll roads were under construction or planned to be completed by 2000. Approximately 66 percent of these toll roads are located in West Java, particularly in the metropolitan region surrounding Jakarta, known as Jabotabek.<sup>68</sup> The remaining toll roads are concentrated in the next largest Indonesian cities: Surabaya, Bandung, Medan, Semarang, and Ujung Padang. Within its toll road development program, the Government of Indonesia has actively encouraged participation by the private sector in planning, development, and operations.

9.4 **Historical Development of Toll Road Financing.** The historical development of toll road financing methods in Indonesia may be divided into two phases. In the first phase, from 1978 to 1990, the Government fully financed all of the toll roads, while the state toll road operating agency, Jasa Marga, operated them. Later in this period, the role of Jasa Marga was expanded to include responsibility for toll road construction and fund raising. The second phase, beginning in 1990, saw toll road financing decisions made in cooperation with the private sector, using the BOT approach. In 1994, Jasa Marga introduced a BOT system with modified terms (including revenue sharing and sharing of land acquisition costs), and also experimented with a modified turnkey system. The most popular arrangement has been the use of BOT in the form of a Joint Venture (JV) between Jasa Marga and private sector entities. Under this type of arrangement, a Concession Company is responsible for arranging financing to cover construction and operation expenses, using a combination of debt and equity. At the end of the concession period, the toll road is transferred to the Government.

9.5 *Funding by Government, Bilateral Loans, and Bond Issues: 1978-90.* PT Jasa Marga ("Persero") was established in 1978 by Government Regulation No. 4 of 1978, and charged with the responsibility to operate the toll roads that were built by the Department of Public Works. The 46-km Jagorawi Highway became the first toll road in Indonesia; it was fully funded by the government, and operated by Jasa Marga, whose tasks included the collection of tolls and the maintenance of toll roads. Although Jasa Marga was intended to be financially independent, approximately two-thirds of its investments during this period were financed through foreign loans on which the Ministry of Finance, rather than Jasa Marga, has made all interest and principal payments. The remaining one-third has been financed primarily through low-interest bonds sold to government employee pension funds. By 1990, the total value of bonds issued by the company had reached Rp 688,718 billion. The total

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<sup>67</sup> Between 1991 and 1996, the number of vehicles in Indonesia increased 18.02 percent (*EIU Country Profile – Indonesia 1997-98*). West Java is home to more than half of the country's automobiles and buses.

<sup>68</sup> The Jabotabek area contains the cities of Jakarta, Bogor, Tangerang, and Bekasi, as well as the region in between.

length of toll roads operated by Jasa Marga reached 310 km (including 41 km of access roads) in nine routes by 1990.

9.6 *Private Sector Participation through Concessions: 1990 to Date.* As early as 1987, Presidential Decree No. 25 of that year required that Jasa Marga be involved in all toll road construction, and that any joint ventures set up to develop toll roads enter into a cooperation agreement with Jasa Marga (acting as both an investor and a regulator). Under Article 38 of Government Regulation No. 8 of 1990 on Toll Roads (GR 8/1990), the Minister of Public Works granted Jasa Marga the authority to develop, construct, and operate toll roads throughout Indonesia, and encouraged them to develop, construct, and operate toll roads in cooperation with other parties, upon the grant of a concession license from the Minister of Public Works.

9.7 While private investors responded positively to this opportunity, most interested private-sector parties have formed toll road consortiums because of the large investment required and the long debt repayment periods involved. When it enters into a cooperation agreement with investors, Jasa Marga is still not released from its obligations to develop, construct, and operate the toll roads. It may however appoint and grant various toll road responsibilities to the investors under the terms and conditions stipulated in an Authorization Agreement,<sup>69</sup> on the condition that all risks arising as a consequence of toll road construction, operation, maintenance, and general management will become the responsibility and risk of the relevant investors for a fixed period of time. In the typical project structure, Jasa Marga is only involved as an equity partner. The investors gain a return on their investment through toll revenues during the concession period, and at the completion of the concession period, the toll roads are to be turned over to Jasa Marga.

9.8 **The Tender Process.** Private sector investment in toll roads has been encouraged both by way of direct investments, as well as an international competitive bidding process. Private investment in toll roads is a difficult and long term commitment, however, as toll revenue is in Rupiah and agreements for construction and operation of toll roads are often non-recourse. The Indonesian Government's Toll Road Investment Team sends invitations to all companies that are eligible to participate in toll road investment bids for certain sections. A pre-bid conference to explain the tender procedure is typically held as part of the bidding procedures, and Jasa Marga arranges site visits at the request of the bidders. The selection criteria for toll road investors is divided into two classes: (i) administrative; and (ii) technical, financial, and legal. The administrative criteria require the lead firm to fulfill its financial obligations, while the technical, financial, and legal criteria consist of: (i) the given scope of works and technical specifications; (ii) the construction period; (iii) the concession period; and (iv) the cooperation scheme offered to Jasa Marga. No request for a guarantee may be made to Jasa Marga nor to the Government of Indonesia during the tender process.<sup>70</sup>

9.9 The Toll Road Investment Team reviews and evaluates the bid documents from bidders, and based on the evaluation it recommends to the Jasa Marga Board of Directors a maximum of three bidders whose proposals are judged to be the best. These proposals are

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<sup>69</sup> The scope of work covered in Authorization Agreements includes: (i) planning (including feasibility studies, environmental impact analysis, and final engineering design); (ii) funding for land acquisition; (iii) construction; (iv) operations; and (v) maintenance.

<sup>70</sup> However requests for guarantees may be made during negotiations, as was the case with the Cikampek – Padalarang project, described later in this Case Study.

then forwarded to the Minister to make the final decision and request Presidential approval. Of 19 toll road projects that were offered in the first launching of tender process, 13 have been awarded. However, due to the economic crisis, financial close has not yet been reached for any of them. All but one of the toll road projects have thus far been financed by domestic banks.<sup>71</sup>

**9.10 Nature of Concessions.** There are two basic forms of private sector participation in toll road development in Indonesia, Build Operate Transfer (BOT) systems and modified turnkey systems. Under the BOT system, a private company may either sign a cooperation agreement with Jasa Marga whereby the road is operated privately and revenues are shared, or they may set up a new joint venture company wherein Jasa Marga manages operations and the investing company receives a share of the toll revenues. Under the modified turnkey system, investors provide design and funding and are also responsible for construction of the toll road. Jasa Marga then operates the toll roads, and the investor receives a predetermined share of toll revenue without doing any management work.<sup>72</sup>

**9.11** Article 41 of GR 8/1990 states that the Government is also responsible for expenses related to the procurement of land for the toll road. This provision assigns to the Government the risks associated with land procurement, since it has control over the process of land usage. Prior to 1993, land procurement expenses for toll roads were borne entirely by the Government. However, since 1994 the Government's funds for the construction toll roads have been very limited. Therefore in a number of more recent authorization agreements, the investors have been obliged to bear the expenses for the procurement of land, including interest, within the period of the toll road authorization (the amounts of which are estimated by Jasa Marga<sup>73</sup>). The land on which the toll roads are constructed is always property of the Government.

**9.12** According to Law No. 13 of 1980, and Article 40 of GR 8/1990, proposals for initial toll tariffs and for the subsequent adjustment of tariffs must be submitted to the Minister of Public Works and authorized directly by the President. Although not a legal requirement, the tendering process administered by Jasa Marga requires that the toll tariff must not exceed 70 percent of the vehicle operation expense savings that may be attributed to the road. Three vehicle type categories are used: light vehicles, medium vehicles, and heavy vehicles. While a tariff adjustment may be applied for by the concessionaire every two years based on a formula incorporating the consumer price index, Presidential approval cannot be guaranteed by the Government. In the event of force majeure a formula is also used to calculate the compensation due to the investors. The Government also maintains the authority to revoke the status of the toll road in the event that (a) it serves as the only alternative to a public road which becomes inoperable; (b) the goals for the operation of the toll road have been achieved; (c) the requirements of the toll road are not complied with; or (d) the function of the toll road is not met.

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<sup>71</sup> The Ciranjang – Padalarang project involves a Malaysian investor.

<sup>72</sup> The World Bank has recommended also concessioning roads that are already under operation in Indonesia, including those still to be built by Jasa Marga or with public funds in general. These roads would be concessioned as soon as an initial traffic volume has been confirmed. This approach is considered to be much easier to implement because the risks for the private sector would be significantly reduced while the objective of private-sector resource mobilization would still be achieved.

<sup>73</sup> Overruns from these estimates were originally borne by Jasa Marga, but the current practice is for the developer to bear such costs

9.13 One of the first roads to feature private-sector participation was the 15.5 km Cawang-Tanjung Priok elevated highway, forming a part of the urban expressway system in Jakarta. The concession was granted in 1993 for a period of 30 years to a joint venture company formed between Jasa Marga and Citra Marga Nusaphala Persada (CMNP).<sup>74</sup> Another early example was a project to widen the 72 km toll road from Jakarta to Cikampek. Jasa Marga had originally built a four-lane road for the first 25 km and two lanes thereafter, and the joint venture built the additional two lanes for 50 km.

9.14 **Participation of Foreign Investors in Indonesian Toll Roads.** Since 1994, foreign investors have been allowed to work with Indonesian companies in order to promote toll road development and technology transfer. These foreign investors are required to cooperate with Jasa Marga through a domestic joint venture in BOT-type projects only.

9.15 The first international joint venture toll road project in Indonesia was the Jakarta Outer Ring Road project. The consortium behind the initial 66 km section of the road included Brey Contractors with partners Jasa Marga and two other private Indonesian firms. HSBS Investment Bank, acting as financial adviser for this project, raised US\$225 million in equity from the Asian Infrastructure Fund, Brey Contractors, Asian Infrastructure Development Co., Jasa Marga, and two other Indonesian companies.

9.16 Another BOT toll road project involving foreign investors was the Cikampek–Padalarang toll road. Trafalgar House of the United Kingdom<sup>75</sup> joined a consortium to build this 59 km, US\$600 million toll road (with 6 km of access roads), forming the final link between the major Java Island cities of Jakarta and Bandung. Concession negotiations took almost six years, and the contracts were finally signed in 1995. Under this arrangement, the Cikampek–Padalarang toll road was provided with generous support by Jasa Marga, including a contractual agreement addressing the event of a government default on toll rate adjustments. Jasa Marga guaranteed to provide interest-free bridge financing to cover any revenue shortfalls resulting from future government disapproval of the tariff rates agreed to in the concession contract's escalation formula. Jasa Marga also agreed to assume the consortium's debt in case of government default for the entire concession period.<sup>76</sup> However full financing was not secured before the financial crisis caught up with the project in 1997. The government has since ordered a review of all ongoing projects.

9.17 **Effects of the Asian Economic Crisis.** The private sector participation-based approach to toll road development was considered to have a promising future in Indonesia until the advent of the financial crisis. As a result of the extreme devaluation of the rupiah during 1997-98, the hard currency portion of project debts suddenly increased by a factor of as much as 6 or 7 times. At the same time, domestic interest rates have increased from 19 percent to over 60 percent per annum. One of the most severely hit Indonesian toll road operators was facing a critical situation regarding the redemption of a Euro dollar bond due in December 1998. While labor costs did not increase, the consumer price index was expected to increase 80 percent in 1998 compared with an 11 percent increase in the previous year.

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<sup>74</sup> Citra Marga Nusaphala Persada, a publicly traded company, has been a prominent developer of several toll roads in the country. It is the largest toll road operator in the country, measured by revenues.

<sup>75</sup> Now owned by Kvaerner of Norway

<sup>76</sup> The usual arrangement is for Jasa Marga to take responsibility for repaying the debts of the joint venture only in the event of a government default during the construction period.

The price of petrol also increased from 700 to 1,000 rupiah per liter<sup>77</sup> and car sales are down, resulting in an estimated 15 to 20 percent decrease in traffic on the local streets and toll roads in the Jakarta region. PT Astra International, Indonesia's largest auto maker, expects new car sales to drop 88 percent for 1998. Real GDP for Indonesia is forecast to decrease by 13 percent to 18 percent in 1998.

9.18 The collapse of the domestic commercial banking sector has brought all ongoing Indonesian toll road projects to a halt. Both construction work and land acquisition has stopped on all sections. Without a revenue stream from a completed facility, many concession companies are either facing bankruptcy or suspension of funding support, or are close to default on their concession agreements with Jasa Marga. The collapse of the banking sector has also forced a number of concession companies to consider re-capitalizing the toll roads that are under construction.

9.19 The Government of Indonesia has taken steps to restructure the toll road program in light of the economic crisis. On 20 September 1997, the Government issued Presidential Decree Number 39 which called for the review and re-prioritization of all ongoing projects. The re-prioritized projects are to be supported by various means including bridge financing from state banks as well as "targeted" foreign investment. A total of 63 toll road projects in various stages of development have been classified into three priority categories, and only nine projects have thus far been chosen to receive support in the form of Government soft loans. Table 1 shows the list of toll road projects to be continued or rescheduled. In addition to the projects shown in the table, 36 other toll road projects have been postponed indefinitely.

**Table 9-1 Toll Road Projects to be Continued or Rescheduled**

Projects to be Continued		Projects to be Rescheduled	
1. Palimanan-Cirebon Toll Road	1. Ulujami-Pondok Aren Toll Road	12. Pondok Aren-Serpong Toll Road	
2. Simpang Susun Waru-Tanjung Perak Toll Road	2. Pematang-Batang Toll Road	13. Medan-Binjai Toll Road	
3. Jakarta Outer Ring Road: Section S + E1 Tahap II	3. Gempol-Pandaan Toll Road	14. Pandaan-Pasuruan Toll Road	
4. Jakarta Outer Ring Road: Section W2	4. Ciawi-Sukabumi Toll Road	15. Surabaya-Gresik Toll Road	
5. Jakarta Outer Ring Road: Section E2, E3 and N	5. Sukabumi-Ciranjang Toll Road	16. Jakarta-Cikampek (Overlay Toll Road)	
6. Bekasi Timur-Cawang-Kampung Melayu Toll Road	6. Surabaya-Mojokerto Toll Road	17. Cikampek-Padalarang Toll Road	
7. Jakarta Merak (Pelebaran) Toll Road	7. Pandaan-Malang Toll Road	18. Solo-Yogyakarta Toll Road	
8. Poros Utara-Selatan "Triple-decker" Toll Road	8. Pasuruan-Probolinggo Toll Road		Thirty-six other projects are to be postponed indefinitely.
9. Tangerang Barat-Merak Tahap II Toll Road	9. Semarang Seksi C Toll Road		
	10. Ujung Pandang (Pelebaran) Toll Road		
	11. JORR Seksi W1 Toll Road		

Source: Resource paper prepared by Baker and McKenzie

9.20 Delays in the toll road development program are expected to increase maintenance costs and prolong the capacity limitations of the existing state-run non-toll highways. The Ministry of Public Works is currently assessing the magnitude of these impacts. The initiatives of the Government of Indonesia include a comprehensive review of road-based

<sup>77</sup> Petrol reached a high of Rp 1,300 per liter for a brief period in April 1998.



requirements for the national network (JARNS). This will form the basis for identifying toll road requirements that are in support of national planning and development objectives. The Government is also preparing new rules regulating the development and award of concessions so that all projects in the planning stage would accord with national development objectives, meet cost-effectiveness goals, and be governed by fair and transparent procedures. It is anticipated that such procedures may further delay implementation and/or require the redesign of some projects.

9.21 The net profit of Jasa Marga for the first half of 1998 fell by 25 percent from a year earlier to Rp 114 billion. The decline has been attributed to a decrease in the number of toll road users and an increase in operations and management costs—particularly the increased debt service burden due to the higher interest rates.

## II. Major Toll Road Issues and Implications for Best Practices

9.22 The Indonesian toll road experience raises a number of major issues with respect to the development of toll roads, with important implications for best practices in Indonesia and elsewhere. These issues include:

- uncertainty over toll rate adjustments;
- requirement of Presidential approval for opening;
- lack of transparency in toll road concessions;
- weak domestic private capital market;
- need for an appropriate planning framework;
- need for clarification in land acquisition procedures;
- privatization of PT Jasa Marga; and
- operational issues.

Each is addressed below:

9.23 **Uncertainty over Toll Rate Adjustments.** As described above, the designation of a road section as a toll road and the determination of initial toll tariffs require that a proposal be made by the Minister of Public Works and approved by the President. Jasa Marga processes such applications through the government regulatory and approval process. Not surprisingly, this process can be highly unpredictable, and has represented a particularly large obstacle to obtaining private sector financing. However there is currently a proposal to amend the tariff adjustment provisions such that Presidential approval will only be necessary to establish the initial toll tariff and a formula for the toll tariff adjustment, and then thereafter adjustments to the tariff would only require the approval of the Minister of Public Works.

9.24 **Presidential Approval Required for Opening.** As noted, Presidential approval is required for opening a new toll road, and concession companies face the risk of whether or not such approval will be obtained in a timely manner. If the approval is not obtained quickly after the completion of construction, the facility cannot generate the cash required for debt repayment. One Japanese company abandoned its plan to invest in an Indonesian toll road project due to uncertainties with respect to approval for opening and toll rate adjustments.

**9.25 Lack of Transparency in Toll Road Concessions.** Nepotism and cronyism have been a persistent issue with toll road concessions in Indonesia. Companies closely tied to a family member of the former President now operate a number of the most profitable toll roads. For investors in these projects, the involvement of presidential family members meant a reduced risk in approval procedures, but inevitably created a nontransparent environment for negotiating toll road concessions.<sup>78</sup> The Ministry of Public Works is now investigating such issues.<sup>79</sup> A recent government initiative to prepare clear prequalification and bidding procedures should help to encourage private-sector participation and attract foreign investors in future toll road projects in Indonesia.

**9.26 Weak Domestic Private Capital Market.** The domestic market for private capital is at present small and underdeveloped in Indonesia. Debt of more than a few years' duration is rare and hard to place in the private market, especially in the amounts required by toll roads. This has left government banks and pension funds as the only viable domestic sources of toll road project finance.

**9.27 Need for an Appropriate Planning Framework.** The Ministry of Public Works has been responsible for the initiation of toll road projects, but various sections of the current toll road program were conceived in isolation and implemented through both solicited and unsolicited procedures. The program is not derived from a long-term strategic interregional network development plan and is not well coordinated with plans for capacity expansion of non-toll highways. There is a need to clearly establish the economic and financial viability of most sections.

**9.28** A World Bank road sector study<sup>80</sup> has recommended the establishment of an appropriate planning framework for toll road development by: (i) refining the strategic road network and the most appropriate alignments of the key links; (ii) determining appropriate timing for the construction of individual links based on corridor studies; and (iii) establishing clear financial viability before inviting the private sector, through much more in-depth project preparation than is currently the practice. Preparation work would need to be taken to a stage where the road alignment is selected, the right-of-way acquired, environmental clearances obtained, detailed traffic studies carried out, and sufficient geotechnical investigations completed in order to develop reliable cost estimates.

**9.29 Need for Clarification in Land Acquisition Procedures.** Presidential Decree No. 55 of 1993 states that the land on which toll roads are built will be state property and therefore land acquisition should be conducted by the Government and the cost also borne by the Government. Due to the lack of public funds, however, concession companies have been asked to pay the right-of-way acquisition costs while the government still received title to the land. As this practice is not based on any official guidelines, there is a need to clarify the responsibility for land acquisition in order to avoid confusion among investors.

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<sup>78</sup> The existing selection criteria for toll road bids include: (i) ability to fulfill the given scope of work and technical specifications; (ii) the proposed length of construction period and concession period; (iii) the cooperation scheme offered to Jasa Marga; and (iv) the level of guarantee requested from Jasa Marga and/or the Government of Indonesia.

<sup>79</sup> Government investigators are now searching for evidence of cronyism between the concession company and the decision-makers, and determining whether correct and fair procedures were employed during the tender process, and if there is any evidence of distortions and/or privileges granted in tendering process.

<sup>80</sup> The World Bank, *Republic of Indonesia Road Sector Study Summary Report*, Report No. 15394-IND, Infrastructure Operations Division, Country Department III, East Asia and Pacific Region, June 1997, pp. 13-14.

9.30 **Privatization of PT Jasa Marga.** Prior to the onset of the economic crisis, the Government had a plan to list Jasa Marga on domestic and international exchanges; it was anticipated that such a listing would raise around one trillion rupiah. The company's revenues were growing as the number of toll roads in operation and traffic volumes increased. Additional income was expected to come from advertisements and leasing real estate along the toll roads. In support of this plan, financial advisers on privatization were appointed to assist Jasa Marga with preparing for an initial public offering (IPO) and also with the development of transparent procedures for divestiture and the establishment of a blue print for privatization. However, the economic collapse has made this option unrealistic at the present time. Furthermore, it could be quite problematic for a company whose main assets are individually negotiated joint venture BOT concessions to go public.

9.31 In light of the existing situation, the Government of Indonesia is now considering the possibility of recapitalizing Jasa Marga by involving one or more foreign investors that would provide both funding and international toll road management expertise. The introduction of strategic investment partners should also provide necessary expertise for refining the current management and operational practices of Jasa Marga. The overall objective of preparing for an IPO has still been retained, but it is now considered that engaging a strategic partner and the concomitant efficiencies would improve the attractiveness of Jasa Marga as an investment opportunity, thereby increasing the chances of a successful IPO when market conditions are more supportive. Regardless of whether the goal is to solicit strategic investment partners or to prepare for an IPO, it is essential that a full spectrum of related issues are adequately addressed in order to improve on past procedures and practices, and most importantly to re-establish investor confidence. This must involve identifying the institutional implications for transferring appropriate responsibilities from a privatized Jasa Marga to GOI, and setting up transparent regulations and procedures.

9.32 In terms of institutional implications for transferring responsibilities to GOI, it may be noted that Jasa Marga's current obligations include:

- reviewing and understanding feasibility studies;
- recommending schemes for private sector investment;
- preparing schemes for (negotiation or) tender;
- conducting the (negotiation or) tender process;
- recommending the (winning tendered and) terms of cooperation agreement;
- signing, implementing and monitoring the Authorization Agreement; and
- submitting for approval proposals for changes in toll levels.

9.33 Responsibility for these activities will be formalized in the implementing regulations for Presidential Decree No. 7/1998. However, none are suitable responsibilities for a private sector entity. If Jasa Marga is to be privatized, consideration must be given to identifying a suitable public body that would be capable of taking over these tasks. One possibility would be to transfer these duties to Bina Marga, which would remain a government agency. Potential stakeholders in Jasa Marga will also want to be assured that the necessary reforms have been or are currently being implemented for all stages of the project life cycle. It should be remembered that significant investment is required by potential concessionaires even during the pre-bid stages. Interest and commercial attention can only be achieved if the

market is confident that clear and transparent regulations procedures will apply to all stages of the development process, particularly if substantial costs are to be committed.

9.34 **Operational Issues.** In order to improve the operational efficiency of the toll roads, GOI intends to introduce a control system within the Jabotabek area that will improve (1) traffic management and surveillance and (2) tariff collection and revenue sharing. Since 1988, over 100 km of toll roads have been developed under BOT arrangements in the Jabotabek area. Consequently, several different parties, including Jasa Marga and a number of concession companies, are now responsible for operating the combined network. Tariffs are collected using both the “open” (fixed) or “closed” (distance-based) system, depending upon the highway. This has become a problem because the various tariff collection systems function independently on most of the toll sections. This type of arrangement posed no major issues in the past when most toll highway sections were essentially isolated. However, as the Jakarta toll highway network nears completion, an uncoordinated means of revenue collection and operation will lead to increasing operational and economic inefficiencies.

9.35 The present systems for traffic management control and tariff collection are no longer appropriate. At best, the control and surveillance aspects can only operate in a responsive capacity, while the toll collection system is labor intensive, has an unacceptable level of revenue leakage, and involves maintaining toll plazas for each section. Apart from the obvious management and operational disadvantages, this arrangement also degrades the quality of service for the user by:

- increasing journey times;
- restricting vehicular capacity;
- increasing frustration through restrictive and repetitive payment methods; and
- creating numerous conflict points associated with merging maneuvers at the toll plazas.

9.36 It is the intention of GOI to minimize operational inefficiencies in the toll road network through the introduction of control improvements. As such, GOI is currently studying the merits of developing a traffic monitoring and incident response facility, as well as the need for electronic toll collection and revenue sharing facilities, all in one integrated system.

## JJ. Sources

World Bank, Private Sector Department, *The Toll Road Program in Indonesia: A Policy and financial Review*, Country Draft Paper, 1997.

*Aide-Memoire for Discussion with PADECO*, a resource paper prepared by Ministry of Public Works on the occasion of the field visit to Indonesia by study team members.

Sumaryanto Widayatin [Department of Public Works, Government of Indonesia], *Future Development of the Indonesian Toll Road Program*, presentation material, July 1998.

“Indonesia: Toll Roads on the Fast Track (Part 1),” *International Supplement to Public Works Financing*, July/August 1996.

Express Highway Research Foundation of Japan, *Sekai no Kosoku Doro (Toll Roads of the World)*, second edition, forthcoming (in Japanese).

“Crisis Takes its Toll on Road and Rail,” *Financial Times*, September 14, 1998.

“A New Direction,” *Infrastructure Finance*, October 1996, pp. 38-42.

Baker and McKenzie Project Group Publications, *Managing Risks in Asian Infrastructure Projects: Who Pays for Toll Roads, Power Stations and Pipelines in Indonesia?*, (undated).

Baker & McKenzie, Attorneys at Law, Resource Paper Prepared for PADECO concerning Toll Road Development in Indonesia, November 1998.

“1,386 Kilometers of New Toll Roads Will be Built, *Jakarta Post*, June 30, 1997, p. 10.

“Toll Road Sees Drop-off in Usage,” *Jakarta Post*, September 23, 1998, p. 3.

# 10

## Italy: Toll Motorway Development through Semi-Public Concessionaires<sup>81</sup>

### KK. Country Background

10.1 Italy has a long history of motorway development, dating back to 1925 with the opening of the oldest fully access-controlled motorway in the world. This motorway was also a toll road. About 6,500 km of motorways are in service (1996), of which about 85 percent are tolled. Toll motorways have been constructed and operated almost exclusively by semi-public companies with concession grants from ANAS (*Arienda Nazionale Autonoma delle Strade*), and toll-free motorways by ANAS, the National Road Agency of Italy. Toll-free motorways are concentrated mainly in southern Italy where income levels are lower than in the industrialized north.

10.2 The development of Italy's toll motorways has been undertaken through extensive government involvement and support. In particular, the Government of Italy created a large semi-public company, the *Autostrade S.p.A.*, to develop the nation's motorway network, providing it with various means of support so that it could survive even in difficult times (as detailed below).

### LL. Major Toll Road Developments

10.3 Italy's motorways are predominantly tolled. The Government of Italy has undertaken toll motorway development through the granting of concessions, almost entirely to companies controlled by public bodies. There are about 28 toll motorway concessionaires (1993), with 27 of these being semi-public companies. The largest semi-public concessionaire, *Autostrade S.p.A.*, together with its seven group companies (with the majority of shares held by *Autostrade S.p.A.*), has played a major role in the concession scheme, operating and maintaining more than half of Italy's toll motorways.

10.4 **Early Experience.** In 1955 the Government of Italy started granting concessions to companies both public and private for the building, maintaining, and operating of toll motorways. *Autostrade S.p.A.* was created in 1956 with equity capital entirely provided by a governmental agency, IRI (*Istituto per la Ricostruzione Industriale*), which was established in 1933 with equity capital entirely from the Government, with its original mission to provide funds for the relief of private companies that had been severely damaged by the Great

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<sup>81</sup> A complete list of the sources of this paper is presented in Section D. However, the paper draws most extensively from Express Highway Research Foundation, Japan, *Study Report on Expressway Projects in Foreign Countries (Shogaikoku ni Okeru Kosokudoro Jigyo ni Kansuru Kenkyu Hokokusho)*, March 1995 (in Japanese), which although now a few years old, provides perhaps the best available overview of the Italian experience in a language other than Italian.

Depression. After World War II, its mission was expanded, involving IRI in various development programs including motorway development. Currently, the shares of Autostrade S.p.A. are held mostly by ITALSTAT, a financial institution under IRI. Autostrade S.p.A. is to be privatized in the near future as described later.

10.5 Autostrade S.p.A. was first granted a concession to construct the Milan-Naples motorway. Aiming at the expansion of motorway network nationwide, the Government of Italy further granted Autostrade S.p.A. concessions for trunk routes planned under laws enacted in 1961, 1968, and 1982. As a result, Autostrade S.p.A. became the largest motorway operator in Italy. Other companies (all but one are semi-public companies with the majority of shares held by public bodies)<sup>82</sup> were also awarded concessions, but only for a single route for each company.

10.6 Originally, Autostrade S.p.A. was awarded a number of concessions primarily because at the time of its establishment in 1956, its parent corporation, IRI, was the only institution capable of implementing large-scale motorway development projects. In those years, technological knowledge and skills related to motorway development were still limited. Although IRI did not necessarily possess sufficient expertise in motorways, it had engaged in projects in other fields as well as in the road sector inside and outside of Italy, and was capable of integrating and utilizing its expertise for motorway development. In addition, IRI could meet the financing needs with its capacity to raise funds in the financial market and to bear long-term debt. Prior to the establishment of Autostrade S.p.A., IRI itself had been engaged in motorway construction.

10.7 In the early years, the Government of Italy had provided large subsidies for concessionaires with the remainder of project costs funded by tolls, but there was a policy change in 1968 toward more reliance on toll revenue for motorway development. Subsidies provided for Autostrade S.p.A. were frozen at early 1960s levels in exchange for the extension of the concession period, indexing of toll rates to inflation, and provision of cross subsidies among routes. Tolls for motorways operated by Autostrade S.p.A. were made uniform through cross subsidization, and toll increases were justified if needed for constructing, operating, and maintaining the entire network.<sup>83</sup> With this policy change, the government established a user-pays principle for toll motorways. Toll increases have been implemented almost every year since then.

10.8 **Program to Cope with the Crisis in the 1970s.** After the 1973 energy crisis, Italy's toll motorway operators suffered from serious financial problems. Traffic growth slowed, construction costs nearly trebled, and interest rates rose sharply. The government also suppressed the rate of toll increases in an effort to stabilize general price levels. As a consequence of these developments, the concessionaires experienced serious financial problems, leading eventually to default by a number of companies in the late 1970s. The Government suspended new construction of motorways in 1975 in response to the serious economic conditions and to public opinion that increasingly favored mass transportation over road transport.

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<sup>82</sup> The only concessionaire that is purely private is Autostrade Torino-Milano.

<sup>83</sup> Toll levels in fact have been more or less uniform within the Autostrade group. Toll levels among concessionaires differ by as much as a factor of 2, however, due primarily to differences in construction costs.

10.9 The Government of Italy instituted a series of measures to rescue the toll road industry under the Act 813 of 1978: (i) concessionaires that had set toll rates lower than had Autostrade S.p.A. were allowed to raise them to the level charged by Autostrade S.p.A.; (ii) all concessionaires were to charge an additional 1 lira/km for light vehicles and 3 lira/km for heavy vehicles; (iii) the increase in toll revenue from (i) and (ii) were to be put into a special government account to be used to cross-subsidize financially troubled concessionaires; and (iv) the Government was to bear the debts of ailing concessionaires owed to subcontractors and suppliers.

10.10 Subsequent legislation strengthened these measures specifying: (i) continuation of toll rate increases and payments to the special account; (ii) provision of clearinghouse services to cross-subsidize motorway operators by *il Fondo centrale di garanzia* (the Central Funds Guarantee Association) that was established by the Government to provide financial support for troubled concessionaires; (iii) payment of part of the principal on concessionaires' matured debts to be made by national financial institutions, and the principal plus to be paid back by *il Fondo centrale di garanzia* in 10 years (i.e., changing of matured debts to long-term debts); (iv) government subsidy of interest on these long-term debts incurred from 1980; (v) increased subsidies for motorway construction; and (vi) transfer of part of the routes of financially troubled concessionaires to Autostrade S.p.A.

10.11 Financial support based on these measures amounted to 1.5 trillion lira by 1985, with 600 billion lira provided by the national government through *il Fondo centrale di garanzia*, 600 billion from the special account of *il Fondo centrale di garanzia*, and 300 billion provided by ANAS, the National Road Agency.

10.12 **Recovery from Financial Trouble.** With this financial support, annual toll increases, the stabilization of the economy, and improved management by the concessionaires, Italian toll road concessionaires as a whole began to recover from their financial trouble. In 1982, the Government of Italy lifted a moratorium on new construction of motorways, and announced a renewed development plan including the new construction of 1,400 km of motorways, anticipating that concessionaires would regain financial soundness toward the mid-1980s, partly as a consequence of increased traffic demand.

10.13 As noted, within-company cross subsidies were formally introduced for Autostrade S.p.A. in 1968, and at the same time, the concession period was set until the end of 2003 for all the routes; prior to that, the concession period had been set by individual route at 30 years. In 1982, Autostrade S.p.A. was granted an extension of its concession period to the end of 2018 in return for its acquiring financially troubled concessionaires and completing and operating certain uncompleted routes.<sup>84</sup>

10.14 In the decade from the early 1980s, the extent of subsidy received by the Autostrade group measured by the ratio of subsidy balance to total assets to be redeemed was in decline, and the group has been operating profitably profits in recent years.<sup>85</sup>

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<sup>84</sup> As of 1996, the concession period was to be extended to 2033. Masahiro Sugiyama, "Motorways after Redemption," *Expressway and Automobiles (Kosokudoro to Jidosha)*, Japan, Vol. 39, No. 1, January 1996, p. 22 (in Japanese).

<sup>85</sup> The decrease in the subsidy for the Autostrade group has been due largely to the reduction in subsidy for Autostrade S.p.A. group companies (excluding Autostrade S.p.A.) in the same period. From the early 1980s,



**10.15 Recent Developments.** The Government of Italy changed toll adjustment methods provisionally in 1995. The method introduced employs a sort of price-cap mechanism under which toll rates will be adjusted in consideration of productivity gains as well as inflation and changes in traffic volumes. When traffic volume is unchanged, for example, are increased as inflation rises, but less proportionately than the rate of inflation if there is productivity improvement.<sup>86</sup> It is argued that this mechanism tends to encourage motorway operators to be more efficient and reduce costs.

**10.16** Another major movement is privatization of toll motorway operators. In the early 1990s, the Government of Italy began discussion of privatizing Autostrade S.p.A., and as of mid-1998 its privatization program was in progress although it appears to be progressing slowly.

### MM. Major Toll Road Issues and Implications for Best Practices

**10.17 Overview.** The Italian toll motorway experience raises a number of major issues with respect to the development of toll roads, with important implications for best practices, in Italy and elsewhere. These issues include:

- the creation of a financially strong toll road operator;
- the importance of winning public acceptance for toll increases;
- the limited use of direct government subsidies;
- the use of special accounts to provide financial support for financially weak concessionaires; and
- the use of a price-cap scheme for toll increases.

Each is addressed below.

**10.18 Creation of a Financially Strong Toll Road Operator.** With hindsight, the Italian experience demonstrates an advantage of having a toll road operator with a large network that can afford to cross-subsidize financially weak concessionaires that rely only on one or a few routes. In the early years, the Government of Italy awarded a number of concessions to Autostrade S.p.A., which became far larger than any other concessionaire in the country. This policy proved particularly effective in the period when the economy was in recession. Financially troubled concessionaires were cross-subsidized, apparently by Autostrade S.p.A. The government also forced Autostrade S.p.A to acquire the routes of ailing concessionaires.<sup>87</sup>

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Autostrade S.p.A. concentrated primarily on widening of existing motorways rather than new construction, and has maintained a sound financial position despite the reduction in subsidies. One may conclude that its financial soundness resulted in the decline in subsidies since it is necessary to prove a lack of funds to receive the subsidies.

<sup>86</sup> The toll adjustment mechanism employed by the Italian Government is defined specifically as follows:  $\Delta T = \Delta P - \Delta V (1 - \beta)$  where  $\Delta T$  is the rate of toll change,  $\Delta P$  is the rate of increase in consumer price index,  $\Delta V$  is the rate of increase in traffic volume, and  $\beta$  is a coefficient representing the level of productive efficiency.  $\beta$  was set at 0.75 in 1995 and was to be adjusted based on productivity gains in the general industrial sector. With higher productivity improvement,  $\beta$  is expected to be lowered, thereby pressing motorway operators to reduce costs.

<sup>87</sup> Explicitly adopting a policy to use a financially strong concessionaire as a means of cross-subsidization may cause that concessionaire to operate conservatively and reduce new investment in order to maintain its financial

Of course, creating such a financially strong concessionaire and using it to rescue smaller ones requires a political commitment, and might be implemented more easily in countries with significant government involvement in motorway development.

**10.19 Importance of Winning Public Acceptance for Toll Increases.** The Government of Italy has successfully increased tolls nearly every year since the early 1970s. It set a clear policy requiring users to pay their way, which appears to have been well accepted by the general public. Toll increases apparently contributed to the relieving of the financial problems of concessionaires in the 1970s and seem to have played an important role in maintaining the financial soundness of concessionaires since the mid-1980s. Since toll increases were perceived to potentially have adverse impacts elsewhere in the economy, Italian policymakers believe that the rate of increase should be kept within certain limits, e.g., below the inflation rate.

**10.20 Limited Use of Direct Government Subsidies.** Direct government subsidies may be reduced significantly with the use of other measures including the extension of concession periods, the indexing of toll rates to inflation, and the use of cross subsidies. The Government of Italy increased direct subsidies in the late 1970s to rescue toll motorway operators, but later succeeded in reducing these subsidies considerably in the decade from the early 1980s in part through the above-mentioned measures.

**10.21 Use of Special Account to Provide Financial Support for Financially Weak Concessionaires.** The Italian experience also demonstrates the importance of using a special account for providing financial support for motorway operators. The Government of Italy established a fund (*il Fondo centrale di garanzia*) primarily for cross-subsidizing financially weak concessionaires. This approach appears to have been effective in rescuing the Italian motorway industry when it was financially troubled in the 1970s through to the early 1980s. The fund provides other financial support to reduce the burden of financially weak concessionaires (e.g., the payment of matured debts of the concessionaires).

**10.22 Use of Price-Cap Scheme for Toll Increase.** Price capping, as used provisionally by the Government of Italy, provides an incentive to improve efficiency in construction, operation, and maintenance of toll motorways, and could be a useful device for controlling costs. It is argued, however, that price capping could also provide a disincentive for improving service quality, and thus it may be necessary to set indicators to measure service levels. It may also reduce the discretion of road operators for toll setting, and increase the administrative burden by requiring the setting of values for the parameters used in the toll formula. The use of price capping should thus be considered carefully weighing its benefits and costs.

## NN. Sources

Express Highway Research Foundation, Japan, *Study Report on Expressway Projects in Foreign Countries (Shogaikoku ni Okeru Kosokudoro Jigyo ni Kansuru Kenkyu Hokokusho)*, March 1995 (in Japanese).

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health. The opening of new motorways by Autostrade S.p.A. was in fact kept at a very low pace in the 1980s and the early 1990s.

Fumio Takeda, *Transport Planning and Management (Kotsu no Keikaku to Keiei)*, 1989 (in Japanese)

Fumio Takeda, "New Policies for Motorway and Toll Systems in France/Italy," *Expressway and Automobiles (Kosokudoro to Jidosha)*, Japan, Vol. 38, No. 6, June 1995, pp. 11-15 (in Japanese).

Kazunori Tanioka, "Toll Motorway System in Developed Countries," *Roads (Doro)*, October 1996, pp. 13-17 (in Japanese).

Masahiro Sugiyama, "Motorways after Redemption," *Expressway and Automobiles (Kosokudoro to Jidosha)*, Japan, Vol. 39, No. 1, January 1996, p. 22 (in Japanese).

Hiroaki Nakagawa, "Report of the Study on European Toll Motorway Systems," *Expressway and Automobiles (Kosokudoro to Jidosha)*, Vol. 39, No. 6, June 1996, p. 28-31 (in Japanese).

"Italy's Autostrade Privatization," *PWFinancing*, December 1993, p. 12.

"Milan plans utility listing," *Privatization International*, June 1998, pp. 24-25.

Europa, European Union, "Transport in Figures: Infrastructure," downloaded from [http://europa.eu.int/en/comm/dg07/TIF/2Infrastructure/page2\\_2.htm](http://europa.eu.int/en/comm/dg07/TIF/2Infrastructure/page2_2.htm) > on October 27, 1998.

# 11

## Japan: Expressway Network Development through Public Corporations<sup>88</sup>

### OO. Country Background

11.1 Japan, with the world's second largest economy, is led by manufacturing industries and characterized by government-industry cooperation, a strong work ethic, mastery of high technology, and a comparatively small defense allocation (roughly 1 percent of GDP). During the 1960s, 1970s, and 1980s, Japan's overall annual average (real) economic growth was excellent, averaging 10 percent, 5 percent, and 4 percent annually in the respective decades. Economic growth has slowed considerably since 1992, however, largely because of the after-effects of over-investment during the late 1980s. A series of economic and financial reforms over the past few years has had mixed success at reviving the current tepid economy, as annual GDP growth has been 3.9 percent, 0.9 percent, and -2.5 percent in 1996, 1997<sup>89</sup>, and 1998 (average between 1<sup>st</sup> and 2<sup>nd</sup> quarter in 1998) respectively.<sup>90</sup>

11.2 Japan's extensive multimodal transport system is among the most highly developed in the world. The country's road and rail networks total more than 1 million km and 23,000 km, respectively. These totals include about 12,000 km of high-standard trunk roads (mostly toll roads), and more than 700 km of tolled urban expressways. The country's rail system includes extensive urban commuter railways, as well as a 2,000 km network of high-speed *Shinkansen* ("bullet train") network. While highways and rails compete for transportation, the highway system handles about 66% of all passenger trips (passenger-km) and 53% of all land-based freight traffic (ton-km) as of 1995.

### PP. Major Toll Road Developments

11.3 **Overview.** While toll roads have existed in Japan for centuries, modern toll road development began when the Government enacted the former "Law Concerning Special Measures for Highway Construction" in 1952. This Law made it possible to develop toll roads by utilizing Treasury Investment and Loans (described later) and by redeeming the loans with toll revenues. In the early stages, the Government directly undertook construction of toll roads. However, lack of overall project coordination led to disjointed development. The Road Council<sup>91</sup> submitted a report in 1955 advising the establishment of a special public

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<sup>88</sup> A complete list of the sources of this paper is presented in Section D.

<sup>89</sup> *EIU Country Profile Japan 1998-99*, The Economic Intelligence Unit, 1998

<sup>90</sup> *EIU Country Report 4<sup>th</sup> Quarter 1998 Japan*, The Economic Intelligence Unit, 1998

<sup>91</sup> Established within the Ministry of Construction in 1952 by the Road Law to deliberate road policies and advise the Minister. The members of Road Council are appointed by the Minister for Construction, and consist of academics and other knowledgeable individuals. In the past, a number of improvements have been recommended by the Council and Public Corporations have implemented some of those recommendations.

toll road agent to provide the integrated construction and management of toll roads. In April of 1956 the Japan Highway Public Corporation (JHPC), a state-owned entity, was established in order to efficiently undertake national toll road development. All toll road projects previously under the MOC and local governments were transferred to JHPC.

11.4 Between 1956 and 1958, Japan's national expressways were almost exclusively constructed and operated by JHPC. However, rapid urbanization and traffic demand growth led to the establishment of regional public corporations such as the Metropolitan Expressway Public Corporation (MEPC, serving metropolitan Tokyo-Yokohama) in 1959, the Hanshin Expressway Public Corporation (HEPC, serving metropolitan Osaka-Kobe) in 1962, and the Honshu-Shikoku Bridge Authority (HSBA, to connect the Shikoku Island to the mainland) in 1970, to undertake urban expressway development. In addition, local public corporations were established to develop local routes at the prefectural level. These Public Corporations have constructed roughly 10,000 km of such toll roads in the 40 years leading up to 1998.

11.5 **National Expressway Network Development.** The Japanese Government has been strongly committed to national expressway network expansion. However, the "National Development Arterial Expressway Construction Law" enacted in 1957 attached priority to individual routes and initiated construction through separate laws. Altogether, five routes were constructed up to 1966 in accordance with the established laws.<sup>92</sup> Clear guidelines for expressway network development, however, was first provided through the "National Development Arterial Expressway Construction Law" (expanded) of 1966, the master plan for national expressway development undertaken by JHPC. Planning principles targeted by the Law are characterized largely by the goals of providing equal opportunity for road users to access national expressways, as well as reducing regional disparities in competitive conditions. These goals have provided the rationale for building a nationwide expressway system.

11.6 The 1966 Law called for the construction of 7,600<sup>93</sup> km of national expressways. Key features of this law included: (i) constructing nine longitudinal (backbone-like) expressways, six transverse (rib-like) expressways, and seven other routes; (ii) connecting cities with 100,000 or more inhabitants; and (iii) bringing expressways within a two-hour drive of the majority of car users. The 1987 Law that authorized the construction of 14,000<sup>94</sup> km of national expressways responsibility for, 11,520 km of which was assigned to JHPC. The key features of this plan included: (i) strengthening ring expressways for major cities; (ii) strengthening links to and from/between major airports and seaports; (iii) bringing expressways within a one-hour drive of the majority of car users; (iv) constructing alternative routes to cope with the impact of natural disasters (e.g., earthquakes, landslides); and (v) reducing traffic congestion on expressways in operation. Setting goals in terms of the coverage of expressways across the nation was effective in fostering political acceptance and building consensus. In pursuit of these goals, JHPC has constructed and opened about 6,400 km of national expressways as of 1998.

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<sup>92</sup> These are: (i) the Tokyo-Nagoya Expressway Construction Law (374 km), 1960; (ii) the Kanetsu Expressway Construction Law (246 km), 1963; (iii) the Tokai-Hokuriku Expressway Construction Law (136 km), 1964; (iv) the Kyushu Transverse Expressway Construction Law (353 km), 1965; and (v) the Chugoku Transverse Expressway Construction Law (407 km), 1965.

<sup>93</sup> The completed network was to be accessible within a two-hours drive for the majority of households in the country.

<sup>94</sup> This target is set based on the criterion that the completed network should be accessible within a one-hour drive for the majority of households in the country.

**11.7 Toll Road Financing.** Toll road projects undertaken by Public Corporations (JHPC, MEPC, HEPC, and HSBA) have been financed largely by two types of government guaranteed bonds provided by Treasury Investment and Loans (TILs): (i) Government Acceptance Bonds and (ii) Government Guaranteed Bonds. The Government Acceptance Bonds are purchased by the Ministry of Finance and the Ministry of Posts and Telecommunications with funds from sources such as postal savings accounts, employee pension funds, national pension funds, and postal life insurance premiums. The Government Guaranteed Bonds are guaranteed by the Government and purchased by private financial institutions. The importance of TILs is apparent in the various agency budgets shown in Table 1; TILs made it possible to utilize private sector finance for accelerated toll road development. A relatively small amount of funds has also been raised through the issuance of bonds without government guarantees, as well as bonds in foreign financial markets—both backed by the credit of the public corporations.

11.8 JHPC's main responsibility is to construct and manage national expressways, whereas MEPC and HEPC construct and manage urban expressways for the Tokyo and Osaka metropolises and surrounding areas. For this reason MEPC and HEPC receive similar amounts of funding from prefectural government as well as local public bodies (for MEPC this includes Tokyo Metropolis, Kanagawa Prefecture, Saitama Prefecture, Chiba Prefecture, Yokohama, and Kawasaki), whereas all funding for JHPC comes from national government (Table 1).

11.9 Other government-related financial support includes the provision of equity capital and subsidies for the Japan Highway Public Corporation's interest payments. The total amount of subsidies for interest payments and annual equity contributions for JHPC have been set in such a way as to keep overall financing costs at predetermined levels, thereby reducing risks from interest rate fluctuations.<sup>95</sup> In recent years (1994-97), for example, the maximum overall financing costs to be borne by JHPC have been 4.6 percent for profitable routes and 3.0 percent for unprofitable routes.<sup>96</sup>

**Table 11-1 Budgets of JHPC, MEPC, HEPC, and HSBA in Fiscal 1997**

Budget Category	Amount per Agency (billion yen)			
	JHPC	MEPC	HEPC	HSBA
Equity capital (national government)	137	25	39	43
Equity capital (local governments)	-	25	39	22
Subsidy for interest payments	113	-	-	-
Treasury Investment and Loans (TILs)	2,190	400	416	310
Other bonds and loans	674	51	42	278
Toll and other revenues	2,208	278	177	58
Other sources	6	26	4	2
Total	5,329	805	718	711

<sup>95</sup> This subsidy is provided through the fund specially set up for financing highways. The fund received earmarked tax revenue on gasoline and LPG.

<sup>96</sup> In response to the decline in market interest rates, maximum financing costs to be borne by JHPC were reduced to these percentages in 1994, down from 6.5 percent for profitable routes and 3.0 percent for unprofitable routes that had been applied previously (1982-93).

Source: Conference of Public Road Users (*Zenkoku Doro Riyosha Kaigi*), Road Administration (*Doro Gyosei*): Fiscal 1997, January 1998.

**11.10 World Bank Loans.** In the early years, the World Bank played an important role in financing Japan's expressway development, providing loans for the construction of the Meishin and Tomei Expressways linking Japan's industrial megalopolises along the Pacific coast. The financing for the Meishin Expressway linking Nagoya and Osaka/Kobe, the first intercity expressway in Japan, completed in 1965, included 28.8 billion yen (US\$80 million) in IBRD loans, accounting for 35 percent of the total construction costs. For the Tomei Expressway, linking Tokyo and Nagoya and completed in 1969, IBRD loans amounted to 108 billion yen (US\$300 million), about 32 percent of the total construction costs. For both expressways, the rest was funded from the above-mentioned sources, largely with Government Acceptance Bonds and Government Guaranteed Bonds.

**11.11 Toll Revenue "Pooling" System.** As initially conceived, toll rates were set individually for each route by route so as to redeem the full costs of each individual route. However, in 1972 the Japanese Government adopted a toll revenue pooling system for the entire national expressway system. For urban expressways of various urban areas, a pooling system is independently established for the relevant regional network. The pooling system is a form of cross-subsidization whereby tolls are set at equal levels for all of the routes and segments within the network, regardless of the costs or traffic levels on the individual segment. Financial viability is thus to be achieved for the entire network, not by route or by segment. The rationale behind this system included the following: (i) network expansion would be facilitated by cross-subsidizing less profitable routes with revenues from more profitable ones; (ii) the national and urban expressways would bring the most benefits if implemented as integrated and complete networks; (iii) the financial viability of certain routes would improve with the opening of connecting routes; and (iv) if the level of toll rates differed across routes or segments, or if free and tolled segments coexisted, there would be confusion among or protests by users and it would be difficult to implement such a system within the same network. It is generally recognized that the pooling system has contributed greatly to network expansion, particularly to the construction of routes that have been less profitable due to lower demand and/or higher construction costs.

**11.12 JHPC and local government public corporations also develop stand-alone toll roads.** These toll roads are planned individually and do not necessarily form part of the nationwide network. With these toll roads, route-by-route redemption of costs has been maintained in principle. As a consequence, there are fairly large differences in the level of toll rates across routes, stemming from differences in right-of-way acquisition and construction costs. In recent years, however, the pooling system has also been applied between and among metropolitan area stand-alone toll roads (e.g., in Kanagawa and Chiba Prefectures, near Tokyo) under the assumption that once completed they would form an integral network. Key issues for these types of roads are how to determine the routes to be pooled, the extent to which such cross subsidies should be permitted, and how to possibly integrate regional pooling schemes into a national one.

**11.13 Redemption Period.** Japan's toll road legislation specifies the "redemption principle" as a major condition for setting toll rates.<sup>97</sup> This principle calls for users to bear full costs for the expressway, including costs for construction, right-of-way acquisition, operation and maintenance, and financing (i.e., interest). These toll road development costs are to be redeemed by tolls over a certain period (called the "redemption period"). In 1994, the original 30-year redemption period for intercity national expressways was extended to 40 years in order to minimize toll rate increases. Although financial viability becomes less certain with a longer redemption period, improved accuracy in traffic forecasting (made possible through the accumulation of traffic data and improved modeling techniques) helped to rationalize this extension.

11.14 In principle, tolls are to be lifted upon completion of the redemption, and in fact 61 stand-alone toll roads across the country, totaling 568 km, have been made toll-free for this reason to date. It has been argued however, that tolling should continue beyond the redemption period since ongoing costs for operations, maintenance, and improvements to these roads remain, and congestion externalities will have increased.

### QQ. Major Toll Road Issues and Implication for Best Practices

11.15 The Japanese toll road experience raises a number of major issues with respect to the development of toll roads, with important implications for best practices elsewhere. These issues and/or best practices include:

- clear goals to foster political acceptance;
- strong government support;
- cross subsidies ("pooling" system) for network expansion;
- the strengths and weaknesses of public corporations; and
- the "redemption principle."

Each is addressed below.

**11.16 Clear Goals to Foster Political Acceptance.** The Japanese experience demonstrates the importance of setting clear goals or principles on which expressway development is to be based. In Japan's case, the expressway network has been expanded nationwide in order to provide opportunities for motorists across the country to use the expressways, and to extend the economic impacts of the highways to various regions. These goals have led to nationwide expressway coverage and appear to have helped build a political consensus for network expansion, as well as for maintaining a uniform level of toll rates within the network.

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<sup>97</sup> Toll rates for national and urban expressways are subject to two conditions: the "redemption principle" as described in the text, and the "fairness and validity principle," which holds that toll rates should be "fair and valid." The fairness and validity principle generally is interpreted to mean that the level of toll rates should be consistent with the level of fares for other transport modes, should not exceed the benefit obtained from the services, should be affordable to users, should be equitable across vehicle types, and so on. In practice, however, this principle may not be strictly applied to toll rate setting. For general toll roads and the Honshu-Shikoku bridges, toll rates are subject to the "redemption principle" and the "benefit principle," whereby the rates should not exceed the benefit obtained from the service provided.



**11.17 Strong Government Support: *Treasury Investment and Loans.*** The Japanese toll expressways have been financed largely by the funds made available through the Treasury Investment and Loans (TILs), which have contributed significantly to the nationwide expansion of the toll expressways. As a tool for channeling private funds into projects and programs aimed at social and economic development, TILs may be unique to Japan. The program has worked particularly well for two primary reasons. First, the savings rate in Japan has been high due to the rapid postwar economic development of the country and household preferences, and second, the underlying systems (e.g., postal savings, employee pension funds, and national pension funds) have been utilized widely by the Japanese public.

**11.18 *Government Assumption of Interest Rate Risk.*** The Japanese Government provides JHPC with subsidies for interest payments and equity capital to minimize risks associated with interest rate fluctuations. The support needed to keep the interest payments at a certain level has been funded through a combination of direct subsidies and equity capital. Equity capital must be redeemed with toll revenues, while subsidies need not be. The Government has flexibly changed the proportion of these two sources; increasing subsidies when interest rates are high, and balancing the two when rates are low.

**11.19 Cross Subsidies (“Toll Revenue Pooling” System) for Network Expansion.** The Japanese experience demonstrates that pooling toll revenues can contribute greatly to network expansion by cross-subsidizing unprofitable routes or segments. The Government of Japan set a goal to build a nationwide expressway network that included routes running through rural areas and/or areas with terrain upon which road construction would be costly. To pursue this goal, cross-subsidies were needed given the requirement for redemption with toll revenues.<sup>98</sup> Toll revenue pooling also has been utilized for regional toll roads and urban expressways that constitute an integral network. The system has been further justified on grounds that it provides for congestion pricing on the existing sections that would have been made toll-free otherwise. The rationale underlying the system has involved several issues, however, including equity among users, economic inefficiencies that might arise from insensitivity to route or segment profitability, and the determination of routes to be included in the system.

**11.20 Strengths and Weaknesses of Public Corporations.** Japan’s toll roads have been constructed and operated almost exclusively by public corporations. There have been various arguments on the relative advantages and disadvantages of public corporations for building toll expressways. The arguments in favor of public corporations include: (i) public corporations controlled by the Government tend to be more effective than private counterparts in pursuing goals set by the Government; (ii) the intensive Government control that often occurs when a large amount of subsidy is provided (as for expressway development) may not conform with private sector management techniques; (iii) without substantial government support, the private sector would not be able to assume all of the long-term and large-scale investment risks associated with expressway development; (iv) profitable private companies may not view cross-subsidization techniques very favorably; and (v) toll rates that provide a reasonable level of financial return for private firms could be too high to be politically acceptable.

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<sup>98</sup> If other goals such as “efficient investment” had been emphasized, rather than that of equality across regions, the pooling of toll revenues might not have been employed.

11.21 Potential disadvantages of public corporations tend to deal primarily with efficiency and market responsiveness concerns. It is often argued that public corporations generally lack sufficient incentives for cost reduction or toll rate reduction, and tend to be less efficient than their private counterparts. Due to tight control by the Government, they also tend to be less effective in responding to market conditions that change over time and differ across regions, and also are more vulnerable to political pressures that favor developing large-scale projects that may neither be economically nor financially feasible. In response to efficiency concerns, in a January 1997 report, the Road Council recommended that performance measures be used as a way to encourage cost reduction by comparing efficiency across agencies undertaking similar but not competing endeavors, such as toll roads.<sup>99</sup> As for market responsiveness, several toll rate discounts (e.g., volume discounts and discounts for advance payments such as through the use of prepaid cards) are permitted, subject to government approval. However, it is argued that public road corporations, both national and local, generally have a limited capacity to foster demand through marketing such measures as more flexible pricing and promoting regional development (which would be particularly needed in the case of lightly traveled routes or segments).

11.22 **The “Redemption Principle.”** The “redemption principle” is the full-cost recovery policy that the Government of Japan has adopted with regard to toll road development. It calls for users to bear most of the costs, including costs of construction, right-of-way acquisition, operation and maintenance, and financing (i.e., interest), and to minimize reliance on government expenditure for toll road development. The redemption principle may be difficult to pursue, however, when it comes to the construction of less profitable routes. In fact, political opposition has been increasingly strong towards increasing toll rates on existing facilities to support the construction of high-cost and/or lightly traveled new routes. This has led to arguments for more direct government support, including subsidies for right-of-way acquisition; further reductions in financing costs; and better coordination with road agencies, both national and local, that are responsible for general toll-free roads (in terms of land acquisition and the construction of access roads).

11.23 The Government of Japan has extended the redemption period for national expressways in order to minimize toll rate increases. Since 1985 the period has been set at 40 years, up from the previous 25 to 30 years. However, there are concerns about extending the redemption period. With a longer redemption period, traffic forecasts are more uncertain, and risks are passed on to future generations. Also, interest payments will increase, thereby making the extension plan increasingly ineffective.

11.24 Currently, Japanese toll roads are to be made toll free upon completion of the redemption period. The arguments against this plan center around the fact that revenues will still be needed for a number of reasons including: (i) the continuation of operation and maintenance costs; (ii) the possible need for costly widening and environmental improvements in the future; (iii) for the entire road network system, the desirability of maintaining high-speed service by charging tolls; and (iv) for the most efficient use of limited highway resources, the requirement for a toll system that takes into account congestion

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<sup>99</sup> Some argue that the effectiveness of such “yardstick”-based competition may be limited for public corporations not pursuing profits and thus lacking sufficient incentive for cost reduction. Also, it would be difficult to take into account the inherent differences in operating conditions across regions. Therefore, it would be necessary to create a well-designed incentive scheme in order for it to be truly effective.

pricing strategies. Although governments may be reluctant to set tolling policies in advance for the post-redemption period, which is normally 20-30 years later, their position might ultimately affect the level of toll rates and the length of the redemption or concession periods.

### RR. Sources

Ministry of Construction, Japan, "Private Sector Participation in Highway Projects (*Doroseibi ni okeru Minkan Katsuryoku no Katsuyo Houhou*)," 1995 (in Japanese).

Yataro Fujii, "Development and Management of Expressways in the Latter Half of Their Development," *Expressway and Automobiles (Kosokudoro to Jidosha)*, Vol. 41, No. 4, April 1998, pp. 7-10 (in Japanese).

Kengo Mizuno, "Lessons Learned: Public-Private Partnerships on Japan's Megaprojects," *PWFinancing*, January 1996, pp. 1-7.

T. Ihara, "Issues on Toll Change for Honshu-Shikoku Bridges," *Expressway and Automobiles (Kosokudoro to Jidosha)*, Vol. 40, No. 11, November 1997, p. 15 (in Japanese).

Yataro Fujii, "On the Highway Tolls in Transition: From the Report of the Advisory Committee on Tolls of Japan Highway Public Corporation," *Expressway and Automobiles (Kosokudoro to Jidosha)*, Vol. 37, No. 7, July 1994 (in Japanese).

Toshioki Nishida, "Toll Rate Revision and Project Planning of National Expressways," *Expressway and Automobiles (Kosokudoro to Jidosha)*, Vol. 38, No. 2, February 1995 (in Japanese).

Hiroataka Yamauchi, "Interim Report of Road Council – General Toll Roads," *Expressway and Automobiles (Kosokudoro to Jidosha)*, Vol. 40, No. 5, May 1997, pp. 16-19 (in Japanese).

Masahiro Sugiyama, "Interim Report of Road Council – General Outline and the Honshu-Shikoku Bridge Authority," *Expressway and Automobiles (Kosokudoro to Jidosha)*, Vol. 40, No. 5, May 1997, pp. 7-11 (in Japanese).

Takehiko Sugiyama, "Interim Report of Road Council – Urban Expressways," *Expressway and Automobiles (Kosokudoro to Jidosha)*, Vol. 40, No. 5, May 1997 (in Japanese).

MOCJ, *Road Administration (Doro Gyosei), Fiscal 1997*, January 1998, prepared by Ministry of Construction, Japan, (in Japanese).

Japan Road Association, *Roads in Japan (Michi)*, 1998 (in Japanese).

MOCJ, *National Expressway Handbook 1998*, prepared by Ministry of Construction, Japan (in Japanese).

MOCJ, *Toll Roads Related Reports by the Road Council*, prepared by Ministry of Construction, Japan, March 1993 (in Japanese).

MOCJ, *Transport Economy Statistics Handbook, 1968-1990*, prepared by Ministry of Transport, Japan (in Japanese).

MOCJ, *30 Years History of JHPC*, prepared by Japan Highway Public Corporation, April 1986 (in Japanese).

MOCJ, *Highway Report '98, Fiscal 1998*, prepared by Japan Highway Public Corporation (in Japanese).

JHPC, *Annual Report, 1998*, Japan Highway Public Corporation (in Japanese).

JHPC, *Annual Report, 1997*, Japan Highway Public Corporation (in English).

JHPC, *General Information, 1998*, Japan Highway Public Corporation (in English).

MEPC, *MEX 1998, Fiscal, 1998*, Metropolitan Expressway Public Corporation (in English).

# 12

## Malaysia: Public-Private Partnerships in an “Asian Way”<sup>100</sup>

### SS. Country Background

12.1 The Malaysian economy, which combines private enterprise and public management, posted a remarkable 9 percent average annual growth in 1988-96, but slipped to 7.8 percent in 1997 and then *decreased* by an estimated 6.0 percent in 1998 with the onset of the Asian economic crisis.<sup>101</sup> Principal industries include rubber and oil palm processing, light manufacturing, electronics, tin mining and smelting, and forestry products. The economic growth of the early and mid-1990s resulted in a substantial reduction in poverty and a marked rise in real wages, and the commitment of large sums to the economy by foreign investors. It also fueled a marked rise in automobile ownership and use, bringing about increased traffic congestion.

12.2 Transportation infrastructure in Malaysia is characterized by a road network of more than 94,500 km, of which nearly 80 percent are paved.<sup>102</sup> Toll road development in Malaysia has been given a boost during the last 10 years, largely due to the Government’s privatization policy. As demand for better and faster travel on roads has increased, the private sector has responded by investing heavily in toll road infrastructure projects. Already there are more than 1,000 km of toll highways and expressways in operation, and over 1,000 additional km are under construction or planned. After the Government introduced its privatization policy in 1983, the Federal Roads (Private Management) Act of 1984 was enacted by the Parliament, allowing the Government to grant private companies the right to collect tolls on federal roads and to hand over sections of completed roads to private companies for upgrading and subsequent maintenance over a concession period.

### TT. Major Toll Road Developments

12.3 **Three Phases of Toll Road Development in Malaysia.** The Federal Roads Act of 1959 expressly granted to the Minister of Works the power to declare, after consultation with the relevant state government, any road in any state to be a “federal road.” Roads other than these roads are state roads which are subject to the legislative and executive province of the respective individual states. The legislative authority to impose and collect tolls on federal roads was granted to the Minister of Works under the Toll (Roads and Bridges) Act 1965, and toll road development in Malaysia since then may be divided into three phases. In the first phase, from 1966 to 1980, the country commenced the development of the Slim River–

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<sup>100</sup> This case study draws most extensively from information collected during a field visit to Malaysia in October 1998. A complete list of the sources for this paper is presented in Section 4.

<sup>101</sup> The Economist Intelligence Unit, *EIU Country Report, 4<sup>th</sup> Quarter 1998, Malaysia and Brunei*, 1998

<sup>102</sup> International Road Federation, *World Road Statistics 1998*, p. 21 [1996 data].

Tanjong Malim Highway, which was executed and operated by Jabatan Kerja Raya (JKR, the Public Works Department). In the second phase, from 1980 to 1988, the Malaysia Highway Authority (MHA) was established to construct and operate the North South Expressway and the Penang Bridge as public toll highways. Under the Federal Roads (Private Management) Act of 1984, the Minister of Works was also granted the power to authorize any entity that agreed to construct, re-construct, upgrade, repair or maintain any federal road the right to demand, collect, and retain tolls.<sup>103</sup> Subsequently, in the third phase of Malaysian toll road development, from 1988 to the present the full privatization of toll roads in Malaysia has commenced.

**12.4 Direct Government Involvement: 1966–80.** The first toll highway in Malaysia was the Slim River–Tanjong Malim Highway, which opened to traffic in 1966. It subsequently reverted to a toll-free section with the opening of the Tanjong Malim–Tapah segment of the North-South Expressway in October 1993. In addition to this highway, several bridges were also tolled in the 1960s, including the Muar Bridge in Johor, the Pekan Bridge in Pahang, and the Sultan Yahya Petra Bridge in Kelantan.

**12.5 Operation and Construction by MHA: 1980–88.** In October 1980, MHA was established as a Government agency under the direct control of the Ministry of Works for the purpose of designing, constructing, and maintaining toll expressways in order to respond to increasing traffic demands.<sup>104</sup> MHA was also put in charge of construction, management, and toll collection for the North-South Expressway and the Penang Bridge, which were transferred to the agency by JKR. Following a recession in 1984–86, the North-South Expressway was privatized. Since then, all new toll road construction has been promoted as private projects, and the Penang Bridge and Kuala Lumpur–Karak Toll Road were also privatized. However, MHA continues to regulate the construction, operation and maintenance of nearly all tolled roads in Malaysia and consequently exercises regulatory and supervisory functions over the operations of all toll road concessionaires. All road designs submitted by concessionaires must also be approved by MHA.

**12.6 Full Privatization of Toll Roads: 1988–present.** The signing of a 30-year concession contract between the Malaysian Government and United Engineers Malaysia (UEM) for the North-South Expressway in March 1988 ushered in the full privatization of toll expressways in Malaysia. With the advent of privatization, MHA's role changed from that of an Implementation Agency to a Supervisory Agency, and it is now responsible for the review of technical aspects of road privatization. It performs mid-term and final construction evaluations along with its regular duties such as planning consultations, land acquisition, standards specification, and preparation work.

**12.7 Toll Road Planning, the Tender Process, and Institutional Relationships.** The Ministry of Works was responsible for preparing the Highway Network Development Plan (HNDP), which was drafted in 1993.<sup>105</sup> This was a national study that assessed existing and future nationwide travel patterns. Planning for highways that are intended to cater to national

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<sup>103</sup> The right of private operators right to collect these is subject to federal enforcement laws and may be transferred to other parties subject to the procedures described in the law.

<sup>104</sup> MHA is classified as a statutory corporation, authorized under the Highway Authority Malaysia (Incorporation) Act of 1980.

<sup>105</sup> With assistance from the Japan International Cooperation Agency (JICA).

travel demand (such as the East Coast and West Coast Expressways) must make reference to the HNBP. Other existing and planned toll highways are intended to address regional and local travel demands, and as such refer to regional or urban transportation studies including those conducted for the Klang Valley (1986), Johor Bahru (1984), and Penang (1979).

12.8 Either the Government or a private company or entity may identify possible toll road projects. Two types of process are involved: (i) competitive bidding, based on projects identified by the Government, and (ii) private sector initiated projects, some of which conform to the government development plan and some of which do not. Such proposals for privately financed toll road projects are submitted to the Privatization Committee of the Malaysian Government's Economic Planning Unit (EPU, under Prime Minister's Office),<sup>106</sup> rather than to the Ministry of Works. Whether a toll road project is privately initiated or advanced by the Government, if the proposed project is approved, then tenders will typically be invited from selected bidders by the EPU Privatization Committee. The winning bidder then enters into negotiations with EPU to finalize the terms of the concession agreement. However, there is no statutory requirement that toll road projects be awarded only by way of tender. In some cases, where the private company or entity had initiated the project and no other company appears to be interested, then a tender exercise may not be held.

12.9 The EPU Privatization Committee is composed of members from the various Government Ministries concerned, and evaluates all privatization-related projects throughout every sector across the country, not just toll road projects. It has two subcommittees, a Technical Subcommittee and a Financial Subcommittee.<sup>107</sup> For toll road projects, the Technical Subcommittee evaluates such aspects as alignment, standards, and alternative alignments, while the Financial Subcommittee evaluates costs, tolls, concession periods, company financial qualifications, funding sources, and other financial matters. The Highway Planning Unit (HPU, under the Ministry of Works), as a member of the Technical Subcommittee, is responsible for traffic forecasts and each project's integration within the national network, while MHA is responsible for implementation-related matters such as interchange location and configuration, road alignment, geometry and design, social impacts, and other technical aspects of the proposal. The Cabinet is ultimately responsible for granting concessions to the private sector, but the Secretary General of the Ministry of Works actually signs the concession agreements.

**12.10 Structure of Concessions, Project Finance, and Toll Rate Setting.** Most if not all of the toll road concessions granted to date may be characterized as Build, Operate, and Transfer (BOT) concessions. All concession agreements for federal roads have been executed with the federal Government through the Ministry of Works, with the exception of a

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<sup>106</sup> EPU is the federal agency responsible for the planning, coordination, evaluation, and implementation of privatization programs in Malaysia. In practice, all privatization initiatives require the endorsement of the EPU. This endorsement requires the adherence to specific formalities, including the submission and approval of privatization plans, as well as compliance with the policies and guidelines issued by the EPU. Also, EPU requires that the form of the concession agreement must substantially follow the standard form concession agreement that it has developed.

<sup>107</sup> The Technical Subcommittee members include representatives from MHA, JKR, the Ministry of Works, the Ministry of Land and Mines, Federal and State Town Planners, State Government and City Hall/Local Authorities Representatives, EPU, the Drainage and Irrigation Department (DID), and the Valuation Department. The Finance Subcommittee members include representatives from the Treasury, EPU, Ministry of Works, MHA, Kuala Lumpur City Hall, federal planners, the Ministry of Land and Mines, and the Evaluation Department.

concession agreement for the privatization of roads and intersections within Kuala Lumpur that was executed with the Mayor of Kuala Lumpur under authority of the Minister of Works. As a rule, domestic banks have been expected to take the lead role in providing financing for toll road concessions in Malaysia. However, foreign financial institutions have been allowed participate in the financing as co-lenders. Foreign investors or sponsors may inject capital into the project either in the form of equity and/or shareholder's loans. However, the aggregate foreign equity in the concession has generally been limited to 25 percent of the total equity.

12.11 The initial tolls or fares are usually established in the concession agreement. However, the actual fares charged or any increases in the fares are subject to the approval of the Government. In some cases, such as for the North-South Highway, it has been negotiated in the concession agreement that if the actual toll rates are less than that specified in the agreement, then the Government is required to compensate the concessionaire for the toll revenue shortfall due to the lower fares. While it may be a matter for negotiation, the EPU does not generally permit the indexing of toll rates to inflation or foreign exchange values. In addition, it is possible to secure fare increases if a change in law or another action by the Government adversely affects the cost of constructing and/or operating the toll road or the amount of toll revenues collected.

12.12 **Government Support.** Government support for toll highway projects in Malaysia takes various forms, described in the following paragraphs.<sup>108</sup>

12.13 *Land rights.* The EPU generally accepts that the Government (at both the federal and state levels) is responsible for securing and providing to the concessionaire the land rights that are required to carry out toll road projects. However, land acquisition and related costs (such as compensation to squatters) are generally expected to be borne by the concessionaire.<sup>109</sup> Provided that appropriate compensation is paid, it is not usually difficult for the acquisition to be effected. The land necessary for the construction, operation, and maintenance of a toll road is typically first acquired by a State Authority for and on behalf of the federal Government. It is then designated as federal reserve land, and the concessionaire is granted an exclusive license to use and occupy it by the Government.

12.14 *Financial Assistance.* Depending on the financial requirements of the particular toll road project, the Government may also agree to provide loans at lower than market interest rates and/or compensate for any shortfall in toll revenues arising out of a failure to increase the fares as agreed under the concession agreement. So far, this type of arrangement only applies to two projects, the North-South Expressway (NSE) and the Kuala Lumpur-Karak Highway. In the case of the NSE, compensation will take the form of a government loan, not cash.

12.15 *Consequences of Termination.* If a concession contract is terminated due to default of the concessionaire or through no fault of any party, no compensation is to be paid to the concessionaire for the loss of its rights or investment. However, where termination is due to

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<sup>108</sup> This subsection draws primarily from the contents of a resource paper prepared for PADECO Co., Ltd. by the law firm Baker & McKenzie.

<sup>109</sup> The Government might sometimes provide a soft loan for land acquisition, but it varies from case to case depending on the project's merits.



the Government's default, the Government will generally grant compensation for the loss suffered by the concessionaire (which would include the loss of future profits). Alternatively, the concessionaire may be granted the right to extend the concession period for a period suitable to compensate for the loss suffered, or to receive an agreed compensation amount, or to appoint a new entity to take over the concession. If the concession agreement is terminated due to the default of the concessionaire or the Government for any other reason, it is generally the case that the Government will take over the rights of the concessionaire and assume the liabilities and obligations of the concessionaire to the project lenders.<sup>110</sup>

**12.16 North-South Expressway.** The North-South Expressway (NSE) is an 848 km toll road running the length of the west coast of peninsular Malaysia from the Thai border to Singapore. It was built between 1988 and 1994 at a total cost of US\$2.4 billion<sup>111</sup> and was financed entirely on the Malaysian domestic capital market. The highway represented one of the first major BOT projects in Asia.<sup>112</sup> It passes through the country's major cities and industrial estates and provides an efficient way to move produce from agricultural regions to population centers. Because of the size of the project and its technical uncertainties, the major portion of the project was awarded on a tender basis to separate contractors. Of the 47 civil contracts, approximately 60 percent were carried out on a fixed-price, lump-sum basis, with the balance carried out on a remeasured basis with a capped price.

**12.17 United Engineers Malaysia, Berhad (UEM),** the winning bidder, created a new company, Projek Lebuhraya Utara-Selatan Bhd (PLUS), to act as the project concessionaire.<sup>113</sup> Under the terms of the concession, PLUS was obligated to construct the remaining 462 km of NSE and the 35 km New Klang Valley Expressway from Kuala Lumpur to the coast, and to make improvements to 15 km of Federal Highway Route 2. In return, the Government agreed to transfer to PLUS 309 km of NSE that were either already completed or under construction, and the existing toll-collecting sections of Federal Highways 1 and 2 extending 61 km. Upon expiration of the concession in 2018, PLUS's right to collect tolls will revert to the Government and PLUS will be obligated to hand over the expressways in good condition.

**12.18** The major portion of the road construction work was awarded to separate contractors on a tender basis rather than to a single company or consortium under a turnkey contract.<sup>114</sup> To keep control over costs but also to allow some flexibility, approximately 60 percent of each contract was carried out on a fixed-price, lump-sum basis, while the balance was implemented on a re-measured basis with a capped price. Many of the most prominent contracting firms in the world were involved in construction, with Japanese, Korean, Taiwanese, and other contractors strong in the Asian region winning many of the large contracts. About two-thirds of the contracts were smaller ones, however, and many of these were awarded to local Malaysian companies.<sup>115</sup> The contracts were awarded over a four-year

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<sup>110</sup> This represents a generous arrangement for concessionaires.

<sup>111</sup> At 2.50 Malaysian ringgit (dollars) per US\$1.00.

<sup>112</sup> Malaysia had also earlier pioneered highway privatization with the North Klang Straits Bypass and Jalan Kuching (a radial road in northeastern Kuala Lumpur).

<sup>113</sup> Under PLUS, UEM created another subsidiary called PL to manage the project's contractors.

<sup>114</sup> There were 47 civil works contracts (covering sections of road ranging from 2-30 km), 11 toll plaza contracts, five toll equipment contracts, 11 street lighting contracts, and one contract for the communications network. In addition, there were 55 contracts for topographical surveys and 75 for ground investigation.

<sup>115</sup> Most of the local companies had to be bonded by major creditworthy banks.

period, while the construction program lasted for five years. Construction was completed ahead of schedule, but there were budget overruns. By the time the project was about half completed and PLUS was awarding the final contracts, it was clear that there would not be sufficient funds in hand to complete construction and that a second stage of financing would be necessary.

12.19 NSE's US\$2.4 billion total cost was financed by a combination of toll revenues collected during the construction period, equity, preference shares, a government loan, and commercial debt finance. The initial construction budget was approximately US\$1.4 billion. At the time the inflation rate in Malaysia was low, and the construction budget assumed that this trend would continue. The financial adviser advised PLUS to raise as much of the required funding as possible on the domestic market in order to limit foreign currency exposure. Although the local markets lacked sufficient liquidity to support such a large project at the time, delays in awarding the contracts provided more time for the local economy and financial markets to improve; PLUS was therefore able to obtain all required financing locally. There were a total of 46 financial institutions in the syndicate.

12.20 The first stage of financing consisted of two 15-year project term loans for a total of US\$1.008 billion, the longest term loan ever made in the Malaysian market, and by far the longest for project financing. The first loan agreement, for US\$822 million, was signed on November 21, 1989, and the second, for US\$186 million on August 27, 1990. The PLUS project encountered substantial cost increases for several reasons. Some project investments in capacity expansion that were planned for several years in the future during the operation phase were moved forward in order to accommodate higher-than-anticipated traffic levels. The Government also requested additional work to upgrade some of the original contract specifications. The most important factors were unusually high inflation related to Malaysia's emergence from a recession, and the impact of the Gulf War on construction material costs.

12.21 In order to cover the budget overruns, a second stage of financing was necessary. It consisted of a US\$822 million equivalent 12-year loan supplemented by a US\$392 million equivalent issue of "redeemable convertible cumulative preference shares" (RCCPS). The latter was an innovative instrument for a start-up project, and it provided several benefits. With RCCPS, there is a low yield in the early years, relieving the project of cash flow pressure; the low yield was made possible by the potential gain to investors upon conversion with the listing of the common stock of PLUS. The project's gearing was not affected adversely because an RCCPS is treated as equity, and the position of commercial lenders is further enhanced by the cumulative nature of the dividends. The budget overrun was financed entirely by PLUS, but (according to the company) a considerable portion that they consider to be Government liabilities has not yet been compensated. Five years after the opening of the last section of the NSE, PLUS is still negotiating with the Government for repayment.

12.22 PLUS also negotiated three general forms of support from the Government. The first was a loan on preferential terms to compensate PLUS for unprofitable sections of the expressway and below-market-rate tolls. The second was a traffic volume "supplements" agreement—an agreement to provide a loan to PLUS if toll revenues did not reach a certain level. The third was an external risks agreement under which, if the Malaysian currency (the ringgit) lost more than a certain percentage of its value in relation to a currency of foreign borrowing (or if interest rates increased by more than a specified amount), the Government

would step in and provide the support needed to service the debt. The second and the third forms of support have so far turned out to be unnecessary due to economic growth and the lack of foreign borrowing. However, a large amount of compensation was paid to PLUS in 1996-98 based on the first of the three forms of support since the Government did not increase the toll rate as agreed in the concession contract.

**12.23 Malaysia-Singapore Second Crossing.** In July 1989 a comprehensive privatization proposal for a Malaysia-Singapore Second Crossing (MSSC) was submitted by a consortium led by UEM. On November 23, 1990, EPU accepted the proposal in principle. As the overall project was to involve development of a new town in Johor State, discussion/agreement with the State Government was also required. A tripartite agreement among the Federal Government, State Government, and UEM was signed on November 12, 1992, and in 1993 Linkedua Sdn Bhd signed a 30-year BOT concession contract to construct the MSSC. The award was valued at 1.6 billion ringgit plus a 600 million Singaporean dollar component from Singaporean investors. An open toll system was planned, incorporating three toll plazas—one each at the Second Crossing, the Northern Link, and the Johor Baharu Parkway. In addition, some 9,500 ha of land were to be acquired by the State Government of Johor for the development of a new town, Bandar Nusajaya.<sup>116</sup> This additional development was meant to be a supplementing factor to improve the weak project economics of the original scheme.

**12.24** The MSSC was declared open in February 1998, marking the culmination of eight years of work on the bridge, which links Tanjung Kupang in Johor and Jalan Ahmad Ibrahim at Tuas on Singapore's western tip. The new bridge has a design capacity of 200,000 vehicles per day, four times the load on the old causeway linking Johor Baharu and Woodlands, Singapore. Besides the bridge, the development includes a Customs and Immigration and Quarantine complex, toll plazas, rest and service areas, and other ancillary works. The bridge will be linked to a new 44 km expressway leading to the North-South Expressway, Senai Airport, and Johor Baharu.

**12.25** As of late 1998, the traffic volume on the MSSC was one third of that originally estimated, which is causing the company to risk defaulting on its debt service payment. This situation has been attributed to both the Singaporean Government's imposing a toll on their section of the Crossing (despite having originally indicating that they would not), and delays in the development of Bandar Nusajaya. Renegotiation of the basic terms and conditions of the concession contract is ongoing to avoid a default by the concessionaire.

**12.26 KLCC-Sepang Dedicated Highway.** On October 23, 1997, Konsortium Lapangan Terjaya Sdn Bhd (KLT)<sup>117</sup> signed a 33-year BOT concession to construct a 1.6 billion ringgit, 42 km "Dedicated Highway" linking Kuala Lumpur to Putrajaya<sup>118</sup> and the new Kuala

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<sup>116</sup> Bandar Nusajaya was originally known as Bandar Baharu Pulau.

<sup>117</sup> The KLT consortium is made up of the Malaysian firms Bright Focus Sdn Bhd (51 percent), Anson Perdana Bhd (30 percent), and Hi-Summit Construction Sdn Bhd (19 percent). Bright Focus Sdn Bhd is a wholly owned subsidiary of Maju Holdings, and Hi-Summit Construction Sdn Bhd is owned by Anson Perdana Bhd.

<sup>118</sup> Putrajaya, the new Federal Government Administrative Center for Malaysia, was named after the nation's first Prime Minister, the late YTM Tuanku Abdul Rahman Putra Al-Haj. Upon completion, it will receive most federal government activities from Kuala Lumpur, which is at present both the nation's capital city and the center of its economy. Construction of Putrajaya began in August 1995, and Prime Minister Datuk Seri Dr. Mahathir Mohammad is to move his office (the Prime Minister's Department) there in mid-1999. The new Prime Minister's office will sit in the heart of the new town and is intended to be an ultra high-technology

Lumpur International Airport (KLIA) at Sepang.<sup>119</sup> Construction is to be complete in three years, with the first sections of the highway expected to be operational as soon as mid-2000. Project funding is being generated by a 215 million ringgit soft loan from the Malaysian Government to the project proponents, with the balance coming from shareholders' equity and bank borrowing. The Government will also provide assistance to finance part of the land acquisition cost, which is included in the 1.6 billion ringgit total project cost.

12.27 The highway will feature dual 3-lane carriageways, about one-third of which are being built on elevated viaduct through the Kuala Lumpur, and the remainder at grade. The elevated section starts near Kuala Lumpur City Centre and will have strategic entry and exit points at the Middle Ring Road, the East-West Links, the proposed Kuala Lumpur Elevated Expressway, the Federal Highway at the Salak South Interchange, the proposed Pantai Highway, and the Puchong-Sg Besi Highway. The at-grade section will have an interchange at Putrajaya/Cyberjaya and will link with the airport's main terminal.

12.28 As with most projects currently under negotiation, this project's finances have been seriously affected by the current liquidity problems of domestic commercial banks. The following section discusses this topic in greater detail.

**12.29 Impact of the Asian Economic Crisis on Future Toll Road Development.** As of October 1998, there were 24 toll expressway and bridge projects in Malaysia for which concessions had already been signed. Of these, 13 projects are open to traffic, four are under construction, and concession agreements for the remaining seven have been signed but they are not yet under construction (see Table 10). At this time there may be a natural "slowing down" of the privatization drive, as there appears to be a saturation of toll road projects in Malaysia considering current and likely future road traffic volumes. The ongoing regional financial crisis has also affected many of the existing and planned projects, but the Government has so far been quite amenable to adjusting the terms and conditions of the concession contracts in response. In December 1997, for instance, the Government invited all project proponents that were then negotiating concessions to submit alternative proposals for restructuring their projects in view of the financial crisis.

12.30 A representative example of the way in which this restructuring has taken place can be seen in the case of the KL-KLIA Dedicated Highway, which has encountered difficulties in raising project finance due to the current financial crisis. Alternative proposals that would enable the project to proceed expeditiously have been submitted to the Government but will require additional Government funding. Objectives of the alternative proposals for the Dedicated Highway are to (i) strengthen its cash flow position, (ii) address the low liquidity of its commercial lenders, and (iii) reduce its estimated revenue shortfall. In order to meet these objectives, KLT has proposed the following four measures:

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"paperless" office. Located 26 km south of Kuala Lumpur and projected to cost up to US\$8.1 billion, Putrajaya will be developed as a 150 square kilometer "garden city" with "intelligent" features focusing on the preservation of its "eco-culture." The new city will provide for 250,000 people in 52,000 housing units equipped with modern amenities. It will function as the principal seat of government, and 76,000 staff will occupy 1.5 million square meters of floor space. Ultimately 135,000 people are expected to work in Putrajaya's new office complexes.

<sup>119</sup> Sepang Airport opened in June 1998.

- convert split alignment to a single one;
- convert part of elevated section to a grade-level section;
- provide only the number of lanes required to serve initial traffic demand; and
- revise the construction sequencing and program.

12.31 Another initiative announced in 1998 is the establishment of an Infrastructure Development Fund of 5 billion ringgit to support troubled infrastructure projects. Out of the total amount, 1.8 billion ringgit are to be allocated to land acquisition costs and to soft loans for priority toll road projects.<sup>120</sup>

**Table 12-1 Status of Privately-Financed Toll Roads, February 1999**

Project Name	Status
1. North–South Expressway (including New Klang Valley Expressway and Federal Route 2)	Open to traffic
2. Malaysia–Singapore Second Crossing	Open to traffic
3. Seremban-Port Dickson Highway	Open to traffic
4. North Klang Straits Bypass Highway	Open to traffic
5. North–South Central Link Expressway	Open to traffic
6. Penang Bridge	Open to traffic
7. Upgrading of Jalan Kuching	Open to traffic
8. Kulim–Butterworth Highway	Open to traffic
9. Kuala Lumpur-Karak Highway	Open to traffic
10. Shah Alam Expressway	Open to traffic
11. Cheras–Kajang Highway	Open to traffic
12. Widening and upgrading of Sungei Besi Road	Open to traffic
13. Damansara–Puchong Expressway	Open to traffic
14. New North Klang Straits Bypass Highway	Under construction
15. Pantai Baharu Expressway	Under construction
16. Ampang-Kuala Lumpur Elevated Highway	Under construction
17. KL West Traffic Dispersal Scheme (SPRINT)	Under construction
18. Butterworth Outer Ring Road	Concession agreement signed, constr. not yet started
19. Kajang–Seremban Expressway	Concession agreement signed, constr. not yet started
20. Kajang Traffic Dispersal Scheme	Concession agreement signed, constr. not yet started
21. KL–KLIA Dedicated Highway	Concession agreement signed, constr. not yet started
22. Assam Jawa–Taman Rimba Templer Expressway	Concession agreement signed, constr. not yet started
23. Ipoh-Lumut Expressway	Concession agreement signed, constr. not yet started
24. East Coast Expressway	Concession agreement signed, constr. not yet started

Source: JKR (Ministry of Works), 1999

12.32 The Government is also attempting to refine the Toll Rate Adjustment Mechanism based on lessons learned from the case of NSE (for which the Government has had to pay huge sums to PLUS on account of deferred toll rate increases). The proposed new method is to annex the forecast traffic volume to the concession agreement. If the actual traffic level is more than the forecast level at a specified time, the Government could request either the deferral of a toll rate increase or lowering of the level of toll rate increase. But if subsequently the actual traffic is found to be less than forecast, the concessionaire could request a review of the toll rate to reinstate the increase requested earlier.

12.33 The financial crisis may additionally persuade EPU to permit the foreign equity investment in the concessionaire to be higher than the usual 25 percent and possibly also a

<sup>120</sup> *News Net Asia*, Malaysia, July 8, 1998.

greater amount of foreign financing for the toll road concession. In addition, the economic downturn resulting from the crisis would probably contribute to a decrease in traffic volume and consequently fewer new roads will be built. This is also likely to mean that fewer toll road concessions will be granted.

12.34 Finally, Bank Negara Malaysia, the Malaysian central bank, recently introduced sweeping changes to the Malaysian exchange control regulatory regime. Prior to these changes, the Malaysian exchange control regulations were viewed as relatively liberal. The changes are primarily aimed at preventing or restricting speculation in the ringgit by, *inter alia*, the introduction of a fixed exchange rate vis-à-vis the United States dollar, the prohibition of overseas trading of the ringgit, and generally restrictions on the short-term flow of capital into and out of Malaysia. The full impact of these changes on the participation of the project lenders or sponsors in a toll road project will of course depend on the specific circumstances of their involvement. However, the more significant issues that are likely to arise appear to be:

- the ability of the non-resident project sponsors to repatriate equity capital out of Malaysia in the event of a sale of the equity in or winding up of the concessionaire;
- the ability to repatriate any profits (in the form of dividends or interest) out of Malaysia;
- the grant and repayment of loans by non-resident project lenders or sponsors; and
- the ability to repatriate the proceeds from any sale of Malaysian assets (shares or otherwise) pursuant to the enforcement of any security by the non-resident project lenders, out of Malaysia.

#### UU. Major Toll Road Issues and Implications for Best Practices

12.35 The experience in Malaysia raises a number of major issues with respect to the development of toll roads, with important implications for best practices elsewhere. These issues and/or best practices include:

- the need for a more flexible BOT concession model;
- the difficulty of orderly network development with a private sector-driven approach;
- the need for transparent tendering and evaluation procedures;
- social policy-based hurdles to foreign investment in public infrastructure;
- risks associated with combining real estate and highway development;
- the importance of government support in restructuring critical projects;
- the need for an updated toll road network development master plan; and
- community severance impacts.

Each is addressed below.

12.36 **Need for a More Flexible BOT Concession Model.** The NSE was planned in part to stimulate Malaysia's stagnant economy in the early 1980s. Because of its size and the level

of both public and private sector involvement in executing such a large project, there were many risks that would have been difficult for the private sector to have assumed alone. A primary issue was the control of construction risks in a project that involved so much simultaneous work (more than 600 km of construction in total). Construction expenses ultimately exceeded the initial US\$1.3 billion budget by more than 70 percent. The long construction period, spanning five years, also caused or suffered from many other problems such as increased traffic volumes, unexpectedly high inflation, and additional work brought on by unforeseen construction difficulties and unforgiving terrain.<sup>121</sup> PLUS tried to control these factors by separating the stretch into many construction packages, out of which some 60 percent of the contracts were awarded on a fixed lump-sum basis. The current BOT model is not well suited to addressing the economic risks inherent in large toll road projects that involve a lengthy road over difficult terrain, a long construction period, and many contingencies. A more flexible model would be needed to cope with the risks that are inherent in large projects like the NSE. Such a model should incorporate adjustment and negotiation mechanisms for reallocating construction responsibilities and toll revenues. Most critically, the toll road development model would ideally allow for the straightforward reassignment of risks related to economic assumptions over long-term construction and operation periods.

**12.37 Difficulty of Orderly Network Development with a Private Sector-Driven Approach.** At present, the toll road development process in Malaysia is largely driven by private sector project proponents. Very little advance planning and coordination is undertaken by government agencies in order to coordinate proposals and work towards development of an expressway system that includes complementary, rather than competing, routes. Particularly in Kuala Lumpur, city government officials have expressed a desire for improved involvement in reviewing project details. The concessionaires are also handicapped by this lack of planning, as they are unable to receive assurance that there will be no competing routes that may adversely affect the profitability of their project. As a consequence, the pattern of expressway network development in the Kuala Lumpur metropolitan area may be characterized as disorderly.<sup>122</sup>

**12.38 Need for Clear and Transparent Tendering, Evaluation, and Toll Setting Procedures.** There is no legal requirement that a tender exercise be held for the award of a toll road concession in Malaysia. The concession for the North-South Highway was initially awarded without a tender exercise (although it came to incorporate competitive tendering later). The drawback in not having a tender exercise or not being required to justify the lack of a tender is that the operation of the toll road concession by the selected concessionaire may not be the most cost-efficient or cost-effective. It would be better if it were legally required that a tender exercise be held, or that valid reasons be provided if no exercise is carried out.

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<sup>121</sup> The landscape traversed by the expressway includes high granite hills, scenic limestone cliffs, crater-like tin mining territory, and paddy fields that look deceptively simple from a road construction standpoint. The geotechnical problems that had to be overcome for this diverse cross-section of geological types included designing embankments across 30-meter deep soft marine clays (upon which just walking is difficult), crossing through areas of peat bog and lime-filled mining ponds, and cutting through earth and rock—in some cases up to 80 meters deep.

<sup>122</sup> Various toll roads that have been completed or are being planned include the Central Link of the NSE, the New Klang Valley Expressway, the Shah Alam Expressway, the South Klang Valley Expressway, the North-South Link/KLIA Expressway, the “Dedicated Highway” to KLIA, the Kuala Lumpur–Seremban Expressway, and a third proposed access road to KLIA.

12.39 Transparent competitive tendering is especially important in a situation where the main contractor for the project is also a leading member of the concessionaire.<sup>123</sup> To highlight the potential for increased project costs, consider the following example of a privatized project with a construction cost of 1.00 billion ringgit, designed and built by the main contractor and in which a profit margin of 30 percent has been incorporated. In such a circumstance, the initial profit accrued by the main contractor would be at least 300 million ringgit. To maintain a debt-to-equity ratio of 70:30, the equity contribution from the consortium must also total roughly 300 million ringgit. Often the main contractor will have an equity of about 30 percent in the consortium, or about 100 million ringgit. In this event, the initial profit for the main contractor could amount to a few times its equity contribution. It can easily be seen that there exists a great temptation for the main contractor to escalate costs in this manner. Clear and transparent tendering and evaluation procedures are essential in order to prevent this and other forms of abuse.

12.40 At present, all toll changes must be approved by the Cabinet in order to be enforceable against the public consumer. From the perspective of the long-term viability of the concessionaire, it would be preferable for there to be predetermined toll increases set out in the concession agreement. In this manner, toll changes could be made effective without adding uncertainty to project finances.

**12.41 Social Policy-Based Hurdles to Foreign Investment in Public Infrastructure.** For reasons of social equity, the Government has adopted a National Development Policy with the objective of securing at least 30 percent of the ownership of the Malaysian economy (including share capital in any Malaysian company) by the indigenous people of Malaysia and at least 40 percent by Malaysians generally (indigenous or otherwise), leaving a maximum of 30 percent foreign equity ownership. Such social policy-based preferences in awarding contracts, which combine socioeconomic development policies with private sector project financing, present challenging implications for risk assessment and other aspects of project implementation. Furthermore, with respect to equity holdings in toll road concessionaires, EPU has adopted an even stricter policy of permitting no more than an aggregate of 25 percent foreign equity. It is not only the concessionaire but also the entity appointed to replace the concessionaire in the event of a default under the concession agreement who must comply with this equity condition. However, with the prior approval of the Government, in the light of the current economic crisis, greater foreign direct investment may be permitted in toll road projects in Malaysia in the future.

12.42 EPU may also require that certain aspects of the toll road project fulfil local content requirements. For instance, the concessionaire may have to ensure that at least 30 percent of the construction works for the toll road project be awarded to indigenous-owned construction contractors. The concessionaire may also be required to use, wherever possible, local carriers, for the importation or transport of goods and materials. Finally, EPU requires that concession agreements be governed by Malaysian law and that the parties submit to the exclusive jurisdiction of the Malaysian courts. While Malaysia is a party to the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards, and has enacted legislation

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<sup>123</sup> Commonly in Malaysia, the concessionaire consists of a consortium of three members/companies, as found in schemes such as the Shah Alam Expressway by KESAS, the Lebuhraya Damansara Puchong Highway by Litrak, and the KL Western Dispersal Scheme by SPRINT, and the Dedicated Highway by KLT.



for the purposes of adopting the provisions of that Convention, this would likely not be of any significant use since the concession agreement typically requires any disputes to be resolved by arbitration at the Kuala Lumpur Regional Centre for Arbitration under the United Nations Commission on International Trade Law (UNCITRAL) Arbitration Rules.

**12.43 Risks Associated with Combining Real Estate and Highway Development.** The case of Malaysia-Singapore Second Crossing (MSSC) is a good example of an attempt to improve a toll road project's economic and financial viability by granting adjacent real estate development rights to the highway concessionaire. New town development has the potential to generate real estate income and introduce travel demand along the highway corridor. However, over-dependence on real estate investment earnings to structure a transport concession is highly risky, particularly given the volatility of real estate markets. As a general proposition, the viability of the toll road alone should drive the project financing decision-making.

**12.44 Importance of Government Support in Restructuring Critical Projects.** Given the severity of the economic and financial crisis now affecting Malaysia and its neighbors, clear-cut solutions to the problems that are affecting troubled toll road projects using only private sector resources are unlikely. It is very important that the Government remain amenable and flexible to alternative proposals from the private sector. Consider, for example, the case of the Dedicated Highway project, for which a very aggressive restructuring and cost reduction plan is now being attempted supported by the Government's flexible approach towards critical toll road projects.

**12.45** It is also important for the Government to take swift and deliberate steps with respect to troubled projects once they have been given priority status, in order to maintain investor confidence. The establishment of an Infrastructure Relief Fund in Malaysia is a case in point. There are also many projects without a minimum revenue guarantee, but whose bank debt is guaranteed by the Government. If the crisis continues and many projects default, the Government could end up with a large fiscal problem in paying back the debt, while being saddled with underused toll roads lacking in the funding and human resources required for their operation.

**12.46** From a broader perspective, it is noteworthy the Government's Corporate Debt Restructuring Committee (CDRC) has recently won praise for brokering a plan in early 1999 to restructure the debts of the Renong Group conglomerate (and its associate company UEM, which owns PLUS) without using public funds. The restructuring relies on the issuance of bonds by PLUS, backed by toll revenues from its North-South Highway concession. As it avoided a Government "bailout" of the politically well-connected Renong Group, the plan has been praised as helping to restore confidence in Malaysia among international investors (both within and outside of the infrastructure sector).

**12.47 Need for an Updated Toll Road Network Development Master Plan.** Although a Highway Network Development Plan was prepared with JICA assistance in 1993, this master plan for the development of an integrated highway network throughout Malaysia has yet to be updated. Therefore, the ability of the current private proposal-based toll road development approach to follow a plan and result in a balanced and coordinated expressway network is doubtful. In addition, there has not yet been any economic evaluation of the benefits of a

coordinated expressway network development. Proper master planning for national expressway network development is essential in order to avoid a proliferation of disorderly toll road proposals in Kuala Lumpur and elsewhere in the country.

**12.48 Community Severance Impacts.** With the recent opening of the Lebuhraya Damansara Puchong Highway, which cuts through the heavily residential areas of Petaling Jaya, there were numerous reports and complaints of communities being disconnected and severed. Access needs for both pedestrian and local vehicular traffic were given low priority and severely impaired in some instances. It has been recognized that there is often a disparity between the access needs of the roadside communities and the needs of the generally longer-distance through traffic when it comes to the design of express highways. As most highway privatization projects have based their economic and financial viability on their ability to increase the speed and lower the journey time of commuting motorists, their emphasis has generally been on ensuring “uninterrupted flow” for through traffic and less so on the conflicting needs of neighboring residents for access and community interaction. The experience in Malaysia appears to confirm this imbalance in needs and a bias in favor of through traffic in the highway designs advanced by the concessionaires.

## VV. Sources

Malaysian Highway Authority, *Toll Roads in Malaysia 1997*, May 1997.

Badrul Hisham Mahari, GM, Operations, PLUS Bhd, Malaysia, “The Building of Malaysian North-South Expressway (NSE),” a paper prepared for IBTTA’s 1995 Annual Meeting, 31st July, 1995, New York, USA.

Henry A. Davis, *Project Finance: Practical Case Studies*, Euromoney Books, UK, 1996, Chapter 9, pp. 209-219.

John G. Hunt, Ahmad Hilmy A. Hamid, and Daniel Mohamed, *Toll Roads: The Malaysian Experience*, PTRC., 1994.

John G. Hunt, Ahmad Hilmy A. Hamid, and Daniel Mohamed, *Toll Operations in Malaysia: The Sungai Besi Toll Plaza, Kuala Lumpur*, PTRC, 1994.

Roger J. Allport, *Developing Best Practices for Promoting Private Sector Participation in Infrastructure: Expressways*, Draft Final Report (Appendix B: Case Studies), Asian Development Bank, TA No. 5733-REG, June 1998.

Oon Yeoh, “Plan to Restructure Renong Debt Praised,” *The Nikkei Weekly*, 15 March 1999, p. 23.

A, Merna and N.J. Smith, *Privately Financed Concession Contracts*, Volume 2, April 1996, Hong Kong, pp. 179-188.

“M\$2bn highway sings pact, Konsortium Lapangan Terjaya Sdn Bhd,” *Public Finance International*, Issue 132, November 5, 1997.

Gregory Fishbein and Suman Babbar, "Private Financing of Toll Roads," RMC Discussion Paper Series, Number 117, The World Bank, December 1996.

"KL Airport Link," *PWFinancing*, November 1997, p. 19.

"Malaysian Highway Authority," Presentation Material, undated.

"The Anatomy of the Expressway," PLUS, undated.

# 13

## Mexico: The Rapid Rise (and Fall) of Private Toll Road Development<sup>124</sup>

### WW. Country Background

13.1 Mexico's free market economy has been recovering steadily since the peso crisis-induced recession of 1995. After plummeting more than 6 percent in that year, economic activity in real terms increased by 5.1 percent in 1996 and 7.0 percent in 1997. The consumer price index increased by 30 percent from 1995 to 1997. Projected economic expansion for 1998 is 4.3 percent.<sup>125</sup> This growth has been led by exports, but increased domestic consumption and investment spending have also contributed to the recovery. Despite these positive trends, it is anticipated that low domestic savings rates will keep Mexico dependent on foreign capital, while the country's international trade continues to be highly dependent on the United States market.

13.2 Mexico's transportation infrastructure comprises approximately 250,000 km of roads (of which 62 percent are unpaved), more than 25,000 km of railways (one percent electrified), 2,900 km of navigable rivers and coastal canals, and over 50,000 km of oil, gas, and petrochemical pipelines.

### XX. Major Toll Road Developments

13.3 After several decades of limited results building state-run tolled and free highways, Mexico embarked upon the world's most extensive program of private concessioned toll roads between 1989 and 1995. The ambitious concession program resulted in the awarding of 52 concessions for 5,500 km of road, of which 44 concessions and 5,120 km were open to traffic by 1995. More than US\$13 billion had been raised to build these roads, over 80 percent by the concessionaires and domestic commercial banks. However, financial instability due to unexpectedly high construction costs and low traffic, coupled with the December 1994 devaluation of the peso, brought the concession program to a standstill in 1995. A comprehensive restructuring of the entire program in 1997 ended up costing the Mexican Government an estimated US\$8 billion. The progress of toll road development in Mexico is described in more detail in the following sections.

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<sup>124</sup> A complete list of the sources for this paper is presented in Section D. However, the paper draws most extensively from two excellent sources: (i) Jose A. Gómez-Ibáñez, Kennedy School of Government Case Program, Harvard University, *Mexico's Private Toll Road Program*, 1997; and (ii) *The Toll Road in Mexico: A Policy and Financial Review*, Country Draft Paper prepared by the World Bank, Private Sector Department, 1997.

<sup>125</sup> All economic statistics from The Economic Intelligence Unit, *EIU Country Profile, Mexico, 1998-99*, 1998.

**13.4 Early Toll Road Strategies.** About 1,000 km of publicly owned toll roads were built by the Mexican Government between 1950 and 1970. Most of these roads were operated by the federal toll road authority, Caminos y Puentes Federales de Ingreso y Servicios Conexos (CAPUFE) and were concentrated in high-volume traffic corridors near Mexico City. Another 3,000 km of untolled four-lane divided highways were subsequently added by pro-public sector governments of the 1970s and early 1980s. However, the oil “glut” of the 1980s put an end to the robust Mexican economic growth of the 1970s, and the Government began searching for ways to reduce the size of the public sector. Roads became a low priority since the recession had cut traffic growth. But as the economy began to pick up by the end of the decade, the newly elected President Carlos Salinas de Gortari (1988-94) identified high-quality infrastructure as critical to the Mexico’s long-term growth. He proposed a massive new program to build 4,000 km of private sector toll roads and seven new international bridge crossings, funded largely (if not entirely) by private capital. The plan would also provide an immediate stimulus to the country’s moribund construction industry, while helping to reinvigorate the economy overall.

**13.5 President Salinas’ Private Toll Road Plan.** President Salinas charged the Secretariat of Communications and Transportation (SCT) with administering the new private toll road plan. The toll roads were to be developed under the following conditions:

- SCT would select the routes to be offered for concession.
- A parallel free route must be available as an alternate for all concessioned routes.
- SCT would specify the allowable range for tolls, subject to twice-yearly adjustments reflecting the consumer price index.
- SCT would supply the bidders with preliminary designs, cost estimates, and traffic projections.
- The concession would be awarded to the bidder that offered the shortest concession period (as originally planned, not to exceed 15 years).

**13.6** The concessionaires were to be consortia of construction companies and banks, wherein the banks would finance 70 to 75 percent of project costs, and the construction companies were to contribute the remaining 25 to 30 percent by discounting their construction costs (“sweat equity”). An independent trustee would be appointed to review bills, disburse bank financing, and distribute toll proceeds to the investors.

**13.7** Direct government assistance under the original plan was to have come only in the form of right-of-way assemblage (to be leased to the concessionaire for a nominal fee), and extensions of the concession period (of a duration suitable for recovering the relevant costs). Concession extensions were to be authorized in the case of:

- traffic levels falling below the SCT forecast;
- cost overruns resulting from government-imposed delays or design modifications;  
and
- cost overruns in excess of 15 percent of the original project budget.

**13.8** Both the single bidding criterion (shortest proposed concession duration) and an open prequalification process were utilized by the Government in order to promote a fair and competitive tendering process that was highly transparent to all bidders. The single bidding

criterion also both assuaged populist legislators who were eager to see the roads return to public control and satisfied domestic financiers who had no access to long-term debt facilities in that inflation-prone era.

**13.9 Early Problems and Continued Expansion.** In 1992, just three years after the program's inception, 3,600 km worth of concessions had been awarded (90 percent of the original plan), and 1,500 km of toll roads had been opened to traffic (38 percent). In spite of the impressive pace, four basic problems had already become apparent:<sup>126</sup>

- (i) The program included many highways that were not financially viable by themselves. Once the most profitable highway segments were built, the Government was called upon to participate in the financing of roads with less traffic or more difficult construction, but not to exceed 25 percent of costs.
- (ii) The shortest-length concession criterion encouraged the concessionaires to charge the maximum allowable toll with the goal of reducing the payback time. The high tolls and free parallel routes discouraged travel on the toll roads.
- (iii) The designs, cost estimates, and traffic forecasts provided by SCT were often of very poor quality and highly inaccurate. The scale and pace of the project completely overwhelmed the staff resources of SCT, and the effect of high tolls was not known to the planners in any event.
- (iv) Some highway contractors were thought to be taking advantage of the program by both underbidding and exaggerating the "sweat equity" that they were providing. The bill auditors were not adept at catching such actions,<sup>127</sup> while the concession rules described earlier allowed for contract extensions in the case of cost overruns.

13.10 Nonetheless, the Mexican Government decided to expand the scope of the program by another 2,000 km during this period. The new roads were to "fill in the gaps" of five priority corridors—three from Mexico City north to the United States border, one from the Atlantic to the Pacific coast via the capital city, and a final one from Mexico City southeast through Veracruz and on to the Guatemalan border. The expansion plans were bolstered by a growing domestic economy and by political pressure from regions not yet served by the new toll highways.

13.11 By 1995, a total of 58 concessions had been awarded for 5,486 km of roads. Twenty-three of the concession contracts were won by Mexico's three largest construction companies, while the remainder went to smaller construction companies and a few to state governments. A total of US\$13 billion had been raised by December 1994, of which 29 percent was concessionaire equity, 52 percent was domestic bank loans, and the remaining 19 percent represented federal or state government equity investments.<sup>128</sup> Nevertheless, cost and traffic issues continued to dog most of the toll facilities. The average construction cost overrun was

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<sup>126</sup> Gómez-Ibáñez (1997).

<sup>127</sup> At the outset of the toll road program, the banks were public sector institutions and were often pressed into joining the consortiums. After the financial sector was privatized, the banks still lacked experience in carefully monitoring the behavior of their borrowers.

<sup>128</sup> Ruster (1997).

24.7 percent of the original SCT estimate,<sup>129</sup> while the average traffic level was only 68 percent of the original SCT guarantee.<sup>130</sup>

13.12 These difficulties notwithstanding, the Mexican financial sector was at first quick to try to adapt to the financing opportunities presented by the toll road program—particularly with respect to the highways that were financially successful. The process that gained popularity before 1995 might be “idealized” as follows:

- (i) Initial toll road financing would be provided by short-term construction or commercial loans (from general bank savings, guaranteed by the issuing bank).
- (ii) The toll road would be refinanced subsequently through the issuance of medium-term “infrastructure bonds” (sold on the domestic bond market, but guaranteed by the issuing bank because of the toll road revenue uncertainties).
- (iii) Once a toll road had been operating for a few years, construction costs and traffic/toll revenues would be predictable, and the more highly traveled routes would be in a position to attract foreign capital—freeing up domestic resources for other investments.

13.13 In fact, between 1992 and 1994 four Mexican toll roads had sufficient revenue streams to be able to successfully complete all three of the “steps” above and ultimately secure debt and equity refinancing on the international markets.<sup>131</sup> A similar refinancing of a fourth road fell through at the last minute as a result of the Mexican currency crisis in December 1994.

13.14 **Restructuring Before and After 1994.** In the early stages of the Mexican toll road initiative, a small team of analysts was charged with responsibility for making adjustments to contracts and overall policies with respect to the highway development program. A part of SCT, this team initially consulted directly with senior officials of the finance ministry. By 1994, however, the team had grown and was formally established as the Toll Road Office (Unidad de Autopistas de Cuota), reporting to the Sub-secretary. As of 1997 the staff of this office numbered 65, with the office responsible for all federal toll road and bridge concessions. About 20 state-sponsored concessions faced problems similar to those of the federal roads, but they were dealt with at the state level.

13.15 The toll road restructuring efforts of the Mexican Government may be divided into two “rounds.”<sup>132</sup> The first round included efforts undertaken to resolve problematic issues with toll road concessions from the outset of the program in 1990 until the end of 1994, when the Mexican currency was devalued, throwing the entire domestic economy into disarray. These initial efforts allowed case-by-case relief from SCT for toll roads with traffic shortfalls or cost overruns so severe that they could not be recovered even if the contract length was

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<sup>129</sup> Of 31 roads for which detailed costs were available, six were less than 10 percent above SCT’s estimate, eight were between 10 and 25 percent higher, and 17 exceeded estimated costs by more than 25 percent (Ruster, 1997).

<sup>130</sup> Of 32 roads for which detailed traffic data was available, traffic exceeded the guaranteed level on five, and was less than half of the guaranteed level on 17 (Ruster, 1997).

<sup>131</sup> The private Mexico City-Toluca toll road was refinanced at US\$207 million for 10 years at 700 basis points above the rate on United States Treasury bills; the private Ecatepec-Piramedes and Manzanillo toll roads were refinanced as a package at US\$110 million for 12 years (or possibly longer, under certain conditions) at 500 basis points above United States treasuries; and CAPUFE’s 20-year old and highly profitable Mexico City-Cuernavaca toll road was refinanced at US\$275 million for 7 years at only 350 basis points above United States treasuries, since it was still owned by the Government (Gómez-Ibáñez, 1997).

<sup>132</sup> Gómez-Ibáñez (1997).

extended to the maximum 30 years. They involved tripartite support from the Government, the toll road builders, and the toll road lenders, as follows:

- The *Government* provided various direct contributions to the faltering concessions in the form of loans from the national development bank, and/or the assignment of toll receipts from an existing CAPUFE toll road.
- The *toll road builders* (equity owners) provided support in the form of limits on their return on investment (7-10 percent maximum).
- The *toll road lenders* provided support in the form of reduced interest rates on their loans.

13.16 In December 1994, the new administration of President Ernesto Zedillo devalued the Mexican peso, precipitating an economic recession that dramatically worsened the financial standing of the toll roads themselves, and compounded the fiscal woes of their owners and investors. This environment brought about a second round of toll road restructuring efforts by the Mexican Government. The initial response attempted to go beyond providing cash to the concessionaires, by addressing the fundamental issue of excessively high tolls. Through a combination of a tax cut on commercial toll road users (trucks and buses), and an agreement among concessionaires to lower their toll rates below the maximum level permitted, an effective rate decrease of 28 percent was achieved.

13.17 However, the slow pace of the subsequent economic recovery rendered these efforts insufficient to increase revenues. It was estimated that the present value of toll revenues for the 38 federal concessions that requested restructuring as of March 1997 amounted to only less than half of the investments made. In April 1997 the Mexican Government announced that it would prepare a new comprehensive toll road restructuring plan, which was finally unveiled in August of that year. This plan proposed that SCT would take over 25 failing toll roads, and assume their bad debts. Two-thirds of the debts relieved were from domestic banks (which were also being bailed out by the Government at the same time), and one third came from the construction companies who were equity investors in the concessions. The construction companies received long-term government bonds in lieu of their toll road debt, while their shareholder equity was entirely forfeited by the bailout. Twenty-three concessions were financially healthy enough to not need a bailout, while four additional concessions that required a bailout involved foreign capital and were dealt with individually.

13.18 The Government plan also called for reducing toll rates for all classes of vehicles by 17 to 39 percent. Future toll revenues were expected to pay back two-thirds of the Government's 60 billion peso (approximately US\$8 billion) bailout, and after a two-year adjustment period, it was planned that the toll roads would be re-privatized based upon actual traffic and cost data. Critics charged that the Zedillo administration should have made the construction companies and banks pay a greater portion of their debts, but the Government prevailed, countering that it was acting to save the country's infrastructure, not to rescue a few private companies.



## YY. Major Toll Road Issues and Implications for Best Practices

13.19 Despite its primary success—the completion of over 5,000 km of toll road in just five years—the shortcomings of the Mexican private toll road program were many and varied. As such, the Mexican toll road experience raises a number of issues with respect to concessioned toll road development programs, many with important implications for best practices elsewhere. These include:

- the need for adequate program preparation and planning;
- issues related to cost estimates and construction;
- issues related to traffic and revenue forecasts, tariff rates, and toll road operations;
- the importance of well-designed legal, regulatory, and institutional frameworks; and
- issues related to project finance and economics.

13.20 **Need for Adequate Program Preparations and Planning.** It was apparent from the ensuing problems faced by the concessionaires that the project selection, prequalification, and award criteria were too vague. Mexico had no intermodal transportation development strategy, and as such it was impossible to design the projects to fit in with long-term regional development plans. This was particularly problematic with respect to the Government's concurrent rail, port, and airport privatization plans. In terms of highway development alone, planning was also highly inadequate. For instance, some key segments of the five “priority corridor” roads were never concessioned, while other toll roads lacked important links to other highways in the network. The tendering process lacked strict prequalification procedures and did not require the bidders to submit detailed financing plans. Consequently, many small to medium sized concessionaires relied upon commercial bank loans for their equity commitments, which became problematic as soon as project revenues began to falter. Potential concessionaires also faced challenges during the bid preparation process, as there was insufficient time between the release of bidding documents and their due date. This precluded independent consultants from being able to perform effective field survey work on behalf of the project investors.

13.21 It was also apparent that in many cases both the public and private sector organizations involved lacked sufficient technical, organizational, staff, and financial resources to plan for and implement the proposed projects successfully. SCT was understaffed and had inadequate overall institutional capabilities to take on the commitments demanded by the scale and nature of Mexico's private toll road program. Compounding this problem, a lack of proper discipline within the financial institutions also contributed to the over-reliance on “non-recourse” financing. In the early stage of the toll road program the project loans were often provided by government-owned commercial banks, with little or no due diligence performed. Not only were the banks technically incapable of performing such reviews at the time, but some also say that it was implicitly understood that the ultimate recourse would in fact be to the Government.

13.22 **Cost Estimates and Construction Issues.** During the design and construction stages of project implementation, the private concessionaires had their hands full with a wide range of problems. Inadequate plans, insufficient information, right-of-way conflicts, ineffective turnkey construction arrangements, unanticipated design changes, community resistance, and

permitting problems all contributed to frequent cost overruns and delays. Construction often started with only preliminary engineering and design work completed, and very little right of way obtained. Compounding matters, poorly defined procedures and bureaucratic delays with permits often brought construction to a standstill. Throughout the implementation period, SCT supervision was poor, and the Secretariat became known for often mandating universal change orders. Construction financing was also insecure, often based upon poorly structured cost-plus contracts if any at all.

**13.23 Traffic and Revenue Forecasts, Tariff Rates, and Operations Issues.** For many concessionaires, cash flow has been significantly below expectations. Reasons for this include: insufficient information coupled with flawed traffic analysis and forecasting methodologies; prohibitively high tolls; and the free parallel route requirement. In general, the traffic studies did not consider travel variations by time, day, or season, nor by type of vehicle or trip. In addition, demographic and economic conditions and trends influencing travel demand were typically not identified. In several cases, traffic growth rate assumptions were unrealistic and often data from SCT were inadequate or unavailable. These traffic study shortcomings have generally been attributed to a lack of expertise on the part of the concessionaires, financiers, and their consultants.

**13.24** Significantly lower than expected truck traffic magnified revenue problems because of the higher toll revenues that were expected from these vehicles, while counterfeit toll tickets made matters even worse. General road users also shied away from the toll highways due to the high tariffs. Most concessionaires also did little or no marketing to increase public awareness of their roads and the travel benefits provided over the parallel free routes, and they have given minimal attention to the development of auxiliary services such as gas stations, rest areas, restaurants, and emergency towing. The tariff adjustment procedures have also been highly uncertain for the concessionaires. Both toll increases and decreases typically required SCT approval, which restricted most concessionaires' abilities to responsively adjust pricing to optimize revenues once the roads were open to traffic. In the end, the concession agreements required the Government to specify toll rates and guaranteed traffic volumes by category of vehicle—effectively putting all revenue risk on the Government.

**13.25 Financial and Economic Issues.** Longer-term concession periods are in general beneficial to the private sector concessionaires, and support the financial and operational stability of the projects. Long term concessions allow the project sponsors to spread their debts over a longer period, and reduce the annual cash flow (revenue) needs to levels that may be met with more reasonable toll rates. The Mexican Government did eventually allow various financially troubled concessionaires to extend their concession periods, but some were already so bad off that even this was insufficient to make their finances sound.

**13.26** There is a pronounced need for “mature” domestic financial markets, able to provide long-term financing, in order to support successful private sector toll road development. In the case of Mexico, underdeveloped local financial markets were incapable of providing long-term fixed rate financing. A lack of liquidity in local financial markets, and local debt instruments that were limited to short-term high-cost floating-rate notes (often 10 percent above the local market reference rate) severely limited the conditions under which the toll roads could be operated profitably (or even break even). Once toll road revenue (and debt service) problems became apparent, local and international investor interest in most projects

dried up. Consequently, the “idealized” scheme of refinancing the toll roads under better terms once construction was complete became difficult if not impossible for most concessionaires.

13.27 A stable macroeconomic environment, supportive of international investment, is also of paramount importance for effective private sector participation in toll road development. The December 1994 peso crisis and subsequent recession, which reduced road usage, had a severe impact on project revenues and cash flow for nearly all of the toll road projects—eventually requiring the US\$8 billion government bailout of nearly half of the concessions in 1997. International investors also faced significant currency devaluation and convertibility risks in Mexican toll roads, and indeed only three of the most profitable projects were able to successfully attract foreign investment before the financial crisis. Prior to the crisis, the Government also provided dollar-based funding to certain lenders in order to help them lower their interest rates. However as the value of the peso dropped, the cost of these obligations ended up increasing by 70 to 80 percent.<sup>133</sup>

**13.28 Importance of Well-Designed Legal, Regulatory, and Institutional Frameworks.** A well-structured legal, regulatory, and institutional framework ought to be formulated well in advance of the awarding of concessions. In the case of Mexico, it has been suggested that the lack of legal and regulatory institutional arrangements discouraged lenders and builders from respecting their agreements. There were no formal mechanisms for the Government to obtain and address requests or inquiries from the private sector parties before, during, or after the bidding process. This situation led to an often adversarial and less than transparent relationship between the parties. The independent regulatory authority for supervising contractual arrangements was insufficient, and contracts were subject to the local court system, which represented a significant risk to international investors who were unfamiliar with the domestic legal system. With projects that needed direct government support, SCT’s dual role as government regulator as well as concession partner sent somewhat conflicting signals to the private concessionaires. In particular, the extent to which the Government would retain managerial control over such projects was uncertain.

13.29 In order to keep private sector projects financially viable, and in the private sector, there is a need to provide the private sector with incentives and room to maneuver in order to face their associated commercial and financial risks. Successful arrangements also protect the Government and taxpayers from ultimately being responsible for the financial condition of the private sector entities. It has been concluded<sup>134</sup> that while contractual arrangements alone may be sufficient for encouraging the commencement of private sector participation in infrastructure development, a broader regulatory and legal framework (for both the concessionaires and financiers) is perhaps necessary to sustain private sector involvement in infrastructure operation and management.

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<sup>133</sup> World Bank (1997).

<sup>134</sup> World Bank (1997).

**ZZ. Sources**

Kennedy School of Government Case Program [Professor José A. Gómez-Ibáñez, Harvard University], *Mexico's Private Toll Road Program*, C15-97-1402.0, 1997.

*The Toll Road in Mexico: A Policy and Financial Review*, Draft Country Paper prepared by the World Bank, Private Sector Department, 1997.

Jeff Ruster, "A Retrospective on the Mexican Toll Road Program (1989-1994)," *The Private Sector in Infrastructure: Strategy, Regulation, and Risk*, The World Bank – Finance, Private Sector, and Infrastructure Network, pp. 117-124, September 1997.

José A. Gómez-Ibáñez and John R. Meyer, "Chapter 9: Regulatory and Financial Tradeoffs – The Developing Countries' Experiences," *The Political Economy of Transport Privatization: Successes, Failures, and Lessons from Developed and Developing Countries*, U.S. Department of Transportation, pp. 9-1 – 9-24, September 1992.

José A. Gómez-Ibáñez, Two Cautionary Tales: *Private Toll Roads in Bangkok and Mexico*, presentation overheads, Seminar on Financing India's Infrastructure: Toll Roads, New Delhi, 12 pages, May 6, 1998.

Walter Hook, *Wheels Out of Balance: Suggested Guidelines for Intermodal Transport Sector Lending at the World Bank*, Section B.1 "Mexico's Toluca Toll Road," Institute for Transportation and Development Policy, p. 27, July 1996.

Peter V. Darrow, Nicole V.F. Bergman Fong, and J. Paul Forrester, "Financing Infrastructure Projects in the International Capital Markets: The Tribasa Toll Road Trust," *The Financier: ACMT*, Vol. 1, No. 3, pp. 9-19, August 1994.

"40 Cents a Mile To Acapulco," *The New York Times*, August 15, 1993.

Robin Carruthers, "Privatization of Transport Infrastructure and Operations in Mexico – Has it Been Worthwhile?" *Financing Transport Infrastructure – A compilation of major papers selected from PTRC's Summer Annual Meeting and Conferences*, pp. 143-152, January 1994.

Robin Carruthers, "The Mexican Approach to Toll Roads" *Financing Transport Infrastructure – A compilation of major papers selected from PTRC's Summer Annual Meeting and Conferences*, pp. 131-141, January 1994.

Various articles from *Project Finance International*: "Rebound for Toll Road Bonds," *Project Finance International*, No. 131, October 22, 1997; "Few Certainties in Latin America's Toll Road Revival," (*PFI Yearbook 1997*), pp. 60-61; "New Lease on Life for Cordoba-Veracruz," No. 52, July 7, 1994; "Tribasa Gets the Cash," No. 42, February 18, 1994; "Cuernavaca Toll Road Bond Issue," *Project Finance International*, No. 38, December 10, 1993; "Toll Roads," No. 31, September 3, 1993; "CAPUFE Looks to Public Market," No. 21, April 2, 1993; and "More Work Needed on Toll Roads," No. 10, October 16, 1992.

Various Articles from *Public Works Financing*: “Tribasa Makes Half Whole,” p. 9, June 1998; “Mexico’s Toll Road Chief,” p. 9, June 1998; “Mexican Toll Road Workout,” p. 17, February 1997; “Lessons Learned on Mexican Toll Roads,” pp. 21, April 1995; “Tepic Toll Road: the Best Deal that Didn’t Close in 1994,” pp. 23-7, December 1994; “Cuernavaca Tolls Securitized,” p. 21, July-August 1994; “Tribasa’s Chris Lee Defends Toluca Bonds,” pp. 26-7, July-August 1994; “Toll Debt Issues Awaits Calm,” p. 26, March 1994; “Tribasa Sells More Equity,” p. 28, March 1994; “World Bank Blasts Mexican Concessions,” pp. 26-7, February 1994; “Mexico Toll Road Securitization Moves Ahead,” p. 24, December 1993; and “Salinas’ Infrastructure Goals Undone by Lack of New Capital,” pp. 26-29, September 1993.

“Capital Markets Fill Funding Gap,” *Financial Times Survey on Infrastructure in Latin America*, 13 September 1996.

“ICA Informs About Toll Road Program,” ICA press release, 22 August 1997 <<http://www.ica.com.mx/news/en/1997/19970822.html>>.

“Mexico Taking Highways Built Under Ambitious Privatization Plan,” Associated Press, August 23, 1997.

# 14

## Philippines: Model Legislation with Mixed Implementation<sup>135</sup>

### AAA. Country Background

14.1 During the 1990s, the Philippine Government has succeeded in implementing important reforms to: liberalize its trade and investment regimes; privatize state-owned enterprises; reduce entry barriers to industry; address infrastructure concerns under a comprehensive, legislated Build-Operate-Transfer (BOT) program; restore effective monetary management by restructuring the Central Bank; and improve fiscal stability through a Comprehensive Tax Reform Program. Since July 1997, the Asian financial crisis has slowed economic growth, raised unemployment, and brought about a 35 percent depreciation in the Philippine peso. Overall, however, government reforms have mitigated many of the most harmful aspects of the crisis, and the Philippines has been weathering the storm better than most of the neighboring economies. Annual GDP growth was 6.9 percent in 1996 and 5.8 percent in 1997, but decreased by 0.5 percent in 1998. Modest increases in GDP (1-3 percent) are projected for 1999 and 2000.<sup>136</sup>

14.2 The road network in the Philippines totals more than 160,000 km in length, of which nearly 27,000 km (17 percent) are national roads, administered by the Department of Public Works and Highways (DPWH). The remaining public roads are administered by Local Government Units (LGUs). There are nearly 170 km of toll roads in operation at present (and several hundred kilometers more proposed), the development and administration of which are described in the following sections.

### BBB. Major Toll Road Developments

14.3 **Overview.** There are two laws which govern the development of toll roads in the Philippines, the “TRB Law” and the “BOT Law.” The TRB Law<sup>137</sup> was enacted in 1977 and established a Toll Regulatory Board to oversee and regulate the development of toll roads throughout the Philippines, primarily through franchise arrangements. Until the present day, one franchisee has dominated the toll road arena. In 1990 the BOT Law (amended in 1993)<sup>138</sup>

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<sup>135</sup> This paper draws most extensively from information collected during a field visit to the Philippines in November 1998. A complete list of the sources for this paper is presented in Section 4.

<sup>136</sup> Economic statistics and projections are from the National Economic and Development Authority of the Philippines and the Economist Intelligence Unit.

<sup>137</sup> Presidential Decree No. 1112, *Authorizing the Establishment of Toll Facilities on Public Improvements, Creating a Board for the Regulation Thereof and for Other Purposes*, Government of the Philippines, March 31, 1977.

<sup>138</sup> Republic Act No. 7718, *An Act Amending Certain Sections of Republic Act No. 6957, Entitled “An Act Authorizing the Financing, Construction, Operation and Maintenance of Infrastructure Projects by the Private Sector, and for Other Purposes,”* Congress of the Philippines, July 26, 1993.

dramatically affected the entire public works field, including toll roads. This law established formal procedures for expanded private sector involvement in all aspects of infrastructure development. While not entirely superseding the TRB Law, it has brought about significant changes in the way that toll roads are proposed, evaluated, and implemented in the Philippines. The following sections discuss the background behind these laws and their implications, as well as the growing number of public, semi-public, and private institutions that are involved in toll road development at the present time.

**14.4 Initial Toll Road Development: The North and South Luzon Expressways.** In the early 1960s, the Department of Public Works and Highways (DPWH) initiated construction of the North Luzon Expressway (NLE) and the South Luzon Expressway (SLE), as high-speed free roads leading north and south from Manila, respectively. DPWH was and remains the government agency responsible for formulating and implementing the overall road development plan for the nation, including decisions as to which roads will be tolled and which will not. These first two express highways were built by the Philippine National Construction Corporation (PNCC) under contract to DPWH. PNCC was established in 1966 as the Construction and Development Corporation of the Philippines (CDCP).

**14.5** On March 31, 1977, Presidential Decree No. 1112 created the institution of the Toll Regulatory Board (TRB), and charged it with the supervision and regulation of privately developed toll roads in the public interest. On the same date, by P.D. 1113, the Philippine Government granted CDCP a 30-year franchise to operate and maintain the existing sections of the NLE and SLE as toll roads, and to construct, operate, and maintain specified extensions of these highways (at its own expense) leading about 150 km to the north and south of Manila. With this, the completed sections of NLE and SLE began service as toll roads under the operation of CDCP, and an initial stage of planned expansions was completed between 1977 and 1982. However, financial difficulties brought on in part by the political turmoil and economic recession of that time made it necessary for the Philippine Government to convert the company's debt to government financial institutions into a 90 percent government equity stake. Reflecting the new ownership, in February 1983 CDCP became PNCC. A small portion of PNCC shares remain publicly traded, as it has since 1974.

**14.6 Early Plans for the Metro Manila Expressway.** PNCC's franchise was amended by P.D. 1894 on December 22, 1983 to include the construction and operation of a central-city link between the NLE and SLE, to be known as the "Metro Manila Expressway" (MME). By this decree, PNCC also gained the ability to construct, maintain, and operate any and all "extensions, linkages, or stretches" from any part of the NLE, SLE, or MME, including changing the end points and routes of these expressways.<sup>139</sup> In addition, the decree explicitly stated that the TRB would continue to acquire the necessary rights of way for these tollways, and cede it to PNCC *at no cost*. Despite an original intention for TRB to activate private sector participation in toll road development, the agency ended up only supervising the toll roads of PNCC and being responsible for all toll road-related land acquisition.<sup>140</sup>

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<sup>139</sup> TRB approval would still be required for all such changes and extensions, and 30-year franchises for the extensions were to begin on the date when they opened to traffic.

<sup>140</sup> At present, TRB supervises not only the franchise of PNCC but also that of the Public Estates Authority (PEA). However, TRB is only responsible for right-of-way acquisition at no cost to the franchisee under the PNCC franchise.

14.7 P.D. 1894 also incorporated a toll rate adjustment formula—to be applied annually to both the existing NLE and SLE tollways, as well as to any new expressways subsequent to an initial fare to be determined by TRB.<sup>141</sup> But lower than expected revenues and weak management made PNCC fall behind on meeting its capital improvements commitments, and TRB consequently refused permission to raise the tolls. This caused PNCC to enter a downward spiral of insufficient revenues leading to more insufficient maintenance, and their fares remained at a level of 0.18 pesos/kilometer from 1984 to 1994—among the lowest in the world.<sup>142</sup> The perpetual financial crisis at PNCC in the late 1980s and early 1990s meant that the company was never financially prepared to realistically advance plans for the MME or any expansions or extensions to the existing NLE or SLE. But at the same time, the Philippine Government was seeking to increase private sector participation in all aspects of infrastructure development.

14.8 **The “BOT Law.”** On July 9, 1990 President Corazon Aquino approved Republic Act No. 6957, the “Private Financing Act,” which established formal rules for private sector participation in public infrastructure projects through “Build-Operate-Transfer” (BOT) mechanisms. The Act also realigned TRB, making it accountable to DPWH, and making the DPWH Secretary the ex-officio TRB Chairperson.<sup>143</sup> In 1993, the Act was amended and expanded by Republic Act No. 7718 to include a wider variety of private sector participation strategies. This new Act became known as the “BOT Law,” and accompanying “Implementing Rules and Regulations” (IRR) were promulgated to spell out the manner in which it would regulate private sector participation in Philippine infrastructure development.

14.9 The BOT Law’s IRR has four primary components: the contractual arrangements allowed, the methods for project solicitation, the overall implementation process, and financial considerations. The allowable contractual arrangements by which infrastructure and development projects may be undertaken include nearly every possible combination of private sector participation, not just the traditional “BOT.” In addition, projects eligible for construction, rehabilitation, improvement, and the like. under the BOT Law included nearly every type of public works and physical or social infrastructure conceivable, not just highways. The BOT Law permits infrastructure projects to be provided by the private sector through three forms of solicitation: direct negotiation, competitive bidding (known as the “solicited” approach), or unsolicited proposals (subject to a price challenge before final approval). In general costs and a profit are to be recouped through user charges levied for a franchise period, at the end of which the facility is turned over to Government.

14.10 The law delegates power to government “implementing” agencies for the purposes of entering into contracts with the winning bidders, and to grant franchises for periods not to exceed 50 years.<sup>144</sup> In the case of highway projects, the implementing agency is DPWH. Under the BOT Law, DPWH grants toll road concessions, which are signed by the DPWH

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<sup>141</sup> The toll rate adjustment formula was and remains an innovative and potentially effective tool for promoting toll road development. The formula given in P.D. 1894 is based on prevailing local and foreign interest rates, the consumer price index, currency values, and a construction materials price index.

<sup>142</sup> By comparison, PNCC has estimated that counterpart toll road operators in neighboring companies charged an average of 2 pesos/kilometer on their facilities in 1995.

<sup>143</sup> A recent Executive Order has now detached TRB from the DPWH and transferred it to the Office of the President. However the composition of TRB did not change, and the DPWH Secretary remains the TRB Chair.

<sup>144</sup> Only 30 and 35 year concessions have been granted for toll road projects thus far.



Secretary.<sup>145</sup> The BOT process for projects that will undergo bidding involves five steps including project prioritization and approval, prequalification of bidders, evaluation of proposals, awarding of contract, and project implementation. The BOT Law also spells out financial considerations for all prospective projects including: eligible financing sources, authorized repayment schemes, revenue sharing procedures, and applicable investment incentives from the government.

14.11 On account of the overlap between the BOT and TRB Laws, toll road projects with private sector participation may generally be classified in two ways:

- *Toll road projects that are advanced by or through DPWH.* In this case, DPWH may either do the procedural work to perform feasibility studies, solicit and evaluate BOT proposals, and prepare contract documents on their own<sup>146</sup> (the “solicited approach”), or they may let an independent toll road proponent approach them directly with a private proposal (the “unsolicited approach”). However, all projects must then be authorized by the National Economic and Development Authority (NEDA) Board of Directors,<sup>147</sup> and final approval (of contract terms, financing, design, construction plans, toll rates, and the like) must come from TRB.
- *Toll road projects that are advanced by TRB directly or through its franchisees (PNCC and PEA<sup>148</sup>).* There are not yet any examples of toll roads being advanced directly by TRB (either as solicited or unsolicited projects), but there has been a great deal of BOT activity through TRB’s franchisees. In these cases, the TRB toll road franchisee does the procedural work to select a joint venture partner, perform feasibility studies, and prepare project contracts. Furthermore, no authorization is required from the NEDA Board if the project needs no additional government support (beyond what TRB has already been granted to provide to their franchisees by law).<sup>149</sup> However final approval (of the franchisee/JV’s contract terms, financing, design, construction plans, toll rates, and the like) must again ultimately be granted by TRB.

14.12 The BOT Law continues to recognize TRB as the primary regulator for toll roads while introducing other players (such as the NEDA Board) into the review process for implementing new toll road projects. Another key innovation of the Philippine BOT process has been the creation of the “BOT Center,” a resource that emphasizes information dissemination and training, and provides assistance with the drafting of bid documents and with conducting the bidding. They provide technical assistance to various government

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<sup>145</sup> Of course this represents an overlap in the duties of the DPWH Secretary, as he or she must also sign TRB concessions in their ex-officio role as TRB Chairperson.

<sup>146</sup> Typically this is performed with the assistance of an outside consultant, as DPWH has limited technical resources. In addition, limited financial resources dictate that DPWH is at present only able to pursue one solicited project at a time.

<sup>147</sup> The NEDA Board is chaired by the President, and nearly all of the Cabinet are members.

<sup>148</sup> The Public Estates Authority (PEA) was created by Presidential Decree No. 1084 on February 4, 1977. The primary responsibility of PEA is land reclamation and urban development-related infrastructure and public works, although their charter gives them a wide mandate encompassing the development and administration of a range of government property.

<sup>149</sup> To complicate matters, the TRB franchisees may (and do) also participate in joint venture proposals to develop toll roads through the BOT Law/DPWH. Examples of this are discussed in subsequent sections.

agencies involved with private sector participation, but have no regulatory role or real power outside that of suggestion. By virtue of their position and for the sake of transparency, they are often invited to sit in on BOT-type project evaluations and contract negotiations. The Center's staff comprise 18 professionals, most with bachelor's or master's degrees in economics, accounting, and business (but as yet no engineers). The Center also acts as the marketing arm of government for BOT projects, and as a one-stop shop for assisting prospective BOT investors, and training government personnel involved in BOT projects.

14.13 Finally, the Omnibus Investments Code (OIC) grants fiscal and other incentives to qualified enterprises engaged in the priority activities of the Government. As the Philippine Government considers the modernization of toll roads and highways as one of its priority activities, projects exceeding one billion pesos in cost are, under the BOT Law, automatically qualified to avail of these fiscal incentives. Some of the incentives allowed under the OIC are as follows:

- income tax holiday;
- tax credit on domestic capital equipment;
- exemption from contractor's tax;
- simplification of customs procedures;
- unrestricted use of consigned equipment; and
- employment of foreign nationals.

14.14 Registration for these incentives is made through the Board of Investments. Local government units may also provide additional tax incentives, exemptions, or relief subject to the provisions of the Local Government Code.

14.15 **Ongoing Toll Road Initiatives.** While there is no official master plan for toll road development in the Philippines, various urban and intercity toll road and expressway schemes have been recommended by several foreign Official Development Assistance (ODA)-sponsored planning studies, and all of the active toll road proposals can trace their roots in one form or another to one of these plans. On the basis of these studies, in 1992-93 DPWH prepared a report on private sector toll road investment opportunities in the Philippines, featuring an 800 kilometer network of proposed highways. The majority of new toll roads that are likely to be viable in the medium term (from the private sector's point of view) have generally come from this report and are being processed or implemented in one form or another at this time. These projects are almost exclusively located in major transportation corridors within a 100 kilometer radius of Manila, where traffic levels are sufficient to generate the revenues required to finance such infrastructure investments.

14.16 The major focus of new toll road construction and operation in the Philippines at present is on the upgrading and double-decking of a portion of the Manila South Superhighway and SLE (to be called the Metro Manila Skyway) and the upgrading of the formerly free coastal highway to Cavite into the Manila-Cavite Toll Expressway (MCT). These projects stemmed from a 1993 visit by then President Fidel Ramos to Indonesia and Malaysia in order to encourage foreign involvement in the new BOT process for all types of infrastructure. Among the toll road related companies that showed interest were PT Citra Lamtoro Gung Persada of Indonesia and the Renong Group of Malaysia. These two firms formed the first toll road joint venture partnerships with PNCC and PEA, respectively.

Establishing “negotiated” joint ventures using PNCC and PEA’s franchises (under the TRB Law) was thought to be a necessary step to immediately begin upgrading the existing expressways and associated key expansions. However, in the future the Government intends that all toll road projects will be pursued under the BOT Law in either a “solicited” or “unsolicited” fashion. The following sections examine all of the toll road projects currently being proposed, planned, built, or in operation.

**14.17 PNCC’s Existing North and South Luzon Expressway Franchises.** In 1994, PNCC was finally deemed by TRB to have made sufficient progress on their 12-year-old obligations regarding lighting, communications infrastructure, and maintenance, and the Board agreed to a 69 percent increase in NLE and SLE tolls from 0.18 pesos/kilometer to 0.30 pesos/kilometer. Before the fare increase, PNCC toll revenues only covered 30 percent of its operating expenses. Now it brings in just enough revenues to pay for operations and maintenance, but still not enough to pay back its substantial backlog of concession fees to the Government.<sup>150</sup> Taking advantage of their original franchise right to initiate new toll road extensions or branches from the original NLE and SLE, PNCC has now begun granting “sub-franchises” for new facilities by entering into joint venture agreements with several private toll road development firms. Since PNCC may “claim” any toll road that connects with one of its existing or planned facilities, there is an inherent bias towards developing toll roads through PNCC’s franchise.

**14.18 The Metro Manila Skyway.** PNCC’s flagship project at the moment is their Metro Manila Skyway (MMS) joint venture with the Citra Metro Manila Tollways Corporation (CMMTC). MMS is a six-lane elevated toll expressway that will total 35 km in length upon completion from Alabang in the south to the current southern terminus of the North Luzon Expressway, traversing central and southern Metro Manila. Much of the highway is built above T-shaped supporting columns in the median of the existing South Superhighway. A key reason for PNCC to select CMMTC as a joint venture partner is because they offered to introduce concrete box girder technology to the Philippines, as well as an innovative highway median-based construction technique from Indonesia that would minimize disruption of traffic on the road below. Construction on the 9.3 –kilometer first stage began in 1996. The southern half of Stage 1 opened to traffic in December 1998, while the northern half is more than halfway finished and scheduled to open to traffic in June 1999. The entire MMS should be open in 2002.

**14.19** Total financing for Stage 1 amounted to US\$514 million, of which 20 percent represents common equity,<sup>151</sup> 30 percent convertible debt, and 50 percent senior debt.<sup>152</sup> The investment proposal for Stage 2 is now being prepared along similar lines, pending TRB approval. Operations and maintenance of MMS are to be provided by a newly created “contract services” division of PNCC, under contract to CMMTC. Approximately 240,000 vehicles per day use the existing six-lane South Superhighway, of which 30 percent are

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<sup>150</sup> Thus far, PNCC has not attained a credit rating sufficient for it to issue revenue bonds to finance capital improvements or expansions.

<sup>151</sup> Since Philippine exchange controls have been liberalized, all equity can be (and is) in United States dollars. The equity is shared 55 percent by Indonesian and Philippine investors related to PT Citra, 20 percent by PNCC, 15 percent by the American International Group/Asian Infrastructure Fund, and 10 percent by others.

<sup>152</sup> Project debt is entirely in United States dollar obligations to more than 10 foreign and domestic banks. The lead banks are ING, Urban Bank, and Far East Bank, while AIA Capital served as the project’s financial advisor.

projected to switch to the Skyway. By 2010-15, with both the existing (surface) and planned (elevated) highways in operation, corridor use is expected to increase to 750,000 vehicles per day. A toll of 13 pesos per entry will be charged for the first stage, increasing to 55 pesos per entry when the entire MMS opens to traffic.<sup>153</sup>

14.20 The Skyway franchise also includes the upgrading and subsequent operation of the existing surface-level SLE. Upon completion of improvements to this road, its toll will be raised from the present 0.30 pesos/kilometer to 1.66 pesos/kilometer. It is planned that the toll revenues from the improved at-grade highway will exceed that needed to cover the debts for the improvements made to it, and for the surplus to be put towards paying off the debts for the elevated highway construction. The toll rates upon the opening of the highway have been fixed by TRB, and an automatic tariff adjustment may be applied after two or three years, as defined in the contract. If the government defaults on its agreement, there is a 12-month “curing” period. If the default is not rectified by then, the government is obligated to take over the project, assume all of the concessionaire’s liabilities, and pay the project investors the net income they would have expected to receive based upon a financial model in the contract.<sup>154</sup>

14.21 **The Manila North Tollway, NLE Extension, and SLE Extension Projects.** Following CMMTC’s model, the First Philippine Infrastructure Development Corporation (FPIDC)<sup>155</sup> is pursuing the Manila North Tollway project, with the intention of operating the existing NLE (83 km), a new branch to Subic Bay (67 km), and an urban expressway in the C-5 Corridor (22 km) together as a combined facility. The total project is expected to cost more than 14 billion pesos. As with the SLE/MMS project, it is planned for the toll revenues from the improved NLE to exceed that needed to cover the debts for the improvements made to it, and for the surplus to be put towards paying off the debts for the extension construction. Itochu of Japan is also interested in a 88 kilometer, 6.2 billion peso further northward extension of NLE, while Hopewell Holdings of Hong Kong is interested in a similar extension of SLE. All of these projects are to be pursued under PNCC’s TRB franchise, whereby the government (through TRB) is obligated to pay for right of way costs.

14.22 **The Manila-Cavite Toll Expressway.** The 6.6 kilometer coastal highway heading south from Manila towards Cavite (the Roxas Boulevard “R-1” extension) runs along vast tracts of reclaimed PEA land targeted for urban development and an export processing zone. The road was initially built in the 1980s, but its physical condition deteriorated rapidly when subjected to heavy traffic and adverse weather conditions. By the early 1990s an upgrade to the facility was necessary, and PEA was authorized by the President to be the implementing agency for the Manila-Cavite Toll Expressway (MCT) project. In February 1994 MCT was further identified as a project for joint Malaysian-Philippine investment, and in December of

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<sup>153</sup> Unlike the existing (and proposed) surface-level SLE, the elevated MMS will feature an “open” tolling system, whereby a flat tariff is charged only upon entry to the tollway. If a motorist drives the entire length of the facility, this would be equivalent to 1.40 pesos/km for the first stage, or 1.57 pesos/km upon completion of the entire 35 kilometer highway.

<sup>154</sup> CMMTC’s contract clearly spells out procedures for arbitration and dispute resolution in accordance with international law—in this CMMTC officials maintain that they have learned from examples in Indonesia, Malaysia, and Mexico.

<sup>155</sup> FPIDIC is a joint venture between the local Benpres Group and Transroute, a major toll road developer from France.

that year a joint venture agreement was reached between the Renong Group of Malaysia and PEA.

14.23 The entire MCT project as presently envisioned comprises the 6.6-kilometer first section, plus a 6.9-kilometer branch highway linking the coast to the C-5 (fifth circumferential) highway just south of the airport, and an additional 12-kilometer segment of new coastal highway. The first section opened in May 1998 at a cost of 1.8 billion pesos, of which 25 percent was equity and the remainder a mixture of foreign and domestic debt. TRB is currently acquiring land for the second section (the C-5 link)<sup>156</sup> on which construction is expected to start in 1999, with the section opening to traffic about two years later. Construction on the final section is also to start next year, but it involves a reclaimed land component that will add to the time required.

14.24 The Renong Group is financing the entire 25.5-kilometer 5.7 billion peso project, and recovering their investment costs over a 35-year concession that includes a revenue-sharing scheme with PEA. PEA's equity in the project comprises the right of way, some investments that had already been made, and their franchise under TRB. PEA's share of project revenues in the first year will be 10 percent, increasing to 40 percent by year 12. TRB approved an initial toll rate of 9 pesos (1.36 pesos/kilometer) but after just one day of collecting tolls in May 1998, a court injunction was issued forcing toll taking to cease. By the time the injunction was finally lifted that July 1998, 52 days of tolls had been lost—estimated to be worth 32 million pesos. However, PEA and Renong have not formally approached TRB for compensation yet, preferring instead to take it up as a factor influencing their first toll adjustment in a couple of years.<sup>157</sup>

14.25 **The Southern Tagalog Arterial Road.** The Southern Tagalog Arterial Road (STAR) project<sup>158</sup> is a 42 kilometer expressway stretching from the existing southern terminus of SLE to the city of Batangas. The development of this highway is intended to facilitate further growth in the Batangas area, a planned national focal point for future industrial and commercial development and home to a new international seaport. The STAR project was structured and bid-out by DPWH using the solicited mode, and is thus far the only toll road to be advanced in this manner. A 30-year BTO concession was approved for implementation by DPWH, TRB, and the NEDA Board, signed by the DPWH Secretary, and is now under construction by the winning bidder, STAR Infrastructure Development Corporation (a unit of CMMTC). Under this agreement, the STAR concessionaire is being required to contribute 500 million pesos towards the purchase of right of way. Any right of way expenses in excess of this amount are to be borne by the government.

14.26 DPWH has also given the winning consortium the operating rights and maintenance responsibility for the northern 22 km of the tollway, which was recently financed and built with a low-interest loan from the Overseas Economic Cooperation Fund (OECF) of Japan. The concessionaire will also be required to make some modifications and improvements (such

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<sup>156</sup> PEA has government eminent domain powers, but not for toll roads—that power is exclusively TRB's. The first section of MCT required no land acquisition.

<sup>157</sup> PEA and Renong do however think that this is a clear deterrent to foreign investment, and that all of the other actual or potential investors in Philippine toll roads are paying close attention to how this will be resolved.

<sup>158</sup> STAR was originally called the South Luzon Expressway Extension Project (with the rather unfortunate acronym, SLEEP).

as adding toll plazas and interchanges) to the OECF-funded half at their own expense. The financial model being used by the STAR project is similar to that which is in place for Stage 1 of MMS, the first CMMTC project. Limited financial resources dictate that DPWH is at present only able to prepare one solicited project at a time. The next project on DPWH's list is the North Luzon Expressway East Extension.

**14.27 Various “Unsolicited” Private Proposals for Toll Road Projects.** At present a variety of private sector proponents have submitted unsolicited proposals for toll road projects and have received “exclusivity” agreements from DPWH (several in partnership with PNCC or PEA), as allowed under the BOT Law. PNCC and PEA are particularly eager to enter into unsolicited joint venture agreements under the BOT Law rather than negotiated agreements using their TRB franchises in order to minimize public sector expenses—particularly related to land acquisition in the case of PNCC.

14.28 Only one of these proposals, the Pasig Expressway, has thus far made it to the NEDA Board approval stage. The Pasig Expressway project has been proposed by PNCC in joint venture with CMMTC and Marubeni Corporation and Kumagai Gumi Co., Ltd. of Japan. This 19 billion peso, 15.2-kilometer expressway runs west from the Makati area and then north to Ortigas Avenue. Although it does not follow the route of either of DPWH's two proposed expressways in that part of Metro Manila (R-4 and R-5), it does provide a direct link to a residential area that is home to many people who work in the city of Makati. Submission of the tollway by DPWH for final approval from the NEDA Board is expected soon; it would be followed by the first-ever toll road BOT “price challenge.” Construction is planned to begin in 1999 and take two years to complete.

14.29 While the joint venture agreement between PNCC and CMMTC for MMS also covers the Metro Manila Tollway (MMT) project, this component is to be pursued as an unsolicited proposal. The investment proposal for this 59.5 kilometer project is to have finished TRB review by the end of November 1998. Detailed engineering will follow and construction is scheduled for 1999-2002. Although initially conceived as C-6, Manila's sixth circumferential highway, Citra's proposal calls for the highway alignment to be moved several kilometers beyond the current limit of urban development, particularly to the north and northeast of the city. This plan is intended to allow the project to be used as a tool for land development, and as such significantly reduce the costs of land acquisition (possibly to zero for some segments of the alignment). The project cost for MMT has been estimated at 38.9 billion pesos.

14.30 Southeast of the city, MMT will connect to the Laguna de Bay Coastal Road (LBCR). The proponent team for this unsolicited, 12.0 billion peso, 18.6-kilometer highway is a joint venture between PNCC, CMMTC, John Laing of the United Kingdom, and DM Consunji and Filinvest of the Philippines. At this time both the MMT and LBCR proponents have completed their outline designs and are preparing their investment proposals for submission to TRB. Detailed engineering will follow and construction is scheduled for 1999-2002. In the same general area, PEA is currently pursuing implementation of a proposed 5.6 billion peso, 20.3-kilometer Southern Segment of C-6 (SSC6) project in joint venture with both the Renong Group and PNCC.

14.31 Finally, the R-10/Port Area Expressway has been proposed by a British group led by Kvaerner. This highway is to be designed primarily for truck use; at present the trucks that

serve the port are overloaded, damage the pavement of local streets, and block traffic. The developers anticipate that the motor carriers will prefer to travel on a dedicated highway, in spite of the toll, although the operator will need to enforce weight restrictions.

**14.32 Effects of the Asian Economic Crisis.** In at least some sense, the Philippines is perhaps stronger than many of the other developing countries affected by the Asian economic crisis because it has already reformed its financial markets and “graduated” from International Monetary Fund (IMF) reforms. In 1993 the Philippine central bank was made independent, the financial system was liberalized, foreign exchange controls were removed, and new foreign banks were allowed for the first time since 1949. There have been no major bank closures (only 1 or 2 percent of all banks have been closed), nor a collapse in the real estate sector (which has been attributed to a low rate of speculative construction). However, the currency has been devalued in the foreign exchange markets, and the Philippines’ year-on-year real GDP declined by 0.5 percent in 1998.

14.33 PNCC reports a slight decrease in traffic on the NLE and SLE over the past year. In particular, there has been less large truck traffic, as import/export activities declined dramatically during 1998. Meanwhile, the level of light vehicular traffic remained constant, although it had been increasing at about 7 percent per annum for the previous several years.<sup>159</sup> Construction costs have not changed much; steel, asphalt, and cement are all available domestically (diminishing the effect of the peso devaluation), while labor expenses have continued to increase only at the rate of inflation (less than 10 percent per annum). Higher interest rates have made it more difficult to borrow money, however.

14.34 Ongoing PNCC or PEA projects have seen no construction suspensions or slowdowns as a result of the economic crisis, although there is an ongoing Senate hearing into 800 million pesos worth of unpaid PNCC bills to the government for a variety of work. However, this situation is thought to be largely a result of political issues and the change in governments in May 1998, and to have little if anything to do with larger economic issues. Additionally, once projects such as MMS or MCT have secured commitments from equity investors and lenders, they face particular pressure to keep going or risk the possibility that there will never be any cash flow to recover expenses already incurred.

14.35 CMMTC officials have indicated that the peso devaluation has not much impact on MMS equity investors since their shares are denominated in United States dollars. In addition, the primary construction contracts were negotiated on a fixed lump-sum basis in United States dollars. Many of the subcontractors are being paid in pesos, which has actually reduced costs for the main contractors. While project debt is also entirely in United States dollars, CMMTC is confident that they will have sufficient revenues to cover payments. MMS revenues and operating expenses will both be in pesos, of course. On the other hand, since the equity of the Malaysian investors in PEA’s MCE is in pesos rather than United States dollars, they have taken hit due to the peso devaluation. However, they are expecting to recover their losses over the 35-year life of their concession (and through future toll adjustments). In addition, there are now limits on capital flows into and out of Malaysia that tend to induce the Malaysian investors to have to stick with their Philippine investment through thick and thin.

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<sup>159</sup> The apparent “leveling off” in light vehicle traffic over the past year may also partly reflect the poor condition of the existing toll facilities and ongoing MMS construction, which has constricted a major highway travel corridor.

### CCC. Major Toll Road Issues and Implications for Best Practices

14.36 **Overview.** The Philippine toll road experience raises a number of issues with respect to concessioned toll road development programs, many with important implications for best practices elsewhere. These include:

- public and private sector roles in project formulation and planning;
- land acquisition and right-of-way issues;
- proponent selection and project implementation issues;
- revenue sharing with existing toll roads;
- toll rate determination, adjustment mechanisms, and public acceptance;
- the need to strengthen the expertise of regulatory agencies;
- the need to strengthen interagency and intermodal coordination;
- implications of a weak domestic capital market;
- potential roles for multilateral lending agencies;
- operational issues; and
- risk sharing.

Each is addressed below.

14.37 **Public and Private Sector Roles in Project Formulation and Planning.** There are many advantages to a long-term strategy or master plan—particularly one that is strong enough to take precedence over politically driven objectives (or planning with a six-year horizon, corresponding to the Presidential term). A detailed and functional master plan would also outline both competing and complementary system elements, helping to avoid the advancement of conflicting toll road plans and allowing private developers to target their technological and operational strengths to those projects for which they are best suited. However, despite the comprehensive BOT legislation, the current approach to toll road development in the Philippines remains compromised by an ineffective system of project formulation and planning.

14.38 The responsibility for performing feasibility studies for various toll road projects is at present largely left to the private developers, creating much uncertainty and overlapping duties between the various public sector institutions in charge of toll road regulation and implementation—particularly with respect to planning issues. It is unclear exactly which agency is best-suited to conduct feasibility studies for individual toll road projects. One alternative might be for DPWH to undertake the feasibility studies for tollway projects that it intends to bid out under the BOT law, while PNCC takes the lead in preparing the studies for prospective tollways that may fall under its broad franchise. With an unsolicited proposal, any private sector proponent could of course initiate such studies on their own, but this could largely be preempted by DPWH or PNCC, as the most likely tollway routes have already been identified.

14.39 The issue of how increased government planning would be paid for is perhaps one of the most challenging. One idea is to establish a “project preparation fund” for government-commissioned feasibility studies of unsolicited proposals. A revolving fund could be created with contributions from the private sector project proponents, possibly in the form of a levy on income or an “unsolicited bid fee.” The government could then use this fund to prepare



project plans proactively, or at least to conduct their own feasibility studies alongside the private sector. Project development guidelines could also help the government to be more “proactive” in dealing with the proponents, rather than always reacting to them.<sup>160</sup>

**14.40 Land Acquisition and Right-of-Way Issues.** There is very little advanced reservation of highway alignments in the Philippines, which makes the acquisition of right of way quite expensive—particularly inside Metro Manila. Compounding matters is the fact that the government (TRB) must make right of way available in its entirety very early in the toll road development process in order for private toll road developers to be able to carry out construction work on a continuous, cost-effective basis. But even if TRB is able to secure right of way in advance, the unsolicited approach to private participation adds further complexity since an unsolicited proponent may or may not desire to use an alignment already purchased by the government.<sup>161</sup> The acquisition of right of way is performed directly by TRB, in cooperation with governmental housing and human rights agencies. Affected landowners are negotiated with and paid compensation, and major residential relocation efforts are often coordinated with new town housing construction planning.

**14.41 Proponent Selection and Project Implementation Issues.** A mixture of proponent selection and project implementation methods is permissible under the TRB and BOT Laws, each with their own merits and demerits. Toll road franchisees PNCC and PEA are free to associate with private sector joint venture partners for “sub franchises,” or to enter into solicited (competitively bid) or, more typically, unsolicited (price-challenged) project proposals that will eventually be subject to price challenges. DPWH may solicit toll road development bids directly if it is able to prepare the requisite feasibility studies and bidding documents, or it may passively encourage unsolicited bids that may or may not conform closely to its overall toll road network development ideas. Substantial government support may also be provided for projects pursued under the solicited mode of the BOT Law, but under the unsolicited mode the government may provide no direct guarantees, equity, or subsidies. Finally, TRB and the NEDA Board must give approval to all projects, with the exception that NEDA Board approval is not necessary for PNCC or PEA franchise-based (TRB Law) projects as long as no government guarantees are required.

**14.42** It appears that government procedures may be too cumbersome to support the rapid advancement of private sector participation projects. Based on the experience so far with solicited and unsolicited toll road projects, DPWH believes that investors in fact prefer the solicited approach due to its more straightforward and certain nature. In the solicited approach, all that the prospective concessionaire need do is to prepare a proposal, whereas with the unsolicited approach the proponent must undertake numerous, time-consuming technical and financial feasibility studies of its own with the possibility that governmental financial assistance may not be forthcoming. In addition, the solicited approach—particularly if evaluated on a least tariff basis—has the potential to encourage private sector innovation towards reducing costs. However as mentioned previously, in order to pursue more projects

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<sup>160</sup> For instance in Pakistan there is a toll road policy document that outlines standards and procedures. In this manner, the government is able to immediately explain its conditions and the private sector must justify their changes (rather than the other way around, which is the current approach in the Philippines).

<sup>161</sup> As explained previously, TRB will only finance right-of-way acquisition in connection with the PNCC franchise. Otherwise, TRB simply undertakes the physical and administrative process of right-of-way acquisition, with funds coming from the toll road developer.

through the solicited mode, DPWH would need to take the lead in conducting feasibility studies upon which competitive bidding may be based.

**14.43 Revenue Sharing with Existing Toll Roads.** While profitable toll highway corridors have attracted the attention of private developers under the unsolicited mode of the BOT Law, increased use of the solicited method will need to be considered more seriously as projects arise that need government support. Particularly outside of Metro Manila, fully private sector highways are much less feasible financially, although they may still be warranted economically. The two major intercity toll roads advanced by PNCC joint ventures (the NLE upgrading and branch road to Subic proposed by FPIDC and the SLE Extension proposed by Hopewell) incorporate “revenue sharing” techniques as one means to address this issue. Both proposals call for the existing and extended highways to be operated jointly, with increased toll charges paying for improvements to the existing facilities and subsidizing the less-traveled new sections. As suggested previously, there may also be a need to “soften” the BOT Law to either allow government support to unsolicited projects, or to force all projects to be solicited and subject to government-sponsored feasibility studies.

**14.44 Toll Rate Determination, Adjustment, and Public Acceptance.** One of the most noteworthy features of the Philippine toll road concession agreements is that they include automatic tariff adjustments based upon a parametric formula that takes into account many economic factors and is guaranteed by TRB. The project economics-based automatic toll adjustment effectively addresses one of the most common risks facing toll road investors—that of a predictable revenue stream. However, the strategy does have other implications—e.g., the fixed escalation of toll rates means that future road users will likely subsidize the initial ones. In addition, if investors happen to derive a windfall, there is no profit-sharing clause—the investors keep all of the reward.<sup>162</sup>

**14.45 Public acceptance—**of both the highway and its tolls—is another major issue for all of the toll road operators and investors. Since the NLE and SLE tolls have been so low for so long, Manila area motorists do not have much familiarity paying market-rate tolls. Consequently, CMMTC has initiated public awareness campaigns in their various highway corridors using print, broadcast, and outdoor media. CMMTC executives are confident that their target market has higher incomes and is aware of the value of their time wasted in traffic.

**14.46 Need to Strengthen Expertise in Regulatory Agencies.** While NEDA has considerable experience in evaluating projects in terms of macroeconomic aspects, BOT and other projects with private sector participation also demand financial and legal evaluation, areas in which NEDA could benefit from additional institutional capacity. The expertise of DPWH and TRB staff lies in the technical and engineering aspects of toll road development; however, these agencies are less well-equipped than NEDA to evaluate the economic aspects of toll road development, and they are largely unprepared to address financial and legal issues—particularly as compared with the negotiators of their private sector counterparts. Perhaps there is an opportunity for the BOT Center to step up its involvement in addressing

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<sup>162</sup> This is a particular issue in the case of the STAR project, in which the Government has contributed about 50 percent of the total project costs (in the form of a completed segment of the highway). However DPWH maintains that a profit-sharing clause would be a difficult proposition because they consider that it would imply that there should also be a minimum revenue guarantee to the operator by the Government.

some of these issues. Further multilateral and bilateral agency-sponsored technical assistance in this area may also be valuable.

**14.47 Need to Strengthen Interagency and Intermodal Coordination.** At present, both the NEDA Board and TRB have some say in the contract terms and toll rate issues for non-PNCC projects, and the road developers and DPWH tend to characterize the review procedures of TRB coupled with those of NEDA as bureaucratic and discouraging. Throughout project evaluation, NEDA and the road-related regulators and developers such as TRB, DPWH, PNCC, and PEA tend to be somewhat at odds. NEDA is charged with looking after overall national macroeconomic policy and priorities when evaluating a project—particularly in relation to the level of government financial support it may need. The road-focused institutions on the other hand tend to assume that toll roads are merited *a priori*, and whatever government support is needed to make them financially viable should be forthcoming without delay.

14.48 Another important issue related to interagency coordination pertains to the effects of toll road investment on the demands placed on other infrastructure. For example, the proposed MMT project traverses many areas that are not very accessible at present, and the new road will likely put huge traffic strains on the connecting public roads. This will generate pressure to upgrade these roads at public expense. In addition, development pressure on undeveloped land near the new highways will make necessary additional public service investments for the new residents. The local impacts of traffic and “induced” public expenditures should be included in the economic analyses of the toll roads and be paid for in the initial investment.

**14.49 Implications of a Weak Domestic Capital Market.** Because the domestic market for long-term capital is weak and underdeveloped in the Philippines, there is a mismatch between the types of financing available and the requirements of toll roads development. To meet local debt service requirements, toll rates have to be set at high levels at the beginning of the concession periods. Local financiers and contractors have concerns over the extended payback period (30-35 years) and possible delays in project approval, and it is necessary for all toll road proposals to secure funds from a variety of sources including equity and international loans.

**14.50 Potential Roles for Multilateral Lending Agencies.** Multilateral agencies are believed to have a big role to play in that their “approval” of projects provides significant help in attracting foreign capital or counterpart financing at reasonable rates. In projects with uncertain revenue streams, such as toll roads, some form of guarantee/loan insurance is required in order to raise financing at reasonable terms. If risks are borne purely on commercial terms, then toll roads will only be feasible in the highest traffic areas. Through (partial) guarantees, soft loans, or other incentives, it is possible to encourage infrastructure projects in more remote regions where social benefits might be high, despite weak financial returns. Donor agencies may also have a valuable role to play in Philippine toll road development with respect to providing assistance with feasibility studies, as addressed earlier.

**14.51 Operational Issues.** The manual toll collection techniques used at present are highly susceptible to pilferage. Therefore semi-automated systems are now envisaged (and have been partially implemented by PEA on MCT), whereby advanced electronic payment media

(perhaps smart cards) would be used, but overseen by toll attendants. This approach would still allow the data collection and revenue protection advantages of automation, while protecting the jobs of the toll collectors. Motorists also need better discipline in using a toll road. Issues such as large trucks traveling in the passing lane, reckless driving, and not giving way to other vehicles are endemic problems at present. In addition, security issues such as highway robbery, fence-cutting, and stone throwing from overpasses remain at unacceptable levels. Finally, improved methodologies are still needed for maintenance, such as efficient overnight inspection and repair programs that can be implemented easily.

14.52 **Risk Sharing.** The basic approach to risk sharing so far has been to try and assign the risks to the parties that are judged through negotiation to be best able to bear them. Overall, risks that are commercially insurable are to be borne by the proponent and charged to the users. Risks such as natural and political force majeure are a part of “core guarantees” borne by the government. Such risks are included in the government default provisions, whereby the government guarantees that it will take over the project in case of its default. Some of the toll road developers also maintain that for toll roads a BTO structure is highly preferable to a BOT structure. If project ownership is transferred to the government immediately upon construction completion, then the concessionaire no longer must face potential property tax liabilities nor force majeure risks.

### DDD. Sources

Presidential Decree No. 1084, *Creating the Public Estates Authority, Defining its Powers and Functions, Providing Funds Therefor and for Other Purposes*, Government of the Philippines, February 4, 1977.

Presidential Decree No. 1112, *Authorizing the Establishment of Toll Facilities on Public Improvements, Creating a Board for the Regulation Thereof and for Other Purposes*, Government of the Philippines, March 31, 1977.

Presidential Decree No. 1113, *Granting the Construction and Development Corporation of the Philippines (CDCP) a Franchise to Operate, Construct and Maintain Toll Facilities in the North and South Luzon Toll Expressways*, Government of the Philippines, March 31, 1977.

Presidential Decree No. 1151, *Philippine Environmental Policy*, Government of the Philippines, June 6, 1977.

Presidential Decree No. 1586, *Establishing an Environmental Impact Statement System Including Other Environmental Management Related Measures and for Other Purposes*, Government of the Philippines, June 11, 1978.

Presidential Decree No. 1649, *Amending the Provisions of Presidential Decree No. 1112 Entitled “Authorizing the Establishment of Toll Facilities on Public Improvements, Creating a Board for the Regulation Thereof and for Other Purposes,”* Otherwise Known as the “Toll Operation Decree,” Government of the Philippines, October 26, 1979.

Presidential Decree No. 1818, *Prohibiting Courts from Issuing Restraining Orders or Preliminary Injunctions in Cases Involving Infrastructure and Natural Resource Development Projects of, and Public Utilities Operated by, the Government*, Government of the Philippines, January 16, 1981.

Presidential Decree No. 1894, *Amending the Franchise of the Philippine National Construction Corporation to Construct, Maintain and Operate Toll Facilities in the North Luzon and South Luzon Expressways to Include the Metro Manila Expressway to Serve as an Additional Artery in the Transportation of Trade and Commerce in the Metro Manila Area*, Government of the Philippines, December 22, 1983.

Republic Act No. 7718, *An Act Amending certain sections of Republic Act No. 6957, Entitled An Act Authorizing the Financing, Construction, Operation and Maintenance of Infrastructure Projects by the Private Sector, and for Other Purposes*, Congress of the Philippines, July 26, 1993.

Coordinating Council of the Philippine Assistance Program – BOT Center, *Republic Act No. 7718 and its Implementing Rules and Regulations*, March 1998.

Coordinating Council of the Philippine Assistance Program – BOT Center, *Handbook on Doing BOT Business in the Philippines*, March 1998.

Coordinating Council of the Philippine Assistance Program – BOT Center, *The Philippine BOT Program, Annual Report 1997*, 1998.

Coordinating Council of the Philippine Assistance Program – BOT Center, *The Philippine Infrastructure Privatization Program*, 16<sup>th</sup> Printing, March 1998.

Roderick M. Planta, *Toll Adjustment Formula: Issues*, National Economic and Development Authority, 1998.

Miscellaneous materials regarding the scope of PNCC's franchise and PNCC Project Profiles, Philippines National Construction Corporation, 1998.

Miscellaneous DPWH Project Profiles, Department of Public Works and Highways BOT PMO, August 15, 1998.

Ibarra G. Paulino, remarks before the Singapore Construction and General Building Trade Mission to the Philippines, Philippines National Construction Corporation, August 19, 1998.

*Metro Manila Urban Expressway System Study*, Final Report, JICA and DPWH, October 1993.

*Philippine Transport Strategy Study (PTSS)*, Government of the Philippines and the Asian Development Bank, 1998.

Roger J. Allport, *Developing Best Practices for Promoting Private Sector Participation in Infrastructure: Expressways*, Draft Final Report (Appendix B: Case Studies), Asian Development Bank, TA No. 5733-REG, June 1998.

*Metro Manila Urban Transportation Integration Study (MMUTIS)*, Interim Report, Japan International Cooperation Agency and Department of Transportation and Communication, September 1998.

*A Factbook on Metro Manila's Transportation and Traffic Situation*, JICA in cooperation with DOTC, MMDA, DPWH, NEDA, and NCTS, 1988.

*Road Handbook in the Philippines*, JICA in cooperation with DOTC, 1988.

*1997 Annual Report*, Public Estates Authority.

*1996 Annual Report*, Philippines National Construction Corporation.

Corporate brochure, Philippines National Construction Corporation, undated.

*Metro Manila Skyway: A Gift of Modern Technology*, a joint project of CMMTC, PNCC, and TRB, undated informational brochure.

*Stage 1 Citra Metro Manila Skyway Project*, unattributed handouts, February 1996.

*1997 Annual Report*, Citra Metro Manila Tollway Corporation.

Various articles in *PWFinancing*: "Philippine BOT Contracts," p. 17, November 1994; "Manila Skyway Contractors Picked," p. 23, April 1996; "Philippines Tollway Contracts," p. 23, May 1997; and "Philippine Truck Route," p. 19, November 1997.

"Philippines Toll Road," *Transport Finance*, No. 120, p. 24, September 4, 1998.

# 15

## Spain: A Revival of Toll Road Concessions<sup>163</sup>

### EEE. Country Background

15.1 Spain's toll road program began in the early 1960s and has evolved from a period of private concessions, to one focusing on the development untolled roads, to the current era in which toll road concessions have been revived. These changes in course (detailed below) have to some extent reflected exogenous shocks (e.g., the energy crisis of the 1970s, the depreciation of the peseta in the 1970s and 1980s) as well as marked changes in the nation's political leadership.

### FFF. Major Toll Road Developments

15.2 The development of high-performance roads in Spain may be divided into three phases. In the first phase, from 1960 to 1981, Spain commenced the development of a system of tolled intercity highways, or *autopistas*, through the granting of concessions to the private sector. In the second phase, from 1982 to 1991, Spain expanded its high-performance highway network through the construction of untolled *autovias* using governmental funds. In the third phase, overlapping with the end of the second phase in the late 1980s and carrying forward to the present, Spain has rethought the role of *autopistas* mainly in response to budgetary stringency, resulting in the granting once again of concessions for the construction of toll roads. Each phase is discussed below.

15.3 **Development of Toll Roads (*Autopistas*) by the Private Sector, 1960-81.** Spanish legislation authorized the private sector development of toll roads as long ago as 1953, and an initial concession was granted for a short tunnel project northwest of Madrid in 1960. A national highway plan was later developed, in 1967, calling for the construction of 4,800 km of *autopistas* by 1985; intercity *autopistas* were to be built by the private sector and finances with tolls, while metropolitan *autopistas* would be built by the central government and not be tolled. Between 1967 and 1972 five concessions were awarded, many involving construction companies, for a road along the Mediterranean coast and for approaches to major cities.

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<sup>163</sup> A complete list of the sources of this paper is presented in Section D. However, the paper draws most extensively from (i) José A. Gómez-Ibáñez and John R. Meyer, "The Modern Pioneers: France and Spain," *Going Private: The International Experience with Transport Privatization*, The Brookings Institution, Washington, D.C., 1993, Chapter 8, pp. 107-45; and (ii) José A. Gómez-Ibáñez and John R. Meyer [Taubman Center for State and Local Government, John F. Kennedy School of Government, Harvard University], *The Political Economy of Privatization: Successes, Failures and Lessons from Developed and Developing Countries*, Final Report, Part II, Privatizing Infrastructure: High Performance Highways, Final Report prepared for the U.S. Department of Transportation, September 1992, Chapter 8.

15.4 In 1972, the Government expanded this program, calling for the development of an *autopista* system totaling 6,594 km; the General Law on Motorways, enacted in 1972, required that at least 45 percent of the construction costs be financed with foreign loans, at least, 10 percent from equity, and a maximum of 45 percent from domestic loans; the Government undertook to guarantee up to 75 percent of the foreign loans and assume all foreign exchange risks.<sup>164</sup> Key features of the 1972 law included the following: (i) establishment of a framework for government control of toll roads, including specification of standards of construction, operation, and maintenance, as well as the concessionaires' financial structure and methods of financing; (ii) initial toll rates specific to each concession, but then increasing according to a formula based on price indices for steel, petroleum, and labor; (iii) establishment of a Special Reserve by concessionaires into which they allocate funds when net profit exceeds 10-15 percent of equity, a system that tended to restrict dividends to 6-15 percent of paid-in capital; and (iv) a requirement that concessionaires by the end of their concession accumulate a reversion fund out of operating profits, in order to assure that at the end of the concession period the company would have sufficient funds to pay off all debt and equity.

15.5 The central government granted six concessions between 1973 and 1975, including two for a 500 km toll road across the northeastern half of Spain; also, in 1973, the government of Navarra became the first regional government in Spain to grant a concession. With the death of Franco in 1975 and economic stagnation, the toll road concession program was, for the time being, stopped.

15.6 **Development of Untolled *Autovias*, 1982-91.** With the coming into power of the Socialists in Spain in 1982, the *autopista* development policy was reconsidered, resulting in a new national highway plan in 1984, which called for construction of untolled *autovias* as an alternative to the tolled *autopista* concessions; while existing *autopista* concessionaires would be permitted to complete their unconstructed sections, new concessions would generally not be granted. From a technical perspective, the rationale for the policy shift was that *autovias* could be built more for about a third of the cost of *autopistas*, and that the traffic volumes on untolled parallel routes were not high enough to make a tolled *autopistas* competitive. Also a factor was the financial difficulties of some of the more recent concessions, and huge losses to the government from its provision of exchange rate assurance; three of the concessionaires were taken over by the Government in 1984, while two others were merged with stronger companies. Also, the Government reduced its exchange risk by encouraging the refinancing or renegotiation of the least favorable foreign loans.

15.7 **Reemergence of Toll Road Concessions Beginning in the Late 1980s.** Renewed interest in *autopista* concessions occurred even while the central government was implementing its *autovias* system, with three concessions granted in Catalonia in preparation for the 1992 Olympics in Barcelona, with three concessions granted by the regional government of Catalonia and one by the central government. In recent years, the Conservative Government in Spain has shifted a number of transport infrastructure projects to the private sector to help reduce the State deficit so that Spain could join the new European currency union. The 1972 General Law on Motorways was amended in 1996, with the life of concessions extended to 75 years from 50 years, provisions for State advances or other types

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<sup>164</sup> [Government assumed foreign exchange risk but no subsidy was provided. In 1996, the Spanish government abandoned the exchange risk assumption and introduced up-front subsidy.](#)



of loans in the initial phase, provision for the widening of concession agreements to include investment in different kinds of expressway extensions, restrictions lifted on operators entering related business ventures (e.g., service stations, food and shopping centers), provision for the securitization of future toll revenues, and the elimination of exchange rate guarantees (for new projects). The Government may modify terms of concessions, and correspondingly, the toll rates, under the principle of maintaining “financial equilibrium.”

15.8 Examples of more recent or ongoing toll road concessions in Spain include the following:

- a 58-km toll expressway concession awarded by the regional government of Galicia in 1995;
- the 80-km Autopista de la Costa del Sol, which would link the resorts of Malaga and Estepona in southern Spain at a cost of about US\$600 million;
- the 75-km, US\$233 million tourist road linking the A7 corridor with the Mediterranean coastal city of Cartagena, awarded to a group of regional construction companies; and
- 84-km of motorway improvements at a cost of US\$55 million, sponsored by the regional government of Madrid province (*Comunidad Autonoma de Madrid, CAM*) under a shadow toll scheme.

15.9 Also, Spain is moving toward privatizing its state-owned toll highway operator, *Empresa Nacional de Autopistas (ENA)*, which operates in Spain through four wholly owned concession companies and also has interests in toll road concessions in Chile and Colombia.

### **GGG. Major Toll Road Issues and Implications for Best Practices**

15.10 The experience in Spain raises a number of major issues with respect to the development of toll roads, with important implications for best practices elsewhere. These issues and/or best practices include:

- the relative advantages and disadvantages of toll financing of highways;
- the relative advantages and disadvantages of private concessions for highways;
- the dilemma of regulating toll rates of concessionaires;
- the high risks associated with guarantees, as opposed to lump-sum, up-front subsidies;
- the importance of requiring adequate capitalization of toll road concession companies;
- the importance of guarding against potential conflicts of interest when construction companies participate in concessions;
- the need for independent evaluations of traffic and financial forecasts; and
- the “moral hazard” problem.

Each is addressed below.

**15.11 Relative Advantages and Disadvantages of Toll Financing of Highways.** An initial, general issue presented by the Spanish experience concerns the relative advantages and disadvantages of toll financing of highways as compared to financing from fuel taxes or other revenues sources, with the latter the predominant approach in Northern Europe, North America, and Australia. Tolling in Spain may have resulted in a misallocation of traffic between certain *autopistas* and parallel untolled *autovias*. The cases of corridors between Cadiz and Sevilla and along the Mediterranean coast are cited in the literature as instances where the *autopistas* were relatively uncongested while the *autovias* were severely congested, a situation that led Spanish highway planners to believe that it might be less expensive to ease congestion by compensating the *autopista* concessionaires to reduce tolls rather than improve the parallel national roads.

**15.12 Relative Advantages and Disadvantages of Concessions to Private Companies for Highways.** Another general issue raised by the Spanish experience concerns the relative advantages and disadvantages of offering concessions to private companies as opposed to public companies for highways. A definitive answer to the question raised is difficult to provide based on the Spanish case as there are only a few public companies in Spain involved in road construction, and generally only in difficult terrain. However, with advantage of hindsight, a number of aspects of the Spanish toll road concession program could have been implemented more effectively, as suggested in the discussion of the issues addressed below.

**15.13 Dilemma of Regulating Toll Rates of Concessionaires.** Spain's approach to regulating the toll rates of concessionaires, based on a formula linked to price inflation, contrasts with the approach of France, which leaves toll rate adjustments to the discretion of the Ministry of Finance, which tends to approve larger increases for less profitable companies. The Spanish approach has the merit of promoting new investment and efficiency, and it has only limited risks of unnecessarily high returns to investors, since "excess" profits are moved to a Special Reserve.

**15.14 High Risks Associated with Guarantees, as Opposed to Lump-Sum, Up-Front Subsidies.** The Spanish Government assumed a disproportionate share of the risks associated with the development of the *autopistas* in the period from 1960 to 1981, a consequence of its offering loan guarantees for up to 75 percent of its foreign debt as well as exchange rate assurance. As it happened, the loan guarantees were not drawn upon and were probably essential for attracting financing; however, the total exchange losses over the years amounted to five to six times the equity invested by the *autopista* shareholders, and the exchange assurance provided by the Government may have been worth less to the companies than it cost the Government to provide.<sup>165</sup> In general, lump-sum subsidies provided up front would have been preferable, defined by competitive bidding,<sup>166</sup> with the Government considering the possibility of recouping its investment by sharing in project revenues.

**15.15 Importance of Requiring Adequate Capitalization of Toll Road Concession Companies.** The low equity requirements (10 percent) of concessionaires during the first phase of development of high-performance roads in Spain had the effect of reducing

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<sup>165</sup> However, because of the low percentage of equity required (less than 10 percent), the total amount of exchange rate assurance in Spain may have been smaller than the total amount of such subsidy provided in Italy.

<sup>166</sup> It is unclear whether the toll motorway concessions granted in Spain during the late 1960s and early 1970s were awarded competitively since often only one seriously interested company came forward.

shareholder risk and incentives to be prudent, with consequent adverse financial impacts for a number of concession companies. On the other hand, large equity requirements may have been impossible during the pioneering stages of the program in the 1960s and early 1970s.

**15.16 Importance of Guarding against Potential Conflicts of Interest When Construction Companies Participate in Concessions.** The Spanish experience also demonstrates the importance of guarding against the potential conflicts of interest when construction companies are involved in concessions, since it may result in the development of inefficient projects when Government guarantees are offered. This conflict of interest may lead to under-estimation of construction costs and over-estimation of traffic volumes. For example, while the energy crises of the 1970s may have explained some of the discrepancies between actual and forecast traffic, the magnitude of the discrepancies (with actual traffic only 36-44 percent of forecast volumes) was too great to be attributable to this factor alone

**15.17 Need for Independent Evaluations of Traffic and Financial Forecasts.** The lack of any serious independent evaluation of traffic and financial forecasts during the first phase of Spain's development of high-performance highways was another critical factor in explaining the eventual difficulties experienced by the concession companies, with consequent cost to the Government. The Government's response—e.g., increasing tolls, extending the concession period, and increasing the amounts of foreign debt allowed and guaranteed—increased the risk borne by the Government.

**15.18 “Moral Hazard” Problem.** Finally, the Spanish experience demonstrates the “moral hazard” problem presented by national toll roads, which like banks, are too big and important to let fail. In the early 1980s the Spanish central government took control of a few concessionaires, and in other cases, original agreements had to be renegotiated to maintain private participation.

### HHH. Sources

José A. Gómez-Ibáñez and John R. Meyer, “The Modern Pioneers: France and Spain,” *Going Private: The International Experience with Transport Privatization*, The Brookings Institution, Washington, D.C., 1993, Chapter 8, pp. 107-45.

José A. Gómez-Ibáñez and John R. Meyer [Taubman Center for State and Local Government, John F. Kennedy School of Government, Harvard University], *The Political Economy of Privatization: Successes, Failures and Lessons from Developed and Developing Countries*, Final Report, Part II, Privatizing Infrastructure: High Performance Highways, Final Report prepared for the U.S. Department of Transportation, September 1992, Chapter 8.

Charles M. Yates, “Private Sector Finance for Roads in Europe,” in PTRC, *Financing Transport Infrastructure*, ed. by Sheila Farrell, 1994, pp. 47-56.

J.P. Munro-Lafon and J.W. Musset, “European Inter-Urban Toll Roads,” in PTRC, *Financing Transport Infrastructure*, ed. by Sheila Farrell, 1994, pp. 57-63.

Luis Ferreiro, "Panel on International Trends in Public and Private Concessions: New Perspectives for Private Concessions in Spain," overhead transparencies, 1997 Annual Meeting & Exhibition, International Bridge, Tunnel and Turnpike Association, Denver, October 11-15 1997.

Antonio Diez de Rivera, "25 Years of Toll Motorways in Spain: Looking into the Future," International Bridge, Tunnel and Turnpike Association, 63<sup>rd</sup> Annual Meeting, New York, September 16-20, 1995.

Various articles from *PWFinancing*, "Dragados Protests Key Toll Award," September 1998, p. 20; "Madrid Shadow Toll Awards," September 1998, p. 20; "Spain's A-7-Cartagena Toll Corridor Bids," May 1998, pp. 17-18; "Spain to Privatize Toll Road Operator," May 1998, p. 18; "Spain Boosts Aumar Toll Concession," November 1997, pp. 16-17; "Costa del Sol Tollway Refinancing," July-August 1997, p. 22; "Spanish Toll Network to Grow," November 1996, pp. 19-20; "Spanish Toll Concession Revival," April 1996, p. 17; "Spain's Dragados Rides Its Case Cows To Win International B-O-T Concessions," December 1995, pp. 22-25.

Walter Hook, *Wheels Out of Balance, Suggested Guidelines for Intermodal Transport Sector Lending at The World Bank, A Case Study of Hungary*, July 1996, p. 31.

The Economist Intelligence Unit, *Country Report: Spain*, 3<sup>rd</sup> Quarter 1998, 1998.

The Economist Intelligence Unit, *Country Profile: Spain, 1997-98*, 1997.

# 16

## Thailand: Weak Inter-Agency Coordination and Delayed Implementation<sup>167</sup>

### III. Country Background

15.19 Thailand's (real) GDP increased at about 8.5 percent per year in the period from 1990 to 1996, but decreased in 1997 by 0.4 percent with the advent of the Asian economic crisis. It is expected to decrease further by 7.0-10.0 percent in 1998 and by 2.5-4.7 percent in 1999. The country's economy has depended on exports of manufactured goods—including high-technology products—and the development of the service sector to maintain its rapid growth prior to 1997. Thailand's high domestic savings rate is a key source of capital for the economy, and will continue to be an asset as the country navigates through the current economic difficulties.

15.20 While the economic downturn has brought a bit of a respite from the country's increasingly chronic infrastructure bottlenecks (especially in the transport and telecommunications sectors), continued investments are deemed to be critical for future growth. In the transportation sector, road transport is the dominant mode, accounting for about 90 percent of passenger and freight traffic. Thailand is serviced by a road network of nearly 60,000 km, of which more than 90 percent is paved. Over 4,600 km of trunk railways also span the country, but the rail system is not as well developed as the roads are.

### JJJ. Major Toll Road Developments

15.21 **Overview.** Thailand currently has three overlapping toll road development plans: (i) a national intercity motorway network master plan being implemented by the Department of Highways (DOH) under the Ministry of Transport and Communications (MOTC); (ii) a Bangkok-centered plan of the Expressway and Rapid Transit Authority (ETA) of Thailand, a state enterprise under the Ministry of Interior (MOI); and (iii) a combined road and railway scheme of the State Railway of Thailand (SRT), a state enterprise under MOTC. In many cases, these plans put forth competing toll road proposals and represent clear duplications of effort.

15.22 **Department of Highways.** DOH's intercity motorway plan was initiated in 1989 with the commencement of a 17-month study by the Japan International Cooperation Agency (JICA). JICA's 1990-91 *Toll Highway Development Study in the Kingdom of Thailand* recommended developing a 14-route, 4,354 km nationwide network of high-speed access-

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<sup>167</sup> In addition to information collected during a field visit to Thailand in November 1998, this case study draws most extensively from two excellent papers: (i) *Toll Roads in Thailand*, Country Draft Paper prepared by The World Bank, Private Sector Department, 1997; and (ii) Kennedy School of Government [Professor José Gómez Ibáñez], *Bangkok's Second Stage Expressway*, Case CL-97-1401.0, 1997.

controlled highways over a 20-year period. Based upon this study, in 1996 DOH released its *Master Plan for the Intercity Motorway Network*, which was subsequently adopted by the Thai Cabinet in April 1997. The plan, now under implementation, calls for a total of 13 total routes covering 4,150 km to be built by 2016. When completed, Bangkok will be linked with all major towns in Thailand, and all parts of the country will be within an hour's drive of the motorway network.

15.23 DOH has targeted 11 priority routes, totaling 852 km in length, to be developed by 2006. These highways will form the backbone of the complete network. Table 1 lists the DOH toll highways that are presently under construction or open to traffic. Of the six projects listed, all but one are being developed and operated directly by DOH. The exception, the privately developed and operated Don Muang Tollway, is examined in detail later in this case study. Of the remaining motorway links listed in Table 1, only the Bangkok – Chonburi Motorway presently charges a toll. The Outer Ring Road (ORR) Western segment has opened and the ORR Eastern segment will soon begin service, both as untolled roads, although DOH will in the future offer a concession for their operation and maintenance as toll roads.<sup>168</sup> It is currently anticipated that the ORR Southern segment and the Laem Chabang – Pattaya Motorway will begin service as toll roads, although the concession arrangements for these highways also have yet to be determined.

**Table 16-1 Summary of DOH Toll Roads in Operation or Under Construction, January 1999**

Toll Road/Bridge Segment Name	Length Open (km)	Length Under Const. (km)	Date opened (to open)	Developer / Operator
Don Muang Tollway	28.0		1994-98 (1999)	DMTC (+6km DOH)
Bangkok – Chonburi Motorway	82.0	1.2	1998	DOH (future concession)
Bangkok Outer Ring Road (Western)	71.0 (untolled now)		1996	DOH (future concession+toll)
Bangkok Outer Ring Road (Eastern)		63.0	(1999)	DOH (future concession+toll)
Bangkok Outer Ring Road (Southern)		34.0	(2003)	DOH (future concession+toll)
Laem Chabang – Pattaya Motorway		31.0	(2002)	DOH (future concession+toll)
<b>Total</b>	<b>181.0</b>	<b>137.2</b>		

Source: DOH, DMTC [Don Muang Tollway Company]

15.24 **Expressway and Rapid Transit Authority.** ETA was created in 1972 to build and operate expressway and rapid transit systems throughout Thailand. It was given broad powers

<sup>168</sup> The Royal Thai Government has upgraded and tolled a number of intercity roads since the 1970s, but attempts since the late 1980s to attract private investment in these intercity roads have been unsuccessful.

to expropriate and use land for these purposes, and by 1975 had developed plans for the staged construction of an elevated toll expressway system in Bangkok. The first stage was intended to serve truck traffic to and from the port, and opened in three stages: a northern leg in 1981, a southeastern leg in 1983, and a southwestern leg in 1987. As soon as the toll road opened, however, it was apparent that most traffic was from automobiles, not trucks. A downturn in the Thai economy in the late 1980s brought about a public works budget cap, and it was decided to develop the second stage of the project (targeted towards auto commuters) using a privately financed concession approach. A detailed discussion of the Second Stage Expressway (SES) project is presented later in this case study.

15.25 As Bangkok's traffic congestion worsened in the early 1990s, ETA prepared an expanded toll expressway master plan that was finalized in October 1992. This plan recommended a total network of more than 770 km, with 11 expressway routes serving not only metropolitan Bangkok but also neighboring provinces. ETA's proposed road projects stretch as far as Pa Moak and Nakorn Ratchasima in the north, Pran Buri on the Western Seaboard, and Ban Chang on the Eastern Seaboard. At present, the ETA network comprises five expressways, listed in Table 2. Despite some well-publicized difficulties related to the private concession for SES, most if not all of the future projects are to be developed as privately financed concessions, and ETA has also not ruled out the future concessioning of the routes that they now operate directly. In addition to the projects listed in Table 2, ETA's development plan for 2000-08 calls for an additional seven expressways totaling 150 km, but their realization will be dependent upon private sector support as Thailand's National Economic and Social Development Board and Budget Bureau have indicated that they will be unlikely to approve further public investment in the planned expressways in the foreseeable future.

**Table 16-2 Summary of ETA Toll Roads in Operation or Under Construction, January 1999**

Toll Road/Bridge Segment Name	Length Open (km)	Length Under Const. (km)	Date opened (to open)	Developer / Operator
First Stage Expressway (FES)	27.1		1981-87	ETA
Second Stage Expressway (SES)	38.4		1993-98	BECL*
Ramindra – At Narong Expressway	18.7		1996-98	ETA
Bang Pa In – Pak Kret Expressway	22.0		1998	NECL*
Bang Na – Chonburi Expressway	12.5	10.0	(2000)	(BECL+ETA)
		42.5	(2000)	ETA (re-concession later?)
<b>Total</b>	<b>118.7</b>	<b>52.5</b>		

Source: ETA

\* BECL = Bangkok Expressway Company Ltd.; NECL = Northern Expressway Company Ltd.

15.26 As suggested by their overlapping master plans, both ETA and DOH may build toll roads anywhere in Thailand. In fact, there is no exclusivity over toll highway development

whatsoever, as evidenced by the State Railway of Thailand's sponsorship of the Hopewell toll road/railway scheme (also discussed in depth later in this case study). This redundancy of responsibilities, while politically popular, has contributed to a large number of problems with project implementation, particularly when the private sector has been involved. The case studies presented in the following subsections highlight three of the highest profile public-private tollway projects in Thailand thus far. They are by no means the entire universe of experience with toll roads in Thailand, but they are indicative. An assessment of the impacts of the current Asian economic crisis also follows.

**15.27 Don Muang Tollway.** The Don Muang Tollway (DMT), a 28.0 km elevated highway, presently links central Bangkok (Din Daeng) and the Bangkok International Airport and will ultimately connect the airport to SES.<sup>169</sup> In 1989 the Don Muang Tollway Public Company Limited (led by a German firm), received a 25-year concession from DOH to build the US\$407 million 15.4 km initial segment of the project. About 23 percent of the initial investment consisted of equity, and 32 percent was foreign debt to be repaid in eight years.

15.28 The DMT has faced several problems since even before it opened to traffic in December 1994. A big issue during the initial project stages was the removal of two flyovers serving the local road beneath the tollway. These were to have been eliminated so as to not compete with the tollway, but this did not happen due to political pressures. Traffic volumes and revenues were consequently less than forecast, and by October 1996 the tollway company could no longer service its cash flow obligations. Thereupon, an agreement was reached whereby (i) the Government would rotate the flyovers to serve traffic running perpendicular to the tollway; (ii) the Government would give the DMT company permission to construct a 6.5 km extension to the airport and beyond, and part of the link to SES; (iii) the Government would authorize a toll increase and help refinance the company's existing loans; (iv) DMT's current shareholders would invest another US\$61 million and seek an additional US\$148 million in debt to finance the extensions; and (v) DOH would construct a further 7.3 km northward extension on its own, to be operated jointly with the DMT's facilities upon completion.

15.29 The 13.8 km northward extension to Rangsit in Pathum Thani Province (half by DMT and half by DOH) opened on December 1, 1998. Upon completion of the extensions, tolls for ordinary passenger vehicles increased from 20 to 30 baht for the initial 15.4 km segment of highway, while motorists must pay 15 baht to use the DMT-built (southern) part of the extension and another 10 baht for the DOH-built (northern) section.

**15.30 Bangkok Second Stage Expressway.** In 1989 the Royal Thai Government signed a 30-year concession contract with Bangkok Expressway Company Limited (BECL),<sup>170</sup> to construct and operate the Second Stage Expressway (SES), an elevated toll highway linking with the First Stage Expressway (FES)<sup>171</sup> to form a loop road around the central city. The SES project was supervised by ETA. The US\$1.1 billion construction cost was financed 20

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<sup>169</sup> The tollway's alignment is parallel to and immediately above the existing Wiphawadi Rangsit Road for its entire length. A final 1.2 km elevated structure that will complete the link to SES is presently under construction, scheduled for completion in mid-1999.

<sup>170</sup> Upon inception, BECL was a Thai company 65 percent owned by construction giant Kumagai Gumi of Japan.

<sup>171</sup> Originally conceived as an access route to the Port of Bangkok, the FES opened to traffic in 1987 and became increasingly congested with commuter traffic. The FES was developed and operated entirely by ETA.



percent by equity and 80 percent by debt;<sup>172</sup> most of the debt was raised on domestic markets, but a portion was guaranteed by international banks. The concession agreement required that BECL complete the SES within the ETA-approved budget and by August 1, 1995. In return, the Government agreed that: (i) toll collection on the FES and SES would be integrated and the combined revenues divided 60:40 between BECL and ETA during the initial nine years of operations, equally in the following nine years, and 40:60 in the last nine years of toll road operations; (ii) toll rates were to be trebled when the SES opened and indexed to inflation at five-year intervals; and (iii) ETA was to be responsible for land acquisition, including the US\$400 million (10 million baht) in costs, although BECL was to pay 16 billion baht in leasing fees to ETA over the life of the concession.

15.31 Problems first developed due to the difficulty of land acquisition, which resulted in ETA transferring land late to BECL and often in non-contiguous parcels. In November 1992, BECL informed ETA that it had completed a 2 km “priority” component and was therefore entitled to begin limited SES operations and to share in the revenues from the combined FES/SES system. However, ETA countered that this was unreasonable because of the small length of the priority section. In March 1993 BECL was forced to stop construction when its banks cut off disbursements stating that the Government’s refusal to share revenue in November 1992 constituted a default on loan terms. But two SES sections were nearly complete by this time, and BECL’s contractors continued to work—albeit at their own risk. Nevertheless, BECL refused to open the completed expressway sections, as it continued to claim a share of tolls from November 1992 and also insisted that its employees, not those of ETA, should collect the tolls at the SES toll gates. The situation was further complicated by the Government’s coming under political pressure to decrease rather than raise tolls at that time. Eventually, in August 1993, the ETA Governor agreed to triple the toll rates on the FES/SES system, and to arbitration (as called for in the concession agreement) to determine whether toll sharing was to have commenced in November 1992 and whose employees should staff the toll booths. BECL did not accept this position however, and held out for a more comprehensive solution. Finally, on August 31, 1993, ETA sought a court order to open the expressway, and the judge ruled in favor of the government agency on the same day. When BECL refused to follow the court order, ETA itself commenced operation of the completed SES segments on September 2, 1993.

15.32 After ETA’s “takeover” of the expressway, all negotiations between ETA and BECL broke down. In February 1994, the Government arranged for Kumagai Gumi’s equity stake in BECL to be sold to a Thai construction company and principal project contractor. Some of the foreign banks involved were also given back their principal disbursed plus interest and fees. BECL engaged a multinational joint venture to complete construction of SES and it eventually became a financially stable enterprise, floating shares on the Stock Exchange of Thailand in August 1995. While some observers have termed ETA’s actions “expropriation,” the Government has argued that Kumagai Gumi’s interpretation of the concession contract violated the spirit, if not the word, of the agreement. They have also noted that Kumagai Gumi may have wished to withdraw from the Thai toll road market, as a part of its corporate consolidation following the bursting of Japan’s “bubble economy” in the early 1990s.

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<sup>172</sup> The other 35 percent of BECL equity was held primarily by local investors, although the Asian Development Bank provided a US\$30 million loan and took a 4.5 percent equity stake.

15.33 Lately the SES has been the subject of another highly-publicized row, this time concerning a September 1, 1998 toll increase that was requested by the concessionaire and duly approved by the ETA Board. However the Office of the Attorney General, in what has been characterized by some as a politically motivated decision, rescinded the toll increase shortly thereafter. It did so pointing to language in the concession contract to the effect that tolls may not be increased by more than 10 baht, regardless of the type of vehicle, and that the “urban” and “suburban” expressway networks are to be considered as a single system. An annex to the contract that specifies different toll rates for different classes of vehicles could arguably result in a contrary interpretation, as called for by BECL and ETA. Pointing to that annex, in October 1998 BECL requested 13 billion baht (about US\$350 million at the prevailing exchange rate) in compensation for revenue losses for the rescission of the toll increase—based on the estimated losses it would incur over the remaining 22 years of the concession contract. At present, BECL’s banks are revising their credit assessments for the company to reflect lower revenue projections, while the Thai Council of State is considering the issue.

15.34 **Bangkok Elevated Road and Track System.** In 1990 the State Railway of Thailand (SRT) and MOTC granted Hopewell Holdings Ltd. (Thailand) a 30-year concession to develop the Bangkok Elevated Road and Track System (BERTS). The proposed 80-km “triple deck” facility was to follow the existing SRT right of way to the north and east of central Bangkok (and ultimately to the west and south as well). A tollway was to be built on the top level of the facility, a privately operated express commuter railway and new tracks for SRT were to occupy the middle level, and space for commercial establishments was to be made available at ground level. Hopewell was to contribute US\$500 million in equity to the project. The planned construction period was eight years, but after many delays and much acrimony between Hopewell and SRT only 12 percent of the project was completed by the time construction was suspended in January 1998.<sup>173</sup> Problems have been attributed to: (i) delays in the approval of the construction design; (ii) delays in the handing over of construction sites and in addressing physical interface coordination issue with other mass transit projects; (iii) environmental issues; (iv) personnel changes in MOTC, and (iv) frequent threats by Thai officials to terminate the project, which eventually discouraged the firm’s creditors and undermined Hopewell’s efforts to secure full project financing.<sup>174</sup>

15.35 In October 1998, the Thai Cabinet ordered MOTC to cancel the toll roads component of the BERTS project and to proceed with the urban rail component. The German Government was to give a 100 million baht grant to study the scaled-down project and the Thai Government was to invest 20 billion baht in structural works. As of November 1998, Hopewell had not filed a suit against the Government (and the Government had not sued Hopewell for its failure to meet the construction schedule) but was still calling for appointment of an independent expert from outside of Thailand to assess damages from cancellation of the contract.

15.36 **Effects of the Asian Economic Crisis.** The banking sector crisis in Thailand has had some impact on toll road projects, but to a much lesser extent than in Indonesia. At 13

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<sup>173</sup> A formal notice of termination was provided in a letter from MOTC/SRT to Hopewell dated January 27, 1998 and further explained in a letter dated February 25, 1998.

<sup>174</sup> As reported in the *Bangkok Post* throughout 1994-98, and documented in Hopewell (Thailand) Ltd.’s own 1998 publication, *The Thailand Experience 1990-1998*.

percent per annum, commercial interest rates are 2 to 3 percent higher now than they were before the crisis. Banks in general are less willing to lend now, due to their non-performing loan problems. The general feeling is that they need to take care of their internal problems first. The financial crises has indefinitely delayed the start of construction on most of the free and toll highways proposed by DOH in their Eighth Five-Year Plan (1997-2001). Despite the delays in planned projects, work continues on five toll roads presently under construction. The three recently completed projects with private sector involvement provided key links to athletic sites for the 13<sup>th</sup> Asian Games held in December 1998, and their prompt completion was a high priority throughout 1998.

15.37 No toll road projects have been renegotiated directly as a consequence of the recession; rather the reorganizations that have occurred have been based on project performance issues that arose prior to the economic downturn. For example, the Don Muang Tollway restructuring was brought about by a number of factors (such as the flyover removal issue) independent of the recession, while Hopewell's interminable delays were largely responsible for killing investor confidence in that project. There have been no defaults yet on project loans; the impact has mostly been felt by investors, because drops in income have hit profitability and shareholder return.<sup>175</sup>

15.38 Regional growth projections have been scaled back slightly. Growth is still expected in the Bangkok Metropolitan Region in spite of the economic downturn, primarily due to continued migration from rural areas. Car sales in Bangkok in 1998 totaled about 100,000 vehicles, just 20 percent of the 500,000 vehicles sold annually during the previous five years. Traffic congestion has also leveled off, in contrast to 13-18 percent annual increases in previous years. Road travel speeds have increased by about 30 percent, as a result of both the decrease in new vehicles sales cars and the addition of new road capacity. Newspaper accounts have reported that motorcycle taxis are losing customers since car travel is no longer so slow.

### **KKK. Major Toll Road Issues and Implications for Best Practices**

15.39 **Overview.** The toll road experience in Thailand raises a number of major issues with respect to the development of toll roads, with important implications for best practices both in Thailand and elsewhere. These issues include:

- redundancies and overlapping responsibilities among responsible public agencies;
- the need for better project preparation;
- the lack of transparency in bidding processes;
- need for more well-defined procedures for land acquisition;
- uncertainty regarding toll rate adjustments, toll-free alternative routes, and other contract provisions;
- inconsistency between concession contracts and Thai law;
- need to adhere to established international dispute settlement procedures; and
- need to consider macroeconomic impacts.

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<sup>175</sup> However ETA's recent cash flow problems portend difficulties with debt repayment.

Each is addressed below.

**15.40 Overlapping Responsibilities among Public Agencies.** A central issue emerging from the Thai experience is the problem of redundancies and overlapping responsibilities among the various agencies responsible for toll road planning, implementation, and regulation. The *Master Plan for the Intercity Motorway Network*, adopted by the Cabinet in April 1997, is to be implemented by DOH, while ETA and SRT each have master plans of their own (albeit less comprehensive than that of DOH).<sup>176</sup> The primary manifestation of this problem, with respect to network development, has been the preparation of separate, sometimes competing toll road projects. A consequence of such duplicative projects has been construction difficulties due to physical (right-of-way) conflicts between projects, with attendant environmental implications.

15.41 One attempt to address some of these issues came in the form of the Royal Act on Private Participation in State Affairs (1992), which applies to transport as well as other sectors. This legislation intended to establish a uniform procedure within the Thai Government for the concession or grant of rights to private sector or public-private entities. Prior to this law, the review authority for such decisions was defined as a single person or agency, and ultimately the relevant minister. The previous arrangement did not define review criteria, methods of compliance and concession enforcement, nor the role of Government ministries aside from the one directly involved in initiating the project. While an improvement over the previous conditions (under which troubled projects such as Hopewell's BERTS were originally proposed), the 1992 Private Participation Act is predominantly concerned with assuring that the interests of various ministries and agencies are represented when private sector projects are implemented.<sup>177</sup> The needs of the private sector for successful project implementation, particularly with respect to required inputs and prompt and decisive action from the public agencies, are not addressed in the Act. One consequence of this oversight has been continuing problems with delays in project implementation—not only in the roads sector, but also with private sector railway, water, and power proposals.

15.42 One plan for addressing the overarching institutional problems raised here would be to create a new regulatory agency for toll roads under the Ministry of Transport and Communications. Such an agency would be charged with oversight of both the motorways of DOH and the expressways of ETA. This idea is now under consideration by the Royal Thai Government, and is expected to involve a separation of responsibilities within DOH for their tolled and non-tolled highways. It has been suggested that the new toll motorway authority be responsible for intercity toll roads, while ETA retain responsibility for urban toll expressways. DOH, in turn, would focus its continuing efforts exclusively on non-tolled highways.

**15.43 Need for Better Project Preparation.** An issue closely related to the redundancies and overlapping responsibilities among public agencies responsible for toll road development is the ineffective system of toll road project preparation to date in Thailand. Public policies have generally been reactive and sometimes even pre-empted. This is clearly illustrated in the case of BERTS, which was approved without adequate advance master planning or other analysis to ensure that the project would be in the public interest, take account of all costs,

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<sup>176</sup> DOH and SRT are both under MOTC, although SRT has some autonomy as a state enterprise.

<sup>177</sup> Such ministries and agencies include the Ministry of Finance, Judicial Council, Supreme Prosecutor's Office, Office of the National Economic and Social Development Board, and Budget Bureau.

and be effectively integrated into the transport network. Ultimately, implementation delays killed investor confidence in BERTS. The quick (and superficial) planning process meant that project implementation started right away, but it ended up taking too long, financing was never fully secured, and the whole endeavor was ultimately unsuccessful. Perhaps a more deliberate (but detailed) planning/preparation process may have taken longer, but ultimately would have led to a more rapid, and successful, financing and implementation stage. In general, consequences of inadequate project preparation have included: (i) parallel, competing projects, as previously discussed; (ii) few bids, resulting in little competition; (iii) poorly structured concession agreements, neither based on sound risk allocation principles nor on an underlying detailed financial analysis; and (iv) diminished confidence in the private sector about the Government's willingness to follow through on signed concession agreements.<sup>178</sup>

15.44 The need for improved project preparation is also manifested in the cash flow problems currently being faced by ETA and its contractor, BECL. Recent local media reports indicate that with the exception of the central sections of the First and Second Stage Expressways, the other more recent expressway sections (such as the northward and eastward SES extensions, the Ramindra – At Narong expressway, and the Bang Na – Chonburi expressway) are serving less than a third of the traffic volume projected for 1999.<sup>179</sup> These later expressways serve less intensely-developed suburban areas around Bangkok, where the local (free) roads are not very congested and offer stiff competition to the parallel elevated toll highways. The recent economic downturn and the inability of ETA and BECL to win approval for toll increases have also contributed to the expressway operators' financial woes.

15.45 **Lack of Transparency in Bidding Procedures.** There has also been a perceived lack of transparency in bidding procedures in Thailand. For instance, in the case of the SES concession to BECL, five consortia purchased the bidding documents, only two bids were received, and the second bidder was disqualified ostensibly for lack of experience. In the case of the BERTS concession, the concession was awarded directly to Hopewell based on their project proposal, without competition. Although the 1992 Royal Act on Private Participation in State Affairs was intended to address some of these issues, it remains that Articles 15 to 17 of the Act still permit a wide variety of possible bidding methods. While this flexibility does allow the Government to bring a broad range of methods to bear on incorporating the private sector in infrastructure development, there is arguably too much flexibility considering that clear decision-making processes and evaluation criteria are not specified.

15.46 **Need for More Well-Defined Procedures for Land Acquisition.** Another important issue in the Thai experience has been a lack of clear procedures for the acquisition rights of way for toll road development. A 1987 law and subsequent Royal Decrees govern the acquisition of land for transport infrastructure projects in Thailand, but efficient adjudication mechanisms and well-defined procedures for land acquisition have not yet been established. In the SES case, for example, ETA was unable to deliver key plots of land to BECL on a timely basis, which under the concession contract enabled BECL to consider the affected section as "delayed works" subject to compensation in the form of a share of FES revenues.

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<sup>178</sup> See, e.g., Roger J. Allport, "Transport Concessions Policy in Thailand," in PTRC, *Financing Transport Infrastructure*, ed. by Sheila Farrell, 1994, pp. 187-92.

<sup>179</sup> *Bangkok Post*, Internet edition, March 6, 1999.

**15.47 Uncertainty Regarding Toll Rate Adjustments, Toll-Free Alternative Routes, and Other Contract Provisions.** Toll road projects developed by the private sector in Thailand have also been hindered by uncertainty regarding toll rate adjustments, the availability of toll-free alternative routes, and other contract provisions. It seems apparent that such major provisions of concession agreements need to be fully disclosed and discussed from the outset—before the issue becomes a political crisis. In the SES case, for example, there have been a number of disputes between the Government and BECL concerning the allowed toll rate. The latest dispute turns upon a close reading of the concession contract, in which the clauses at issue are arguably ambiguous. In another recent development, ETA has asked Northern Expressway Co., Ltd., a subsidiary of BECL and the concessionaire for the 22-km Chaeng Wattana-Chiang Rak expressway section, to reduce the tolls agreed to in its concession contract (40 baht for a four-wheeler) after the Interior Minister expressed that they were “too high.”<sup>180</sup>

15.48 In addition, uncertainty with respect to toll-free alternative routes has been a problem. For example, in the case of the Don Muang Tollway, the Government (responding to political pressures) proved unable to remove two parallel overpasses, as called for in the concession contract. The removal of the overpasses factored into the concessionaires’ traffic and revenue forecasts which directly influenced its financial plan. Problems have also arisen with respect to other contract provisions that have turned out to be inconsistent with Thai law, indicating the need for more rigorous review of concession contracts from a legal perspective at the drafting stage. For example, one provision of the concession contract for the SES project allowed BECL staff to operate the toll booths, while according to Thai law only ETA staff could do so.

**15.49 Need to Adhere to Established International Dispute Settlement Procedures.** A number of toll road projects have suffered due to a failure to follow established international dispute settlement procedures. For example, in the case of the BERTS project, MOTC and SRT informed Hopewell in a letter dated February 25, 1998 that since the termination of the concession contract in a previous letter (January 27, 1998) was made under (unspecified) legal procedures, the concession contract was rescinded and the binding arbitration clause in the contract rendered ineffective; Hopewell has a contrary interpretation.<sup>181</sup> Similarly, a seemingly adequate dispute settlement procedure in the SES contract was not applied when ETA assumed control of the completed segment on September 2, 1998.<sup>182</sup>

**15.50 Need to Consider Macroeconomic Impacts.** Finally, the Thai experience points to the need to consider broad macroeconomic impacts when implementing a large-scale private sector toll road program. The toll road projects developed in Bangkok, in combination with other “megaprojects” in the city’s transport sector, were to have needed funding on an immense scale—on the order of greater than 1 percent of the country’s GDP. Such massive demands on the domestic capital markets may have had important macroeconomic impacts

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<sup>180</sup> *Bangkok Post*, Internet edition, November 14, 1998.

<sup>181</sup> Clause 31 (Settlement of Disputes) includes two paragraphs: 31.1: “Whenever there arises a dispute...the parties shall first endeavour to reach an amicable settlement. In the event that within 60 days or any extension...the parties fail ...the dispute shall be referred to arbitration. 31.2: “The award of two arbitrators or of the umpire...shall be absolute and final and binding upon the parties.”

<sup>182</sup> Clause 19 of the SES concession contract provided for a three-person arbitration panel, consisting of one person each named by ETA and BECL and an umpire named by the these two.

(e.g., increasing domestic interest rates), perhaps contributing to the financial crisis that has beset Thailand since July 1997.

### LLL. Sources

*Toll Roads in Thailand*, Country Draft Paper prepared by The World Bank, Private Sector Department, 1997.

Kennedy School of Government [Professor José Gómez Ibáñez], *Bangkok's Second Stage Expressway*, Case CL-97-1401.0, 1997.

SAPS Team for the Overseas Economic Cooperation Fund (OECF), *Special Assistance for Project Sustainability for Expressway Network System in Bangkok, Final Report*, February 1996.

PADECO Co., Ltd., *Economic Evaluation for the Special Assistance for Project Sustainability (SAPS) for Expressway Network System in Bangkok, Final Report*, prepared for Express Highway Research Foundation of Japan, December 1995.

Wilbur Smith Associates, Inc., Asian Engineering Consultants Corp., Ltd., and PADECO Co., Ltd., *Consultant's Services for Long-Term Strategic Study of Highway Planning and Investment, Final Report and Appendixes*, prepared for the Department of Highways, April 1996.

Wilbur Smith Associates, Inc., Asian Engineering Consultants Corp., Ltd., and PADECO Co., Ltd., *Consultant's Services for Long-Term Strategic Study of Highway Planning and Investment, Technical Report No. 13*, prepared for the Department of Highways, January 19, 1995.

Roger J. Allport, *Developing Best Practices for Promoting Private Sector Participation in Infrastructure: Expressways*, Draft Final Report (Appendix B: Case Studies), Asian Development Bank, TA No. 5733-REG, June 1998.

Roger J. Allport, "Transport Concessions Policy in Thailand," in PTRC, *Financing Transport Infrastructure*, ed. by Sheila Farrell, 1994, pp. 187-92.

Japan International Cooperation Agency, *Final Report for The Toll Road Development Study in the Kingdom of Thailand*, prepared for Department of Highways, 1991.

José Gómez Ibáñez and John R. Meyer, *Going Private: The International Experience with Transport Privatization*, Brookings Institution, Washington, D.C., 1993, pp. 149-51.

Department of Highways, *Proposed Inter-City Motorway Projects in the Kingdom of Thailand for Privatization*, May 1998.

Technical and Planning Division, Project and Organization Planning Department [Expressway and Rapid Transit Authority of Thailand], *The Master Plan of the Expressway*

*Systems, the Intercity Expressway Systems and the Mass Transit Systems Projects*, October 1998.

Baker & McKenzie, Attorneys at Law, Answers to Questions Posed by PADECO Concerning Toll Road Development in Thailand, November 2, 1998.

Expressway and Rapid Transit Authority of Thailand, *Annual Report*, 1996.

Department of Highways, *Annual Report*, 1996 and 1997.

*Royal Act on Private Participation in State Affairs*, Buddhist Era 2535, March 11, 1992.

*Expropriation of Immovable Property Act*, Buddhist Era 2530, August 10, 1987

Information about the BOT System in Thailand, letter from ETA staff member to JICA Expert, June 15, 1998.

“Master Plan for State Enterprise Sector Reform,” Presentation to State Enterprise Chairmen, Governors and MOF Directors, September 26, 1998.

Jiradech Yingsutthipun, *The Key—Risk Identification of Thailand’s Transport Infrastructure Projects Based on the Build-Operate-Transfer Scheme*, Asian Institute of Technology Master’s Thesis, Bangkok, April 1998.

Hopewell (Thailand) Ltd., *The Thailand Experience: 1991-1998*, 1998.

Amornrat Mahitirook, “Motorway Heralds New Era of Transport,” *Bangkok Post*, November 2 1998.

Various articles from *Bangkok Post*, Internet edition: Amornrat Mahitirook, “Operator Rules Out Toll Hike, May Seek to Have Concession Amended,” April 2, 1999; Supoj Wancharoen, “ETA Cash Flow in Red as User Flow Dwindles,” March 6, 1999; “Quick Toll Rise Demanded for Two New Expressways,” December 12, 1998; Supoj Wancharoen, “Indirect Cut of Tolls for Asian Games,” November 14, 1998; Amornrat Mahitirook, “Hopewell To Fight Project Cancellation: Developer To Take Legal Action Abroad, November 4, 1998; Amornrat Mahitirook, “Tollway and Ring Road To Open Dec 1,” November 13, 1998; “Expressway Toll Cut Proposal Rejected: Operator Offers To Donate To Games,” November 12, 1998; Amornrat Mahitirook, Minister Hits Out at Hopewell: Developer Exploits Expressway Dispute,” November 6, 1998; “Viranongsa Wants Talks on Toll Cut: Dispute Can Go To Arbitration,” November 6, 1998; Cholada Ingsrisawang, “Bangkok Expressway: Banks Revise Outlook Due To Toll Dispute,” October 28, 1998; “Operator Demands 13 Million: Court Action against State Not Ruled Out, October 27, 1998; Wassayos Ngamkham and Wut Nonthairt, “Cut The Toll and Give Us a Refund, Demand Angry Motorists,” October 23, 1998; Supoj Wancharoen, “Expressway Chief Resigns: Hike Was a Blunder, Say Legal Experts,” October 23, 1998; “It Is All a Matter of Interpretation,” Editorial, October 21, 1998; Wassana Nanuam and Supoj Wancharoen, “ETA Insists Toll Increase Not Breach of Contract: Claiming Ambiguous Clauses Causes Doubts,” October 17, 1998; Supoj Wancharoen and Amornrat Mahitirook, “Son of Hopewell Approved: Sky Roads Abandoned



BUT Two Railways Stay,” October 14, 1998; Supoj Wancharoen and Amornrat Mahitirook, Expressway Toll Hike Imminent: Minister Points to Contract Commitment, August 20, 1998; Supoj Wancharoen, Higher Toll Opposed by Bichai: Increase Should be Postponed, He Says,” August 4, 1998; Supoj Wancharoen, “Construction Firm Seeks B200 Million from ETA,” August 3, 1998; Amornrat Mahitirook, “Hopewell Project: Firm Papers Blame Government for Failure,” July 29, 1998]

Various articles in *PWFinancing* including: “Bangkok Expressway to Bilfinger+Berger,” November 1996, p. 20; “Hopewell Joins Holzmann for BERTS,” September 1996, p. 20; “Bangkok Expressway Stock Squashed,” February 1995, pp. 3-4; “BECL Thai Stock Listing,” September 1994, p. 8; “Germans Expand Thai Toll Road,” April 1994, p. 12; “Shift to Equity for Thai Toll Road,” March 1994, pp. 15-16; “Kumagai Gumi Sells Thai Road Shares,” February 1994, p. 10; “Second Stage Expressway Sellout,” November 1993, p. 5; and “Thailand Expropriates Completed BOT Expressway,” September 1993, p. 18.

Teresa Lee, “Hopewell Demands \$18 b,” *Hong Kong Standard*, Internet Edition, April 17, 1998.

“Country Report [Thailand]: A Fading Star,” *Construction and Public Works Asia*, pp. 10 and 12, August 1998.

“Hopewell Spills Vitriol,” *Transport Finance No. 119*, August 6, 1998, p. 23.

“Asian Economic Survey, 1998-99, Thailand,” *Asian Wall Street Journal*, October 26, 1998, p. S25.

# 16

## United Kingdom: Structured Experiments in Public-Private Partnership<sup>183</sup>

### MMM. Country Background

16.1 The United Kingdom is an important international trading power and financial center, and ranks among the four largest economies in the European Union. The country has large coal, natural gas, and oil reserves, and primary energy production accounts for 12 percent of GDP—one of the highest shares of any industrialized nation. Banking, insurance, and business services account for the largest proportion of GDP, while industry continues to decline in importance, now employing only 25 percent of the work force. The economy has been growing at a modest, but steady, rate with GDP increasing by 2.7 percent in 1995, 2.2 percent in 1996, 3.3 percent in 1997.<sup>184</sup> Foremost among the economic policy issues facing the United Kingdom in the late 1990s has been the terms on which it will participate in the ongoing financial and economic integration of continental Europe.

16.2 Transport infrastructure in the United Kingdom is extensive and highly developed, although increasingly aging and in need of rehabilitation. The country's highway network totals nearly 400,000 km, of which more than 3,200 km are motorways (express highways, nearly all of which are toll-free). The country is also served by 17,500 km of railways, providing extensive urban and intercity passenger transport, as well as a growing share of freight traffic.

### NNN. Major Toll Road Developments

16.3 **Overview.** Due to legal restrictions and strong public resistance, direct tolls have thus far only been charged in the United Kingdom for very short road links, such as bridges and tunnels. The Dartford River Crossing, the Skye Bridge, and the Second Severn River Crossing are at present the only instances of direct tolling. All British motorways currently in operation have been funded from Central Government sources—private finance is only now becoming involved. In 1991, toll road development was authorized legislatively by the New Roads and Street Works Act, and nearly two dozen facilities have been planned as toll roads since then.

16.4 While it was initially believed that construction costs for these new motorways could be recovered through tolls, subsequent studies suggested that financially appropriate toll rates

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<sup>183</sup> A complete list of the sources for this paper is presented in Section D. However, the paper draws most extensively from *Toll Road Program in the United Kingdom: A Policy and Financial Review*, Draft Country Paper prepared by the World Bank, Private Sector Department, 1997.

<sup>184</sup> Organization for Co-operation and Economic Development, *OECD Economic Surveys 1998 United Kingdom*, 1998.

would be so high as to encourage much of the potential traffic to stay on the existing non-tolled routes (including other motorways). However according to forecasts by the Department of the Environment, Transport, and the Regions (DETR), motor traffic is expected to increase steadily throughout the upcoming decades, and, as with many other sectors in the United Kingdom, the Government remains active in encouraging private sector participation in road development.

**16.5 Legal and Regulatory Framework.** The “Ryrie Rules” of 1981 set forth the basic legal and regulatory framework for private participation in infrastructure in the United Kingdom. They emphasized fair competition for the provision of funds, private sector rewards commensurate with (but not to exceed) risk-taking, and a requirement that the benefits of private involvement must outweigh the costs. The New Roads and Street Works Act of 1991 then set out the rights of concessionaires to charge tolls as well as the legal framework for construction and operations concession agreements with the Highway Authority. Tolls were to be charged only on roads involving a major crossing, and must be confirmed by the Secretary of State for Transport. The Transport and Works Act of 1992 spelled out a unified legal process for the advancement of infrastructure proposals. Under this legislation, if the Secretary of State deems a project to be of national significance, it must be subject to a formal public inquiry/review process, and be passed by both Houses of Parliament before construction can commence.

**16.6** Until recently, government agencies in the United Kingdom had largely avoided using concession contracts for infrastructure projects, for the following reasons:

- the Government can always borrow money at a lower rate than commercial organizations;
- government departments would be likely to be more efficient in carrying out the statutory procedures relating to public inquiries and compulsory purchase orders;
- many projects have high overall risks;
- motorways are expensive to build and maintain;
- motorways require very high initial investment and usually involve long payback periods; and
- there were doubts about the efficiency of the toll approach considering that the existing motorway network is in the public sector and consequently is not tolled.

**16.7** In 1992, however, the Government of the United Kingdom sought to change these attitudes across the board through the introduction of the Private Finance Initiative (PFI). The PFI is the overall Government plan for improving the public’s “value for money” through partnerships with private sector firms in all aspects of government services. It was launched with the aim of delivering higher quality and more cost-effective public services, an objective it has sought to attain by encouraging partnerships and involving the private sector more directly in both asset provision and operation. Practical guidelines for the development of toll road projects were established by the PFI, adhering to four main principles:

- “value for money;”
- transfer of risks and responsibilities to the private sector;
- competition to spur innovation and increase value; and
- effective specification of the service to be provided.

16.8 Within the central government, the PFI has been successful in fostering innovative approaches to procurement and achieving significant “value for money” benefits in areas as varied as bridges and highways, prisons, health facilities, railways and public transport, information technology services, water supply and sewage disposal, power generation and distribution, equipment, and accommodation. There is also considered to be significant scope for application of the PFI in local government, although the statutory and financial frameworks are different at that level.

**16.9 Using the “DBFO” Scheme and “Shadow Tolls” for Toll Road Development.** The type of projects typically facilitated by the regulatory environment changes described above involve the purchase and use of capital-intensive services by the public sector. They are commonly advanced by means of the Design-Build-Finance-Operate (DBFO) mechanism, which involves the various responsibilities and risks relating to the procurement and operation of a capital asset being transferred to the private sector. The DBFO approach is intended to shift the focus of government agencies away from the procurement of assets and towards the purchase of services associated with those assets. Ideally, the level of payment by the public sector is to be based on the performance of the private sector operator against contractually agreed levels of service.

16.10 When sufficient risk is assumed by the private sector, a DBFO contract is intended to reflect the purchase of access to and use of serviced assets by the public sector, rather than the procurement of a capital asset. The PFI transactions are also supposed to involve the recognition of the assets on the balance sheet of the operator. Without this level of risk transfer, Government supporters of PFI feel that DBFO transactions are likely to be in substance little more than financing arrangements that aim primarily to give a public body access to borrowed funds, such as finance leases and other arrangements deferring payment. However, given sufficient risk transfer, the capital investment undertaken by the private sector is not to count against public sector capital spending limits.

16.11 In this context, the Government has promoted use of the DBFO mechanism to encourage greater private financing of roads. Similar to a Build-Operate-Transfer (BOT) arrangement, the development and maintenance of a road segment is transferred to the private sector for a specified period of time. The difference is that under a DBFO arrangement the concessionaire typically leases the facility to the Government in return for “shadow tolls” based on estimated traffic volumes.

16.12 A “shadow toll” is defined as an amount paid to a facility operator based on the number of vehicles handled. However, this fee is *not* paid directly by the facility users. Rather, payments come from a fund that may or may not be related to the road users. Payments are typically proportional to vehicle kilometers of travel on the facility, rather than just the number of vehicles handled, and vary by the type of vehicle in rough proportion to the maintenance and operating costs incurred. Shadow tolls thus automatically allocate periodic or annual payments to a facility operator over a concession or franchise period, putting the initial financing responsibility on the developer/operator rather than on the public sector agency sponsoring the project.

16.13 The use of shadow tolls implies that:

- traffic risks can be borne directly by the toll road developer/operator;
- multiple sources of revenue can contribute to the shadow toll payment fund; and
- project cost obligations of the public sector sponsor can be known and guaranteed in advance, within the precision of the underlying traffic forecasts.

16.14 Shadow toll payments are negotiated directly with the Government and are specified in the DBFO contract. Other objectives of the shadow toll system have included encouraging the development of a road operating industry and the gradual acceptance of direct tolling.

16.15 At present, 19 privately financed toll road projects have been put forward in one form or another. Of these, only the three bridges mentioned previously have been completed and are open to traffic. These three projects are addressed in greater detail in the following sections, while Table 1 gives the status of all privately financed toll road projects in the United Kingdom. The subsequent sections also consider two additional projects of interest that are not yet complete, the Birmingham Northern Relief Road and the M1-A1 Link Road, as well as a brief case study of the “portfolio” approach to toll road development practiced by the Road Management Group Limited.

**Table 17-1 Status of All Privately Financed Toll Road Projects  
in the United Kingdom, Late 1998**

No.	Project Name	Length (km)	Status
1	Dartford River Crossing	2.8	In operation (1991)
2	Skye Bridge	2.5	In operation (1995)
3	Second Severn River Crossing	5.0	In operation (1996)
4	Birmingham Northern Relief Road	48	Contract awarded
5	M1-A1 Motorway Link, Leeds	29	Under construction
6	A69 Newcastle to Carlisle	84	Under construction
7	A1 Alcombury to Peterborough	21	Under construction
8	A417/A419 Swindon to Gloucester	51	Under construction
9	A50/A564 Stoke to Derby link	56	Under construction
10	A30/A35 Exeter to Bere Regis	101	Under construction
11	M40 junctions 1-15	122	Under construction
12	A168/A19 Dishforth to Tyme Tunnel	117	Under construction
13	M6 junction44 to Guardshill	10	Under construction
14	A6/A43 South Midlands Network	249	Pending
15	A65(M6) Cumbria to Bradford	105	Pending
16	A21/A27 Weald and Downland	116	Pending
17	A36/A303 Wessex Link	200	Pending (partly cancelled)
18	A13 Thames Gateway	37	Call for proposals
19	A40 West London Approach	24	Cancelled

Source: *DBFO - Value in Roads* (1997), as cited in: Naoki Fukushima, London Center, JETRO, “Eikoku ni Okeru PFI no Genzyou to Kadai” [The Current Situation and Problems of the Private Finance Initiative in the United Kingdom, in Japanese], Overseas Construction Association of Japan, Inc., March 1998.

16.16 **Dartford River Crossing.** The 2.8-km Second Dartford Crossing is a 30-year BOT franchise for the construction of a new cable-stayed bridge over the Dartford River near London. The bridge was built to add vehicular capacity in a corridor currently served by two

tunnels that cross the river as a part of the M25 ring road around London. The total project cost was US\$329 million, or US\$117.5 million per km—more expensive than for a typical road, but in line with the costs of comparable bridge projects. All costs are expected to be recovered through toll revenues due to the strong demand for motorized travel across the river at this location. The Dartford River Crossing is currently accommodating 120,000 vehicles per day, which is consistent with the Government's initial expectations for the project. In fact, the high traffic volume on the bridge has prompted discussion of possibly adding more vehicular capacity with two additional north-bound lanes and one additional south-bound lane. The Dartford River Crossing utilizes a system of electronic tolling to speed the flow of cars and trucks. Although the project is a not-for-profit enterprise (like all existing and planned toll facilities in the United Kingdom), it has consistently registered operating profits since it opened to traffic in 1991, all of which have so far been used to pay off the construction debt.

**16.17 Skye Bridge.** The Skye Bridge links the Isle of Skye, off the northwest coast of Scotland, to the mainland, a distance of 2.5 km including access roads. The island had long been served by ferries, but increasing traffic volumes led to considerable delays at peak times due to capacity constraints on the ferries. First proposed in the 1930s, bridge construction was not extensively debated until the 1960s. A report by the Scottish Council in 1969 recommended that a bridge be built and that the necessary funds be raised through tolling. This report triggered a 20-year public debate considering of traffic growth patterns; the possibilities of existing and future ferry services; the economic, socioeconomic, and environmental impacts of a bridge crossing; and the examination of possible alternative routes.

16.18 In 1989 the Scottish Office announced a competition for the concessioned construction and operation of the Skye Bridge as a toll facility, for a period not to exceed 25 years. The tolls for each category of vehicle were not to exceed the current charge for the ferry, and were to be pegged to the retail price index over the life of the concession. Ten prequalification submissions were received from six groups including French, German, and Danish consortia in addition to British companies. In February 1990 three of the prequalifiers<sup>185</sup> were selected to submit detailed proposals for the design, financing, construction, and operation of the bridge, and in April 1991 the Miller-Dywidag consortium was ranked first. Miller's strengths included a strong local base of previous contracts and a good track record of construction throughout Scotland, while Dywidag's strengths included their expertise in the design and construction of concrete box girder bridges.

16.19 The funding package was made up of UK£15 million of senior debt to be paid back over a 14-year term and UK£10 million of index-linked subordinated debt over a 20-year term. There was nominal equity of only UK£1,000. Underpinning the cash flows was a traffic forecast prepared by the consortium's consultants, which demonstrated that future toll revenue ought to be sufficient to redeem the debt within the life of the concession. All contractual documents were signed on December 16, 1991, and financial closure was achieved on January 23, 1992. The requisite formal public enquiry took place during the first two weeks of February 1992 and Construction commenced in June 1992. The construction phase of the project was completed in the summer of 1995 and the bridge officially opened to traffic in October 1995.

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<sup>185</sup> Trafalgar House, Morrison, and a joint venture between Miller Civil Engineering and Dyckerhoff & Widmann AG (Dywidag) were the three prequalified teams selected to submit detailed proposals.

16.20 **Second Severn Crossing.** After eight years of design, planning, and official reviews, the Severn Bridges Act was enacted on February 13, 1992, establishing the legal framework for the development of a second toll bridge crossing over the Severn River. The new 5-km bridge between England and Wales is around 5 km downstream of the original 30-year-old suspension bridge and was opened to traffic on June 5, 1996. The new crossing comprises two 2-km long concrete viaducts and a 900 m cable-stayed bridge with a 456 m main span.<sup>186</sup> Due to strong currents and the world's second highest tidal range, the project was internationally acknowledged to have been a major technical and engineering challenge.

16.21 Under concession to the Government of the United Kingdom, John Laing Construction, in joint venture with GTM Europe, was responsible for the design and construction of the UK£330 million project, while COFIROUTE, the only remaining private sector toll road utility in France, was contracted to operate and maintain both crossings for up to 30 years. As with the Dartford Crossing project described previously, revenue collection rights to the existing bridge crossing were granted to the bridge developer to cover losses during the construction period and any revenue gap after opening, and to ameliorate risks associated with future traffic revenues.

16.22 A project company called "Second Severn Crossing, Severn PLC" was formed as a public limited company (PLC) in the United Kingdom with the minimum allowable equity capital of £100,000, split equally between ordinary stock and preferred stock. The debt component comprised: £131 million in indexed linked debt; UK£150 million in European Investment Bank loans, with a UK£150 million standby letter of credit; and UK£190 million in floating rate bank loans.

16.23 As an incentive for investors to participate in the project, toll rate increases were allowed as high as six percent above the inflation rate on the existing bridge during project construction. Upon completion, toll increases have been limited to the rate of inflation (RPI). As with the Dartford River Crossing, this project also utilizes an electronic toll collection system. Although original cost forecasts for the Second Severn Crossing were as high as US\$853 million, the project was completed on time, within budget, and without loss of life or limb. The final total cost of the project was US\$511 million.

16.24 **Birmingham Northern Relief Road.** The Birmingham Northern Relief Road (BNRR) is a proposed 48-km, dual three-lane tolled motorway which, together with the proposed Birmingham Western Orbital Road, would complete a motorway ring around the West Midlands conurbation. BNRR would form a bypass around a particularly congested segment of M6, the free motorway through Birmingham, England. It represents the first overland toll road in the United Kingdom, and it is the largest new road proposed in the current roads program.

16.25 The consultation process for the Birmingham Northern Relief Road began in 1984, but it was not until 1990 that a shortlist of three was prepared from the prequalification stage. A 54-year franchise was ultimately awarded to Midland Expressway, a private joint venture between Trafalgar House (now Kværner PLC) and an Italian firm, in February 1992. The concession agreement allows for a three-year construction and a 50-year operating period.

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<sup>186</sup> This is the longest cable-stayed span in the United Kingdom.

The project is unique in that its franchise does not limit the developer's return on investment—accordingly, Midland Expressway has a great incentive to complete the project on schedule to avoid losing near-term revenues and suffer from a shortened operating period. The Government's position on whether to toll the highway directly or through "shadow tolls" has not yet been taken. However, the investment structure of the concessionaire will require revenue generated by toll collection to total about UK£100,000 per day. At that rate, repayment of the estimated UK£450 million construction cost with interest would take just over 12 years.

16.26 The project company was officially awarded the concession in 1997, but construction has not yet begun largely due to strong local opposition. As per the New Roads and Street Works Act of 1991, the project is being reviewed through a formal public inquiry, and an opposition campaign has been coordinated by a coalition called the Alliance Against the Birmingham Northern Relief Road. They have put forward a number of arguments against the highway.<sup>187</sup>

- BNRR would destroy 42 km of Green Belt and damage two nationally important Sites of Special Scientific Interest (SSSI), one severely.
- BNRR is likely to generate additional car traffic, because of probable local land use changes of a type that would encourage vehicular access by the BNRR, and because the new road itself would encourage extra car journeys on the existing local road network. This impact would undermine the Green Belt policy and increase overall vehicular travel.
- BNRR would not generate new economic activity, regionally or nationally, but would instead lead to the relocation of businesses away from the inner city and into the Green Belt.
- Whether tolled directly or not, BNRR would fail to reduce congestion on roads in the West Midlands overall and specifically on the existing M6 highway.
- BNRR would increase traffic on the existing M6 north and south of the conurbation adding delays to long distance through traffic, which in turn . This would lead to further publicly financed road widening which would then encourage further traffic growth.
- A cost-benefit analysis of the private sector led BNRR proposal was never carried out, although such an evaluation would method normally be required to quantify the economic returns of a new road.

16.27 **M1-A1 Link Road.** In March 1996, the Yorkshire Link Limited (YLL) consortium was awarded and closed financing on a DBFO concession by the Government's Highways Agency for a new motorway linking the M1 and M62 south of Leeds to the A1, east of the city. The 30-km, predominantly greenfield project includes the design and construction of a new dual three-lane motorway and the construction of new link roads, interchanges, and junctions. With a construction contract value of nearly UK£300 million, the project is the largest ever awarded by the Highways Agency and is the flagship of the Government's privately financed roads initiative. YLL comprises Kværner PLC and BICC PLC.<sup>188</sup>

<sup>187</sup> West Midlands Friends of the Earth, *BNRR Briefing: Six Reasons Why the Government Should Not Approve the Birmingham Northern Relief Road*, April 24, 1997.

<sup>188</sup> Kværner PLC purchased the former Trafalgar House PLC, and BICC PLC replaced George Wimpey PLC in the YLL consortium following the acquisition of Wimpey Construction by Tarmac PLC.



16.28 The road is to be opened upon total completion, not in stages, and the opening is planned for Spring 1999. Upon completion, the new road will be owned by the Government's Highways Agency, with the company to provide the technical expertise and financing to create the link, in return for which it will be reimbursed by the Highways Agency for each vehicle that uses the road, following the "shadow tolling" concept. Vehicles will be categorized as light vehicles or heavy goods vehicles.

16.29 During the initial project stages, the actual timetable from Invitation to Tender to Financial Close was about 15 months. While this may seem longer than necessary for a project for which the Highways Agency and its advisers had undertaken substantial preparation, there are a number of explanations for the time taken, as detailed below:

- The M1-A1 project was a greenfield road project with minimal relevant historical traffic data.
- It was among the first roads for which financing was to be based on the concept of "shadow tolling."
- It was the first time the Highways Agency had undergone such a process and the first time its internal staff, at all levels, had been required to negotiate this type of contract.

16.30 A consortium of commercial banks provided the largest component of the nearly UK£300 million funding structure. The projected sources of funds were 81 percent from senior debt, 11 percent from subordinated debt, seven percent from shareholder funds, and the remaining one percent from revenue during construction.

16.31 Overall, the timetable was short for a transaction with multiple sources of finance and set some useful precedents for successive transactions such as the managing of inter-creditor issues, the introduction of third party financial institutions, the involvement of the European Investment Fund with Deutsche Morgan Glenfell and Royal Bank of Scotland in a novel subordinated debt structure, and the creation of a traffic revenue risk matrix acceptable to the Government, lenders, and investors.

16.32 Another innovative financing arrangement was devised by the Highways Agency with respect to traffic risk. The Highways Agency's "split banding" scheme has resulted in different levels of traffic volume risk being assumed by different financiers. In the hypothetical case, "Band 3" would cover equity upside returns, "Band 2" would cover subordinated debt service and equity returns, and "Band 1" would cover operating costs and senior debt service. In this example, senior lenders would be uncomfortable if revenues were at Band 1 level, but the YLL would be solvent. This split banding approach enabled the shareholders to compensate for the lenders' conservative approach by accepting lower returns at the lenders' base case volume level than originally intended. Nonetheless, given the lack of historic traffic flows, the traffic volume debate continued throughout negotiations.

16.33 **Portfolio Approach of the Road Management Group Limited.** The Road Management Group Limited (RMG) of the United Kingdom presents a good example of a "portfolio" approach to toll road development. RMG was created to tender for "shadow" toll road projects arising from the PFI program. In October 1995, the Government selected RMG

as the preferred bidder on two road projects, the A1(M) between Alconbury and Peterborough and the A419/A417 between Swindon and Gloucester. In March 1996, Lehman Brothers and SBC Warburg underwrote a UK£165 million, 25-year, fixed rate bond issue to partially fund the two projects, and arrange a UK£111million 25-year European Investment Bank (EIB) loan facility to provide the remainder of the required senior debt financing. This complex financing represented the first-ever PFI financing in the capital markets.

16.34 Two concession companies, Road Management Services (Petersborough) Limited for the A1(M),<sup>189</sup> and Road Management Services (Gloucester) Limited for the A419/A417, entered into DBFO contracts with the Secretary of State for Transport to widen and improve the roads, and to operate and maintain them for 30 years. The financing for the two road projects was raised through Road Management Consolidates PLC (RMC), a newly created special purpose financing vehicle (wholly controlled by RMG) that provides funds to the individual RMS companies through back-to-back on-loans. This structure allowed cross-application of dividends so each project could support the other. It also enabled projected interest coverage levels to be tighter than they could have otherwise been, thus lowering total financing costs. In addition, combining two different roads diversified the lenders' risks. It eliminated the need for two separate financing structures, minimized the duplication of documentation and negotiation with financing parties, and created a public bond offering large enough to maintain adequate liquidity and to meet demand at the long end of the sterling bond market.

### OOO. Major Toll Road Issues and Implications for Best Practices

16.35 **Overview.** The experience in the United Kingdom raises a number of major issues with respect to the development of toll roads, with important implications for best practices elsewhere. These issues and/or best practices include:

- appropriate sharing of revenue risks;
- the compatibility between appropriate profit levels and effective incentives for the private sector;
- the appropriate scope and procedures for government review of private sector projects;
- the monitoring of project activities through a public inquiry and/or independent committee process;
- the importance of using an experienced contractor; and
- innovative financing in a mature financial environment.

Each is addressed below.

16.36 **Appropriate Sharing of Revenue Risks.** Although PFI policies specify that the “great majority of risk” should be borne by the private sector, revenue risk remains largely with the Government due to legal restrictions against the imposition of tolls on the existing facilities and the introduction of the “shadow toll” program. Revenue risk is the most crucial

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<sup>189</sup> In the United Kingdom, “A” denotes a national highway (lower speed and standard of design) and “M” a motorway (higher speed and standard of design).

issue for a toll road project that is beyond the private sector's control, and the Government's policy largely relieves the private sector from shouldering this risk in a significant way.

**16.37 Compatibility between Appropriate Profit Levels and Effective Incentives for the Private Sector.** Toll road project arrangements in the United Kingdom provide evidence of the importance of providing for compatibility between appropriate profit levels and effective incentives for the private sector. Legal restrictions and public resistance to direct tolling has required the development of new schemes, such as shadow tolling, to establish an incentive structure conducive to efficient performance by the private sector. Regulatory schemes, such as price ceilings for tolls or concession structures that transfer operating rights when profits are greater than investment costs, must be considered carefully so as not to limit investor returns to unacceptable levels.

**16.38 Appropriate Scope and Procedures for Government Review of Private Sector Projects.** With the exception of the Dartford River Crossing, all of the toll road projects in the United Kingdom have experienced lengthy design, official review, and legislative approval periods. Although the extensive review process may allow for a rigorous assessment of cost and traffic forecasts, these delays may reduce investor interest and confidence in the projects. In addition, the official review process has become somewhat politicized, which has limited some of the efficiencies that had been originally expected from the PFI. The most recent attempt to address such issues has come in the form of a Treasury Taskforce exercise to produce a template contract document for concessions and other privately financed deals. With these guidelines, the Taskforce intends to encourage a common understanding of standard risks in privately financed projects, introduce consistency in approach and pricing in a range of similar projects, and reduce negotiating time and cost. The proposed document underwent a final review in March 1999, and is due to be released later in the year.

**16.39 Monitoring of Project Activities Through a Public Inquiry and/or Independent Committee Process.** The Transport and Works Act of 1992 unified the legal process required to enable infrastructure projects. As such, close monitoring of the project formulation process by a third party is necessary to implement projects fairly and avoid corruption. This requirement is particularly essential for infrastructure projects that mobilize large sums of money. In addition, as witnessed with respect to the Birmingham Northern Relief Road (and other projects), environmental and community issues must be addressed from the start. However, this process may involve issues that are most appropriately addressed between the government and its citizens, well before the private sector is introduced. The process often involves achieving consensus on long-range goals and plans for the community—including the overall role of highways in the future transportation and land development plan most desired by local residents.

**16.40 Importance of Using Experienced Contractors.** As was the case with the Skye Bridge, the contractor's experience and demonstrated ability to implement a specific technology and/or to overcome unexpected difficulties can prove critical to technically or administratively complex projects. This implication is no different for PFI/PPP-type projects than it is for traditional contracts, and it should not be overlooked during proposal evaluation.

**16.41 Innovative Financing in a Mature Financial Environment.** In the case of the two RMG projects, joint financing made sense because it created portfolio diversification and

economies of scale. This kind of approach may provide a foundation for a project company to grow into a large operating company, capable of performing more pooled financing and eventually able to raise funds on its own based on the combined financial strength of its entire portfolio of projects. This lesson is directly relevant to BOT project promoters everywhere.

16.42 It is also interesting to note that by using revenues from existing crossings to mitigate start-up risks of the new projects, the Dartford Bridge and Second Severn Crossing project companies were able to bring their endeavors to a fully operational state successfully despite having extremely high debt-to-equity ratios. This approach is termed “pinpoint equity,” a technique that may be used to relieve investors from the problem of slow returns on their investment through dividends. This technique may also potentially lower the cost of capital (because of the stable revenues from the existing project), in turn lowering the toll rate required to pay off the project debt and transfer the bridge back to the Government quickly. This approach was coupled with an inflation rate-indexed bond issue; the bond was listed in order to allow immediate liquidity and avoid the project financing drawback of investors’ capital being tied-up over a long term.

16.43 These types of innovative financing schemes are all possible in a mature financial environment, such as exists in the United Kingdom, and private sector project proponents planning to raise funds for their projects should be well aware of such strategies.

### PPP. Sources

*Toll Road Program in the United Kingdom: A Policy and Financial Review*, Draft Country Paper prepared by the World Bank, Private Sector Department, 1997.

J. L. Carlile, formerly Group Managing Director, Gammon Construction Ltd. and Managing Director, Dartford River Crossing Ltd., *Private Funding of Public Highway Projects*, April 1994.

John Carson and Dimitrios Hatzis, Miller Civil Engineering Ltd. and Peter Hodgson, Barclays de Zoete Wedd Ltd., “Skye Bridge in Scotland,” *Projects Procured by Privately Financed Concession Contracts, Volume 2, Asia Law & Practice*, April 1996.

Nigel Smith, University of Leeds, “Birmingham Northern Relief Road” in *Projects Procured by Privately Financed Concession Contracts Volume 2, Asia Law & Practice*, April 1996.

Anthony Forshaw, Deutsche Morgan Grenfell, Financial Adviser to YLL, the successful consortium for the M1-A1 ring road, “A UK DBFO Case Study,” in *Project Finance International* No. 107, October 1996.

Henry A. Davis, *Project Finance: Practical Case Studies*, Euromoney Books, UK, 1996, Chapter 9, pp. 209-19.

“UK Taskforce Sets BOT Contract Template,” *Public Works Financing*, February 1999, p. 9.

Raymond Tillman [Senior Vice President, URS Greiner, Inc.], “Shadow Tolls and Public-Private Partnerships for Transportation Projects,” in *Journal of Project Finance*, Summer 1997.

# 17

## United States: Reluctance to Toll in the Land of the Free (Ride)<sup>190</sup>

### QQQ. Country Background

17.1 The United States has the largest and most diverse and technologically advanced economy in the world. Its market-oriented structure relies heavily on private individuals and business firms. Since a brief recession in the early 1990s, the United States has enjoyed considerable economic prosperity, as measured by gains in real output, low inflation rates, and a drop in unemployment below 5 percent. Annual GDP growth has exceeded 2.0 percent per annum every year since 1992, with growth figures for 1996, 1997, and 1998 amounting to 3.45, 3.93, and 3.85 percent respectively.<sup>191</sup>

17.2 Although the United States has a vast and heavily used multimodal network of transportation infrastructure, public investment priorities for land transport during most of this century have focused almost exclusively on roads and highways. As a result, the country is now highly dependent on motorized vehicles, particularly for passenger transport. More than 95 percent of motorized land-based passenger trips in the country are by private car or truck on public roads. There are approximately 6.3 million km of public roads in the United States, of which nearly 85,000 km are urban and rural express highways. The nation's extensive private railway network, totaling nearly 200,000 km, is used primarily for freight transport—especially that of bulk commodities. Measured in ton-km, railways carry more than 55 percent of overland freight traffic in the United States.<sup>192</sup>

### RRR. Major Toll Road Developments

17.3 **Brief Toll Road History.** As early as 1792, with the construction of the Philadelphia and Lancaster Turnpike in Pennsylvania, toll roads began to play an important role in the development of the United States. By 1806 the Federal Government passed legislation to fund the first National Road heading westward from the State of Maryland to the Ohio River, and from this point up through the “good roads movement” at the end of the 19<sup>th</sup> century tolls played an important role in the development, administration, and maintenance of major intercity routes. In 1893 the Federal Office of Road Inquiry was established, and the Post

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<sup>190</sup> In addition to information collected during a field visit to the United States in August-September 1998, this case study draws most extensively from two excellent papers: (i) Ralph C. Erickson, *New Road Ahead: The Development of Public Private Partnerships in the United States*, USDOT-FHWA, 1997; and (ii) *The Toll Road Program in the United States*, Draft Country Paper prepared by the World Bank, Private Sector Department, 1997. A complete list of the sources for this paper is presented in Section 4.

<sup>191</sup> United States Department of Commerce on-line statistics (<http://www.bea.doc.gov/bea/dn1.htm>)

<sup>192</sup> However, measured by value (revenue ton-km), railways in the United States carry just over 45 percent of freight traffic.

Office Appropriation Act of 1912 began the continuing legacy of “Federal-aid roads.” However, the first Federal-aid Highway Act in 1916 allowed no use of Federal-aid funds on toll facilities.

17.4 Although Congress permitted Federal-aid highway funding to be used to construct toll bridges and approaches in 1927, the first modern toll roads in the United States, dating from the 1930s, were still not eligible for federal funds. Nevertheless several major highways were built or planned in the following two decades using toll revenue to pay for construction debt and operating expenses. However, the advent of the 90 percent federally funded “Interstate System” of non-tolled expressways in the 1950s brought about a near cessation in the development of toll roads until only recently. A vestige of pre-Interstate toll road development, most American toll facilities are still located in the east, but several western and southern states are now contemplating or building toll facilities.

17.5 In the 1960s the Federal Government’s various transportation-related agencies were merged into the Cabinet-level United States Department of Transportation (USDOT). The administration responsible for highway development on the national level is the Federal Highway Administration (FHWA), while each of the 50 state governments also have their own state-level Departments of Transportation (DOT). Historically the Federal Government has provided generous funding to the states for highway development. As such, until recently only a few states have sought to develop independent funding mechanisms for new highways, while all have followed Federal rules and regulations closely. There are currently a total of 84,900 km of urban and rural express highways in the United States, of which only 5,660 km (6.7 percent) are tolled. Of urban expressways alone, 2,410 km (or 7.8 percent) are tolled. A profile of existing and planned toll highway facilities in the United States is presented in Table 1.

Table 18-1 Number of Toll Highway Facilities in the United States, 1997

	Interstate System	Non-Interstate System	Planned
Toll Roads	44 (in 14 states)	71 (in 17 states)	26 (in 8 states)
Toll Bridges and Tunnels	33 (in 9 states)	115 (in 28 states)	16 (in 4 states)

Source: U.S. Department of Transportation, Federal Highway Administration  
(of 50 states total)

17.6 **Recent Toll Road Finance Initiatives.** Since the 1980s there has been a renewed interest in toll financing for highways in the United States, which has been brought on by five primary factors:

- Declining availability of state and federal funds for new highway construction and capacity expansion;
- Deterioration of the nation’s existing highway infrastructure while demand continues to grow;
- Opportunities for innovative financing, including combined funding sources such as toll revenue, tax increment financing, and developer impact fees;
- The attraction of private sector participation in the financing, development, and operation of toll facilities, due to their strong revenue potential; and
- Increasing automation, which reduces toll collection costs, congestion, and delay, and opens up traffic management-based pricing opportunities.

17.7 Toll roads, bridges, and tunnels in the United States are typically financed, built, and maintained by turnpike commissions and authorities, city and county operating authorities, state DOTs, and to an increasing (but still minor) degree private developers and operators. The most common financing methods include:

- general obligation bonds,
- toll revenue bonds,
- lease arrangements,
- gasoline tax revenues,
- federal assistance, and
- private sector financing.

17.8 Only recently has Congressional transportation legislation begun to provide more flexibility in using Federal-aid highway funds for improvements to toll facilities. The most significant changes to these laws were enacted in 1991 with passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). Currently, toll road activities eligible for Federal-aid highway funding include:

- initial construction (except on the Interstate System) of toll highways, bridges, and tunnels, including approaches to these facilities;
- reconstruction, resurfacing, restoration, and rehabilitation of existing toll facilities;
- conversion of free bridges or tunnels to tolled upon reconstruction or replacement;
- conversion of free highways (except Interstates) to tolled upon reconstruction; and
- preliminary feasibility studies for the above toll construction activities.

17.9 If Federal-aid funds are used for a toll facility, or if a State plans to reconstruct and convert a free highway, bridge, or tunnel previously constructed with Federal-aid highway funds to a toll facility, a “toll agreement” is required. The toll agreement is executed between the Federal Highway Administration, the State-level Department of Transportation, and the toll authority. The toll agreement must require that all toll revenues are first used for any of the following: debt service, reasonable return on private investment, and operation and maintenance, including reconstructing, resurfacing, restoring, and rehabilitating work. Excess revenues are allowed to be used for authorized highway and transit purposes as long as the toll facility is being adequately maintained. The issue of whether a toll facility is to become free when debt is retired or at some other future point in time or whether tolls are to be continued indefinitely is a matter to be determined by the states on a case-by-case basis. Decisions regarding the amount of tolls charged are made by the toll authority subject to requirements under state and local laws and regulations. These decisions require no review or input from the Federal Highway Administration.

17.10 **Public-Private Partnerships.** The most innovation in highway development has come in the area of public-private partnerships. Such partnerships in the United States have been typically reached between state governments and private sector highway development consortiums. They have been primarily intended to:<sup>193</sup>

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<sup>193</sup> Ralph C. Erickson, *New Road Ahead: The Development of Public Private Partnerships in the United States*, USDOT-FHWA, 1997.



- provide each entity with the ability to carry out the functions that each is best suited to pursue;
- provide a balance between the equity and decision-making responsibilities of the public sector, and the market-driven competitive efficiencies of the private sector; and
- increase the general welfare for society through the provision of highway facilities relative to what is possible through existing institutional arrangements.

17.11 The recent history of public-private partnerships in toll road development has been influenced by decisions taken both at the state and federal levels. Before any action took place at the federal level, several states (and one territory) passed legislation to allow private sector participation. These jurisdictions include: Virginia (1988), California (1989), Missouri (1990), Puerto Rico (1990), Arizona (1991), Florida (1991), and Texas (1991). Then in 1991 the ISTEA legislation was enacted, granting state and local governments more flexibility in generating new capital for highway investments. Specific provisions of the ISTEA legislation provided new directions for the Federal-aid Highway Program for toll facilities and for public-private cost-sharing as described above, while also providing for a “congestion pricing pilot program.”

17.12 States passing public-private partnership legislation since 1991 have had the advantage of being able to incorporate the Federal ISTEA provisions into their regulations. of Washington (1993), Minnesota (1993), Delaware (1995), South Carolina (1995), and Oregon (1995) may be included in this “second generation” of state-level public-private highway legislation. Virginia (1995), Washington (1995), and Arizona (1996) have also revised their earlier legislation. These states have had mixed success in implementing new toll facilities however. Finally, since ISTEA the Federal Government has enacted further legislation in 1995 and 1997 launching three major highway initiatives with public-private partnership components: (i) an innovative finance test and evaluation project; (ii) a “State Infrastructure Bank Pilot Program;” and (iii) a “Congestion Pricing Pilot Program.”

17.13 The following sections briefly describe recent innovative toll road development efforts in two states that have been at the forefront of public-private participation in the highway sector, Virginia and California. A synopsis of other recent notable toll road developments across the country is also included.

17.14 **The Dulles Greenway in Virginia.** In the 1960s Dulles International Airport was built in rural Loudoun County, 40 km northwest of central Washington, D.C., to provide service for the entire metropolitan area. In order to hasten access to the remote airport site, a 20-km untolled dedicated expressway<sup>194</sup> was built from the Washington “Beltway” (circumferential highway) to the terminal complex. In the ensuing years, the Fairfax County farmland along this road became increasingly developed in an automobile-oriented fashion, and the state came under increasing pressure to provide access to adjoining land in the airport road corridor. Ultimately, the Dulles Airport Authority allowed the Virginia Department of Transportation (VDOT) to build a toll road in the airport access road corridor, and

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<sup>194</sup> In order that the road be used exclusively for airport access, its design features only on-ramps in the direction to the airport, and only off-ramps in the direction away from the airport.

construction was completed in 1984. The Dulles Toll Road, as it was called, was the first toll highway in the state, and it soon became a heavily traveled and profitable facility.

17.15 In order to accommodate additional land development in more remote parts of Loudoun County, in the late 1980s VDOT became interested in extending the State-owned toll road another 22.5 km to the town of Leesburg. At about the same time (1988), Virginia passed a law authorizing private sector entities to propose, finance, build, and operate toll highways. Shortly thereafter a private consortium advanced plans for developing the Dulles Tollway Extension as a purely private undertaking—the first of its kind under the new state law, and the first privately built toll road in the United States in more than 100 years. The great success of the existing Dulles Toll Road made the prospect of owning an extension favorable to investors, and the state ultimately decided to let the private company build and operate their proposed \$326 million road for a period of 40 years, after which the highway will revert to State ownership.

17.16 The development consortium, Toll Road Investors Partnership II (TRIP II), is a joint venture among Shenandoah Greenway Corporation of Virginia, toll road operator Autostrade International of Italy, and contractor Brown & Root Inc. of Texas.<sup>195</sup> The Dulles Greenway, as the Extension came to be called, was opened to traffic on September 29, 1995—two years to the day after construction commenced, and six months ahead of the original schedule but with moderate cost overruns. Despite the quick start, the project has nonetheless suffered cash flow problems from day one. The traffic forecasts upon which financing decisions were made did not accurately address the issue of toll sensitivity, and motorists appeared to be turned back by the \$1.75 charge, which was more than double the rate of the existing Dulles Toll Road. In addition, there was no marketing of the road and less land development in the corridor than initially anticipated. To make matters worse, the first six months of Greenway operation also saw a two-week “shutdown” of the region’s largest employer (the Federal Government), and a record-breaking heavy snowstorm that paralyzed the region for a week. The combined effect was traffic levels of just over 8,000 vehicles per day—well under the 35,000 forecast to be traveling and paying a \$2.00 toll in the project’s first year of operation.

17.17 Over the ensuing three years, the equity partners have had to absorb much of the financial pressures, but still maintain that the project is on a comeback course.<sup>196</sup> An “emergency” toll reduction to \$0.90 was authorized by the state government and put in place in March 1996, boosting patronage to nearly 15,000 vehicles per day. Since then the toll has been raised again to \$1.15 and ridership has grown at a steady rate to about 35,000 trips per day at present. While sufficient to cover operating costs, the current revenues are still only about half of what would be needed to cover debt payments. The owners have been in default since July 1996 and have accumulated US\$70 million in unpaid debt service, and their “standstill” agreement with their creditors expired on January 1, 1999. In advance of this deadline, the TRIP II partnership proposed a comprehensive financial restructuring plan that is now being reviewed by the Virginia Public Utility Commission under the 1988 legislation that enabled the road (rather than the more flexible public-private legislation passed in

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<sup>195</sup> The equity stakes of the partners are divided 58 percent, 30 percent, and 12 percent, respectively. The debt to equity ratio was 1.35. Shenandoah is wholly owned by the wealthy Bryant family of Northern Virginia.

<sup>196</sup> By not following all State and Federal environmental rules, the developers precluded options for government aid later in development when some of the cash flow concerns might have been more apparent.

1995).<sup>197</sup> The new proposal calls assumes much lower ridership and revenue growth (in line with the actual trends) and keeps tolls below two dollars until 2009. It also spreads financing out until the end of the 40-year operating concession, nine years longer than originally anticipated and at a price of US\$575 million more than the initial total of US\$855 in principal and interest payments. All three original investors in TRIP II are also seeking to sell their stakes as part of the financial restructuring.

**17.18 An Innovative Toll Road Development in California.** Assembly Bill 680 of 1989 authorized the California Department of Transportation (Caltrans) to enter into franchise agreements with private partners for up to four toll road projects. The first of these projects, the State Road 91 “Express Lanes,” was proposed, developed, financed, and constructed by the California Private Transportation Company (CPTC),<sup>198</sup> which, upon construction completion, transferred project ownership to the State and entered into a 35-year lease to operate and maintain the highway. The existing SR 91<sup>199</sup> was a heavily congested free expressway in a valley corridor for which there are no convenient alternate routes. The Express Lanes project added two new “express” travel lanes in each direction using the space in the median of the existing highway. To pay for 16 km project, the first-ever application of congestion pricing on a U.S. toll facility was instituted. Charges for the road vary by time of day, ranging from \$0.60 overnight to \$3.20 in the morning peak hour, and all vehicles using the lanes must be equipped with an electronic transponder for toll collection.<sup>200</sup> Higher peak period tolls also help to limit the flow of motorists entering the Express Lanes so that travel speeds remain stable at all times, allowing commuters to save up to 20-30 minutes in each direction during peak periods.

17.19 Unlike traffic on the Dulles Greenway, traffic in the established SR 91 corridor was more predictable, and the highway has attracted substantial use from the outset. Construction began in July 1993 and the new lanes opened to toll traffic in January 1996. Daily usage varies depending on congestion in the adjacent free lanes, but averaged just over 20,000 vehicles per day upon startup—increasing to about 35,000 vehicles per day at present.<sup>201</sup> The CPTC partners put forward a total of US\$30 million in equity and borrowed another US\$101 million to finance the highway, realizing significant capital cost savings as no land needed to be acquired. By March 1996 toll revenues for the facility had reached a level sufficient to cover operating expenses, and by June 1998 it was taking in enough revenues to meet debt payments as well. However, in order to achieve a cash-positive position, CPTC has had to raise tolls beyond what was initially anticipated, and also exercise a contract clause that allows them to charge half-price fares for “high-occupancy” (three persons or more) vehicles that had formerly been able to travel for free. Late in 1998, CPTC proposed selling their

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<sup>197</sup> The 1995 rules allow toll roads to be developed by not-for-profit corporations that are effectively controlled by the state government. Such entities are permitted by federal tax codes to issue low-interest tax-exempt debt—significantly improving toll road financial viability.

<sup>198</sup> The project was originally planned as an untolled “high occupancy vehicle” lane expansion, but a lack of public funds made private participation necessary. The CPTC consortium initially included the United Infrastructure Company (UIC) and French toll road operator Cofiroute, although highway contractor Granite Construction Inc. and Level 3 Communications (a division of the construction giant Peter Kiewit Sons’ Inc.) have recently replaced UIC.

<sup>199</sup> Known as the Riverside Freeway, the 8-lane existing highway connects job centers in Orange County and rapidly growing bedroom suburbs on the east side of the Santa Ana mountains in suburban Los Angeles.

<sup>200</sup> The SR 91 Express Lanes thus also became the first fully automated toll highway in the United States.

<sup>201</sup> More than 100,000 transponders have been distributed so far.

assets to a special purpose non-profit public benefit corporation, a move that would transfer the franchise and lease of the road (but award a long-term contract back to CPTC for its operation) and allow the refinancing of all debt at low-interest tax-free rates. The new financing would save up to US\$100 million in interest payments over ten years and allow lower tolls to be charged to road users, but it has so far been received unfavorably by the state government.

17.20 In 1984 and 1985 legislation not associated with AB 680, the California legislature also authorized certain state agencies to collect tolls and development impact fees. Orange County and several of the cities within the county set up a public toll authority called Transportation Corridor Agencies (TCA), and are proceeding with three local projects, all set to open in the next few years. As a public agency, a TCA is also accorded tax-exempt status, but in return it must comply with regulations such as not being able to contract with a private entity to provide toll collection functions for more than five years. The TCA projects are financed at over one billion dollars apiece, and are therefore being watched quite closely by the financial markets. Their size makes them high-profile indicators of the potential success or failure of future public-private partnerships and toll financing in the United States.

17.21 **Other Toll Road Initiatives.** Table 13 briefly summarizes a wide variety of toll road initiatives currently at various stages of implementation throughout the United States.

**Table 18-2 Summary of Ongoing Toll Facility Development in the United States, 1998**

State	Toll Facility Name	Estimated Cost (US\$)	Contract Type*	Lead Public Agency
California	Santa Ana Viaduct Expressway	700	BOT/BTO	Caltrans
California	SR 125, San Diego	450	BOT/BTO	Caltrans
California	Foothill/Eastern	1,500	Turnkey	TCA
California	San Joaquin Hills	1,400	Turnkey	TCA
Colorado	E-470 Beltway	380	Turnkey	E-470 Hwy Auth.
Florida	Osceola Parkway	150	Turnkey	Osceola County
Florida	Orlando Southern Connector	153	Joint Devl Agr.	FDOT
Massachusetts	Route 3 Upgrade	200	DBOM	Mass. Hwy Dept
New Jersey	Atlantic City – Brigantine	405	Turnkey	NJDOT
Ohio	Regional Expressway	100	Mgmt Contract	Butler County
Oregon	Newberg – Dundee Bypass	n/a	BOT/BTO	ODOT
Rhode Island	I-195 Rebuild	225	Concession	RIDOT
South Carolina	Greenville Southern Connector	191.3	Joint Devl Agr.	special agency
Texas	Camino Expressway	80	BOT/BTO	TXDOT
Virginia	Rt. 168 Chesapeake Expressway	110	DBOM	VDOT
Virginia	I-185 Connector	302	Concession	CTB
Virginia	Route 28 Upgrade	138	Turnkey	VDOT
Florida	Midpoint Bridge	195.2	Turnkey	Lee County
Missouri	Lake of the Ozarks Bridge	40	BOT/BTO	MO Hwy Comm.
North Dakota	Fargo-Moorhead Bridge	1.6	Concession	City of Fargo
South Carolina	Charleston Toll Bridge	90	Concession	SCDOT
Washington	Tacoma Narrows Bridge	800	BOT/BTO	WSDOT
Virginia	Hampton Roads Tunnel upgrade	600	Concession	CTB

Source: *Public Works Financing*, "1998 International Major Projects Survey," October 1998.

\* The "contract types" listed above represent how each of the public sector project sponsors have characterized the intended nature of private sector involvement. The terms are intended to be indicative, not definitive.

### SSS. Major Toll Road Issues and Implications for Best Practices

17.22 Despite its long history of free roads, the experience of the United States with toll roads does raise a number of issues with respect to road development programs, many with important implications for best practices elsewhere. These relate to:

- project finance;
- liability;
- bidding, negotiations, and regulation;
- the need for a formal, scheduled process for private sector participants;
- a strong and convincing commitment on behalf of the (state) government; and
- the need for effective public outreach.

17.23 **Project Finance.** The nascent efforts towards private sector involvement in highway development in the United States has benefited in several cases from strong company commitments by private sponsors, including funded and contingent equity participation. In addition, in the case of the SR 91 Express Lanes in California, the existing traffic history was crucial to supporting strong revenue forecasts due to heavy existing congestion with no convenient alternate routes.<sup>202</sup> Conversely, a faulty traffic demand forecast and poor estimates of motorists' willingness to pay for Virginia's Dulles Greenway have been the source of serious financial difficulties for that project since its first day of operation.<sup>203</sup> The success of the Express Lanes project seems to have not offset the heightened investor and lender sensitivity to toll road projects brought on by the financial shortcomings of the Dulles Greenway.

17.24 The TCA projects in California also have significant features in the sharing of project risks, particularly in their design-build contract structure. In order to blend construction and financial risk, the TCAs required that the bidding firms must not exceed the (unknown) maximum financeable amount of the contract, plus a 10 percent "contingency." The 10 percent additional amount was to be paid with Project Revenue Certificates backed by toll revenues subordinated to the market debt financing, in effect making the successful bidder an investor in the project. If no bidder met the financeable amount, another round of bidding would take place incorporating a long list of "value engineering" ideas shared among bidders.

17.25 A final significant issue related to public-private partnerships is the United States tax code's treatment of public borrowing versus private borrowing. In short, bonds for municipal (public) purposes are tax exempt at the Federal level. In addition, municipal bonds may have credit backing or enhancement through a tax-supported public entity, providing up to a 2-3 percent advantage by financing via tax-exempt means.<sup>204</sup> Current regulations treat private toll roads (such as SR-91) as taxable finance.

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<sup>202</sup> The SR 91 Express Lanes also benefited greatly from being able to utilize "congestion pricing" techniques effectively, thereby maximizing the profitability of the competitive advantage that the uncongested lanes enjoy over the parallel congested ones (without pricing itself uncompetitively during off-peak periods).

<sup>203</sup> The Dulles Greenway also has yet to implement a congestion pricing program—effectively making the route even less attractive to the untolled alternative during the times of day when this route is uncongested.

<sup>204</sup> In addition, state and municipal governments in the United States are generally highly creditworthy and have excellent access to capital.

**17.26 Liability.** Negotiations for the four projects under California’s AB-680 legislation uncovered serious private sector concerns about tort liability protection. It was therefore decided to transfer the project to the state after construction and lease it back (a Build-Transfer-Operate model), so that the state, with sovereign immunity, was standing between the private entity and tort liability litigation. This reduced project cost to the developer and will kept future operating expenses lower than if the developer was covering tort liability insurance costs. Another issue is that of private entities designing projects to meet national standards. Almost all state legislation stipulates that the private facilities must meet the American Association of State Highway and Transportation Officials (AASHTO) highway design standards (the same standards that the state DOTs use themselves), and it is unlikely any private entity would get financing based on non-AASHTO standards.

**17.27** In countries with well-developed legal systems, consultants or others substantially overestimating future traffic may be liable on a theory of professional malpractice. In the case of the Dulles Greenway, despite having a team of well-respected and qualified consultants, the traffic demand model incorporated assumptions for “willingness to pay,” property development, and general traffic growth in the corridor that were highly optimistic. The project’s creditors made their lending decisions based upon these estimates, and some observers have subsequently suggested holding the consultants legally accountable for the gross overestimation of the project’s financial viability.

**17.28 Bidding, Negotiations, and Regulation.** Most private sector road projects in the United States have benefited from open bidding processes, which have allowed the winning consortia to reduce inefficiencies and potential “fatal flaws” in their project plans through improved preparation. State DOTs have also found it vital to be able to negotiate freely with the private sector. Many critical decision points occur outside of normal state DOT approval processes and are likely to disrupt and even stop otherwise desirable projects if they are not able to be accommodated by the public-private negotiation process. These types of decision points may include local referendums and local jurisdiction vetoes or legislative approvals. There are two basic ways that governments can regulate natural monopolies: utility-type regulation or a negotiated rate-of-return on invested capital regulation. While regulation of the first type is more traditional, such cost-of-service type of regulation provides little incentive for the firm to invest or price in a market-oriented manner. Negotiated rate-of-return regulation may therefore be preferable since it leaves more discretion for the operator to behave efficiently. However, if economic efficiency and general welfare issues are paramount, rate-of-return regulation may still be superior. These issues need to be addressed carefully by state regulatory agencies.

**17.29 The Need for a Formal, Scheduled Process for Private Sector Participants.** A formal process for engaging the private sector, such as a Request for Proposals (RFP), is preferable to a private sector-initiated process. While formalizing the public-private partnership process, an RFP is able to (i) show the state’s commitment; (ii) allow further definition of state legislation by the DOT; (iii) set the scope of projects that the DOT is interested in pursuing; and (iv) allow for fair and transparent processes in selecting private participants. The RFP can also educate the private sector on state and federal regulations and the consequences of complying or not complying with them, and RFP-driven time limits are more helpful and less risky than an open-ended process. Enabling legislation, providing clear and unambiguous powers to undertake toll road projects, is also needed to support the state

agencies that will engage the private sector entities. In addition, administrative processes (especially for environmental clearances) will need to be created for every project stage, and could create delays and drain resources if the process is not thought out in advance.

**17.30 A Strong and Convincing Commitment on Behalf of the State Government.** It is important that all branches of government give their wholehearted support to a toll road project. Since in many cases new (enabling) legislation is needed, it is important that this support also continues once the legislation has passed. Furthermore, the states must make commitments as to what they are offering as assistance up-front in the process. There are many potential areas for state support, including (i) the purchase of rights of way; securing or helping to secure environmental clearances and permits; (ii) providing assurances that no directly competing roads will be built, either by government agencies or by other private sector entities; (iii) partnering with affected local governments; and (iv) providing direct grants, credit enhancements, police services, and/or exemptions from normal procurement processes (for example, to allow design-build construction contracts). In states without Constitutional or other legal prohibitions against various forms of assistance to private entities public decision makers must consider whether the public advantages of private provision of a public service are sufficient to make public assistance a reasonable thing to do.

**17.31 The Need for Effective Public Outreach.** It has been reported that the state of Arizona created a huge obstacle to public support for its public-private partnership program by first claiming that a tax would fund the road system, and then a few years later asking the public to accept private toll roads because the tax funds were not sufficient. In other states, governments have accepted unsolicited bids from the private sector, subjecting the projects to controversy and limited public support. These cases, and others like them, emphasize the importance of comprehensive and effective public outreach, including full transparency, education, and media relations. Such efforts should not be viewed as one-time events, but as continuing and interactive parts of project planning and implementation. Goals and potential benefits can be explained through educational campaigns, while a coordinated program for briefing media representatives can help to offset initial adverse media reaction, as well as avoiding “surprises” that may later be cast in a negative light. Unsolicited projects should still be subjected to a formal bidding process. Putting public outreach before negotiations and investments may also help to limit the need for early (and risky) private commitments. Coordinated support and agreement from all levels of Government regarding the role of public-private partnerships, and a formal, visible commitment early in the process by the state government, are critical factors for project success.

### **TTT. Sources**

Ralph C. Erickson, *New Road Ahead: The Development of Public Private Partnerships in the United States*, USDOT-FHWA, 1997.

*The Toll Road Program in the United States*, Draft Country Paper prepared by the World Bank, Private Sector Department, 1997.

Jean-Francois Poupinel and Gerald S. Pfeffer, "The 91 Express Lanes: Concept and Operations," Proceedings of the 1996 Annual Meeting of the International Bridge, Tunnel, and Turnpike Association, Rome Italy, p. 69, 1996

William H. Allen and Leonard J. Rattigan, "A Public-Private Initiative in the United States: The Dulles Toll Road Extension", *Proceedings of the Fifth World Conference on Transport Research: Transport Policy, Management & Technology Towards 2001*, Volume I: (The Role of Public Sector in Transport), Yokohama Japan, 1989.

*Public-Private Partnerships: Lessons Learned*, Apogee/Hagler Bailly, USDOT-FHWA, February 1998.

*Toll Financing: Proud Heritage, Bright Future*, Executive Summary and Report, International Bridge, Tunnel and Turnpike Authority, September 1991.

Keane, *Congestion Pricing: Progress and Future Prospects*, presentation handouts, USDOT-FHWA, 28 August 1998.

*Highway Laws of Virginia*, State of Virginia, 1996.

Dulles Greenway (general information), TRIP II L.P., 1998.

*Transportation Equity Act for the 21st Century: A Summary*, USDOT, 1998.

*Toll Provisions of TEA-21*, handout prepared by IBTTA, June 24, 1998.

*USDOT Strategic Plan, 1997-2002*, USDOT, September 30, 1997.

Description and text of the Transportation Infrastructure Finance and Innovation Act section of the TEA-21 Legislation, United States Congress, 1998.

Various publications from the United States Department of Transportation, Federal Highway Administration: *The Federal-Aid Highway Program – An Overview*, 1995; *Our Nation's Highways, Selected Facts and Figures*, 1998; *Toll Facilities in the United States: Bridges-Roads-Tunnels-Ferries*, February 1997; *Reducing Traffic Congestion: Using Market Prices to Enhance Mobility*, August 1998; *Office of International Programs*, introduction handout, 1998; *International Programs: Advancing US and Global Transportation*, 1998; Transportation Infrastructure Finance and Innovation Act (TIFIA), handout, 1998; *Case Studies of the Transportation Corridor Agencies Use of Federal Credit Support*, January 1998.

*CPTC 1997 Annual Report*, California Private Transportation Corporation, 1998.

*Fiscal Year 1998 Annual Report*, Dulles Toll Road, June 30, 1998.

Statistical Traffic Figures: Dulles Toll Road, Dulles Greenway, Coleman Bridge, tables, Virginia DOT, August 1998.



“US Toll Road Projects Have Mixed Experiences,” *Project Finance International*, No. 93, 27 March 1996.

“A Tale of Two Toll Roads,” *Transport Finance*, No. 115, p. 9, June 12, 1998.

Various articles from *PWFinancing*: “Lessons Learned: A State Perspective,” p. 9, January 1994; “Dulles Greenway: The Gods Must Be Angry,” p. 4, April 1996; “Dulles Greenway Standstill Pact,” p. 14, July-August 1996. “Credit Enhancer for Dulles Greenway Debt?,” p. 6, November 1998; “SR 91 Secrets Revealed,” p. 3, July/August 1993; “SR 91: A Triple-Header for Privatized Infrastructure,” p. 8, July/August 1993; “Express Lanes Hit Break Even,” p. 5, July/August 1998; “Tax-Exempt Takeout for Express Lanes,” p. 9, September 1998.

## APPENDIX A

### LIST OF MEMBERS AND MEETING SCHEDULES FOR THE WORLD BANK STEERING COMMITTEE, THE JAPANESE ADVISORY COMMITTEE, AND THE MOCJ STEERING COMMITTEE

#### 1. The World Bank Steering Committee

##### *Members:*

Name	Bank Division	Position on Committee
Alfred H. Nickesen	EASTR	Chairperson
Ian G. Heggie	TWUTD	Member
Jose Luis Irigoyen	LCSFP	Member
Yasuhiro Kawabata	EASTR	Member
Amnon Mates	IFC	Member
Jeff E. Ruster	PSDPP	Member
Setsuo Hirai	coordinator, TWUTD	Member

##### *Meeting Schedule:*

No.	Date	Agenda
1	31 August 1998	Inception Report
2	17 December 1998	Interim Report, Seminar/Tour Preparation Issues
3	8 March 1999 (Planned)	Joint meeting in Tokyo, Seminar, Study Tour
4	April 1999 (Planned)	Seminar Proceedings, Draft Final Report, BPTK

## 2. The Japanese Advisory Committee

### *Members:*

Name	Organization	Title	Position on Committee
Yataro Fujii	Keio University	Professor	Chairperson
Haruo Ishida	Tsukuba University	Professor	Member
So-ichi Kubota	MOCJ Road Bureau	Dir., Toll Road Div.	Member
Kazuhiko Ono	Japan Highway P.C.	Executive Director	Member
Masahiro Sugiyama	Waseda University	Professor	Member
Takehiko Sugiyama	Hitotsubashi University	Professor	Member
Hiroataka Yamauchi	Hitotsubashi University	Professor	Member

### *Meeting Schedule:*

No.	Date	Agenda
1	21 August 1998	Inception Report
2	11 December 1998	Interim Report, Seminar/Tour Preparation Issues
3	to be determined	

## 3. The Ministry of Construction of Japan Steering Committee

### *Members:*

Name	Agency	Title	Position on Committee
Jun-chi Matoba	MOCJ	Director for Toll Road Coordination	Chairperson
Sho-ichi Nakatani	MOCJ	Exec. Deputy Director of Planning Div.	Member
Satoshi Iseda	MOCJ	Deputy Director of Toll Road Division	Member
Hukashi Kogure	MOCJ	Deputy Director of Toll Road Division	Member
Teiji Goto	MOCJ	Dep. Dir. of National Expressway Div.	Member
Katsuhiko Mori	MOCJ	International Cooperation Officer of International Affairs Division	Member
Hiroshi Okamoto	JHPC	Manager of Project Coordination Div.	Member
Koji Kuroda	JHPC	Chief Engineer of Planning Department	Member
Kazuo Komori	MEPC	Mgr of Engineering Management Div.	Member
Masahiko Kitazawa	HEPC	Manager of First Engineering Division	Member
Naoki Sato	HSBA	Manager of Planning Division	Member

### *Meeting Schedule:*

No.	Date	Agenda
1	12 June 1998	Study Inception
2	21 August 1998	Consultant Team's Inception Report
3	11 December 1998	Interim Report, Seminar/Tour Preparation Issues
4	8 March 1999	Joint meeting in Tokyo, Seminar, Study Tour
5	to be determined	Seminar Proceedings, Draft Final Report, BPTK



## **APPENDIX B**

### **INTRODUCTION LETTERS PREPARED AND SENT BY THE WORLD BANK AND MOCJ**

**The World Bank**

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
INTERNATIONAL DEVELOPMENT ASSOCIATION

1818 H Street N.W.  
Washington, D.C. 20433  
U.S.A.

(202) 477-1234  
Cable Address: INTBAFRAD  
Cable Address: INDEVAS

September 8, 1998

Mr.XXXXX

Dear Mr. XXXXX

*Asian Toll Road Development Program  
Global Toll Road Study for Selected Asian Countries*

The World Bank in collaboration with the Ministry of Construction of Japan (MOCJ) has launched an Asian Toll Road Development Program, of which the Global Toll Road Study for selected Asian Countries is the first component. One of the objectives of the program is to provide opportunities for Asian countries to learn from the experiences of other countries and to discuss future management of their toll roads by formulating effective institutional and regulatory frameworks. The other objective is to produce a knowledge database on toll roads (Best Practice Tool Kit). The study will target five Asian countries: China, Indonesia, Malaysia, Philippines, and Thailand.

Toll road information from around the world will be collected, assessed, and analyzed. Analysis will be on the following issues: institutional, project financing, regulatory & legal, planning & design, and environmental & socio-economic. The overall research is targeted towards various institutions in the areas of: transport policy and regulation, toll road operation, toll road building, toll road financing, toll road organizations, and international lending institutions.

Subsequently, a three-day seminar on Institutional and Regulatory Frameworks for Toll Roads in Asia will be held in Tokyo, Japan - tentatively scheduled for early 1999. In attendance will be representatives from the five target countries and other notable international toll-road related guests. The proceedings of this event will also be included in the "Best Practice Tool Kit".

An Advisory Committee comprised of members of Road Council in Japan has been set up to provide necessary advice and ensure efficient implementation of the study. We have also set up a Steering Committee in the Bank which is chaired by Mr. Alfred H. Nickesen of East Asia. The Japanese side is chaired by Mr. Jun-ichi Matoba, the Director for Toll Road Development of MOCJ.

A Tokyo-based international development consulting firm, PADECO Co., Ltd., has been engaged to conduct this study. The Expressway Technology Center (EXTEC) and the Express Highway Research Foundation of Japan (EHRF), both affiliated research bodies of Japan Highway Public Corporation, have been appointed as Joint Venture partners to coordinate the study and to give advice to PADECO.

The PADECO consultant team will begin to approach various toll road related institutions in each of the target countries, including your own, per the attached questionnaires. The Bank and the MOCJ are confident that this program will have a positive impact on the future of toll road development across Asia, and sincerely appreciate if you would have interest in the study and establish a contact point within your institution to make a valuable input cooperating with the PADECO consultants.

It is our hope that the study also will additionally function as a catalyst for future collaboration and create a sound platform for mutual cooperation.

Please feel free to contact Mr. Setsuo Hirai, coordinator of the program, if you should have any questions or comments. He can be reached at tel: (202) 458-2637, fax: (202) 522-3223, or e-mail Shirai@worldbank.org.

Sincerely,

(signed) Anthony J. Pellegrini  
Director  
Transport, Water and Urban Development  
The World Bank

Enclosures :

Outline of the Global Toll Road Study for Selected Asian Countries  
Points of Discussion and Information Requirement

# **Outline of the Global Toll Road Study for Selected Asian Countries**

## **1. Background and Objectives**

In recent years, there has been increasing need for road improvement in developing countries in response to rapid economic growth. However, this road improvement requires heavy investment. In an attempt to meet the big requirements, the number of developing countries which have adopted toll road systems has been increasing. Road improvements need is considerable in the Asian region and the issue of how the governments should effectively utilize toll road systems including private financing for road improvement is becoming acute.

Under these circumstances and based on experiences on toll roads in Japan, the Ministry of Construction of Japan (MOCJ) jointly with the World Bank (Bank) have decided to launch a “Global Toll Road Study for Selected Asian Countries”. This was done in order to learn from and discuss with the selected Asian countries (China, Indonesia, Philippines, Thailand and Malaysia) how to establish an adequate nationwide toll road system.

One of the objectives of the study is to provide opportunities for Asian countries to learn from the experiences of other countries and to discuss future management of their toll roads by formulating effective institutional and regulatory frameworks. The other objective is to produce a knowledge database on toll roads (Best Practice Tool Kit). The study will target five Asian countries: China, Indonesia, Malaysia, Philippines and Thailand.

## **2. Scope of Individual Activities**

MOCJ and the Bank will carry out the following activities.

### ***(1) Information collection on worldwide experiences in toll roads***

Information collection will be carried out regarding legislation of toll roads, organizational structures of toll road agencies, concessions, financing, guarantees, operation and maintenance of toll roads and so on in the world, focusing on Japanese experiences in toll roads.

#### ***Activities:***

The Bank will collect and sort out information from countries, including but not limited to Japan and five target countries, which have various experience of toll road management.



***(2) Discussion with Asian government officials and others concerned on toll roads (co-hosting a seminar)***

***Activities:***

MOCJ and the Bank will co-host a three day seminar in Tokyo for the government officials of the target countries, the Bank and MOCJ staff concerned, and other knowledgeable persons to gather at one place and discuss and determine the most adequate toll road systems for the target countries.

***(3) Production of useful “Best Practice Tool Kit”***

Based upon the said information collection and the results of the seminar, a “Best Practice Tool Kit” will be produced, which should be useful for the target countries.

***Activities:***

MOCJ and the Bank will produce “Best Practice Tool Kit” in a trouble shooting manner.

“Best Practice Tool Kit “ will be installed in the Knowledge Management System managed by the Bank and shared with the target countries and MOCJ.

**3. Estimated Time Frame**

September	1998	Beginning of dispatching consultant team.
March	1999	The seminar and the study tour
May	1999	Completion of “Best Practice Tool Kit”

## **Global Toll Road Study for Selected Asian Countries**

### **Points of Discussion and Information Requirements**

#### **Objectives of Data Collection**

In recent years, in response to rapid economic growth, there is an increasing need for improvement of roads and highways in the developing countries of the East Asia and Pacific region. The addition of modern highways and other transport infrastructure in these countries has significantly improved travel times and road safety for commercial trucks, buses and passenger cars alike, thereby improving the productivity of the economy and enhancing the quality of life for all people.

For most developing countries in the region, the cost of four and six-lane highways and expressways is well beyond the capacity of public funding to meet. To offset the shortfall, highway tolls and other user charges are in use or under consideration to supplement limited budgetary allocations for new construction.

Many developing countries have also turned to the private sector for support. This support may involve the investment of development capital for preliminary design and traffic and revenue analysis to determine the feasibility of proposed highway corridors for toll financing. At a later time, the investor may acquire debt financing for construction of the project through a build-operate-transfer (BOT) concession arrangement.

In developing countries, however, it is still undetermined how toll highway projects can be successfully financed with the participation of private investors and commercial lenders. There are certain conditions which are very important for foreign investors and lenders in these projects and which, unless met, make it difficult, if not impossible, to complete the financing. Some of the principal conditions are:

1. Adequate traffic volumes and revenues to repay investors and lenders, as scheduled at the outset. Most developing countries have few highway corridors with high traffic densities and they also have limited experience with users' ability and willingness to pay tolls.
2. Sufficient availability of labor, materials, and equipment to efficiently undertake and complete construction and to operate the road thereafter, without interruptions.
3. Country and economic stability, with a clear policy and regulatory framework and access for foreign investors to domestic capital markets.
4. Favorable fiscal conditions, with manageable rate of inflation and interest rate levels for local debt, exchange rate stability, and low chance of currency devaluation.

The above conditions vary between countries and individual highway projects. Other key variables are the maturity of the road network, the role of toll highways in the network, and ability of the country to manage toll roads as an element of the larger network -- as a means to maximize the revenue and minimize financial risk.

Developing countries in the East Asia and Pacific region can benefit from the experience of other countries in the world, as to:

- 1) The appropriate position and role of toll roads as a means of completing their entire highway networks.
- 2) The management of toll roads as separate projects and as systems.

This experience should be evaluated in the context of varying levels of participation by public and private sectors, as well as different approaches to risk allocation and project financing.

### **Information Requirements**

**Laws and regulations:** Comprehensive roads sector legislation, regulations and ordinances, and BOT policy decrees, if available, which pertain to development of highways and toll roads by public agencies and the private sector. Such matters as procurement, land acquisition and ownership, applicable tax laws, protection of property rights, and contract enforceability should be covered.

**Financing:** Recent annual reports for implementing agencies, including financial statements for toll facilities. Summary of project debt in place, including interest rates, grace periods, and repayment terms. Description of subsidy and public support for toll road development, including subordinated debt, standby credit facilities for operation, and grants for construction. Summary of construction, operation and maintenance costs for projects implemented by government, public corporations and the private sector. Documentation on principal toll road investors and developers, including project-specific promotional or marketing information.

**Toll system:** Description of toll collection system and tariff structure for each toll road and the system as a whole. Description of toll rates, percentage of traffic volume, and total revenues by vehicle category. Statement of principles along with procedure and criteria for determining and revising toll rates.

**Planning and management:** List and provide a map of all existing and planned toll roads, including the actual or anticipated start of operation, overseeing agencies, principal members of consortiums, equity investors, and other important details. Current and/or prior organizational structures of existing and proposed toll road organizations. Traffic forecast data prior to the start of the project, and actual daily traffic volumes since completion and full operation. Construction and operational assessment and/or evaluation plans or reports which may be available. If available, master planning documents for transport infrastructure, highways, and toll roads at the national, regional, or local levels. Multimodal transport corridor studies and environmental impact reports for toll road projects.

**Contracts:** Examples of contract documents related to BOT or highway concession projects with private sector investment or commercial financing. Such documentation may include agreements for consultant services, including feasibility studies and engineering/design activities and bidding/tendering procedures. Other documentation could consist of preliminary consortium arrangements and project or concession agreements to include services for design, construction, operation and maintenance, insurance contracts, and financing. Documentation related to identification and mitigation of particular commercial/country risks by the public and private sectors would be especially helpful.



[letterhead: *Ministry of Construction, Japan*]

September 8, 1998

Re: Asian Toll Road Development Program  
Global Toll Road Study for Selected Asian Countries

Mr.XXXXX

I am honored to inform you that a Global Toll Road Study for Selected Asian Countries has been initiated and is underway as a collaborative effort between the Ministry of Construction, Japan (MOCJ) and The World Bank.

One of the objectives of the study is to provide opportunities for Asian countries to learn from the experiences of other countries and to discuss future management of their toll roads by formulating effective institutional and regulatory frameworks. The other objective is to produce a knowledge database on toll roads (Best Practice Tool Kit). The study will target five Asian countries: China, Indonesia, Malaysia, Philippines, and Thailand.

It would be highly appreciated if you could let us, at the World Bank, know the contact person within your institution who would be able to give valuable input to the study.

The results of the study should become an invaluable road development and policy-making resource for toll road administrators throughout the Asian region. We also hope that the study will function as a catalyst for future collaborative efforts and creates a sound platform for mutual cooperation in the years ahead.

Yours sincerely,

(signed) Jun-ichi Matoba  
Chairman of Japan's Steering Committee,  
Global Toll Road Study for Selected Asian Countries  
Director for Toll Road Development  
Road Bureau  
Ministry of Construction, Japan

# **APPENDIX C**

## **LIST OF REQUESTED INFORMATION AND DETAILED POINTS OF DISCUSSION**

### **I. List of Requested Information / Documents**

#### **Laws and Regulations**

1. The basic laws and regulations for toll road projects to be operated by public agencies, public corporations, or private sector
2. Laws and regulations for implementing and operating toll road projects by public agencies, public corporations, or the private sector (e.g., with respect to procurement; land ownership; security arrangements; legislation to promote foreign investment; applicable tax laws; pertinent general business legislation such as laws protecting property rights and contract enforceability)
3. Documentation of comprehensive road sector legislation, or individual project acts, ordinances, guidelines pertaining to toll road projects by public agencies, public corporations, or the private sector

#### **Contracts**

1. Examples of “notable” contract documents related to BOT projects (i.e. documents for the first BOT project, a particularly successful project, a “typical” project, etc.) These documents may include: consultant agreements, preliminary consortium agreements, bidding / tendering documents, project company agreements, project or concession agreements, construction agreements, operation and maintenance contracts, insurance contracts, financing contracts. Documentation of clauses on sharing risks by the public and private sectors would be especially helpful.

#### **Finances**

1. Recent annual reports for this and all other relevant organizations
2. Documentation on the budgeting system for road development by the central government, local governments, public corporations, etc.
3. Documentation on the breakdown of the government budget for road development both by road categories and by funding sources for the last ten years
4. Detailed financial statements for all toll facilities
5. Records of actual interest rates, grace periods, repayment terms etc. for toll road debt
6. Documentation on subsidy and public support systems (i.e. low interest loans, revenue support, capital investment support, etc.) for toll road development
7. Average, maximum, and minimum construction costs, maintenance costs, and operation costs for toll road projects by public agencies, public corporations, or the private sector
8. Estimated rate of increase in construction cost per kilometer of divided four (and six) lane motorways (toll and/or non-toll) since express highways began to be built in your country
9. Documentation on the track records of principal toll road financiers, including project-specific information (such documents are often prepared by financiers for promotion and marketing purposes)

## **Toll Revenue**

1. Description of toll collection system and rate/km structure for each toll road (i.e. uniform for network, zone, route, section?)
2. Description of toll classifications (by vehicle type), current toll tables for every toll facility, and proportion of traffic in each classification
3. “Statement of Principles” / rules and procedures for determining and revising toll rates

## **Planning and Management**

1. List and provide a map of all existing and planned toll roads, including the actual or anticipated start of operation, overseeing agencies, principal members of consortiums, equity investors, and other important details
2. Current and/or prior organizational structures of existing and proposed toll road entities
3. Printed and other traveler information
4. Traffic forecast data from before the start of the project, and actual traffic volumes since completion (AADT)
5. Any project assessment and/or evaluation plans or reports
6. If available, provide a master plan document for toll road institutional development, and master plan documents for national, regional, or local transport infrastructure development
7. Multimodal transport corridor analysis studies
8. Environmental impact reports for toll road projects
9. Provide any general government policy documents relating to:
  - transportation infrastructure investment priorities;
  - motor fuel taxation policies;
  - road pricing/taxation policies;
  - parking and driver licensing policies;
  - public transport fare and service policies;
  - urban and regional residential, commercial, and industrial development strategies;
  - urban and regional land use/ zoning policies and design regulations; and
  - land and real property taxation policies.

## **Operations and Maintenance**

1. Workforce statistics categorized by administration, operations/engineering staff, and toll collectors. Which activities are carried out by the concessionaire itself, and which by third parties under contract?
2. Records of costs for toll road maintenance and improvements (widening, safety improvements, etc.).
3. Examples of innovative maintenance work.
4. Toll collection cost records
5. Examples of innovative toll collection strategies (i.e. ETC)
6. Historical (annual) data on operating length and number of toll roads and tunnels, as well as traffic (veh-km and/or ADT)
7. Documentation on profitability of roadside facilities and associated real estate development
8. Explanation of organization of maintenance work

## II. Points of Discussion

<i>Primary Topics</i>	<i>Key Points</i>	
<b>General Issues</b>	<ul style="list-style-type: none"> <li>• Toll road development decision-making</li> <li>• Toll road development in historical perspective</li> <li>• Project costs to be redeemed</li> <li>• Policies on tolls, including toll-collecting (concession) period</li> </ul>	<ul style="list-style-type: none"> <li>• Examples of successes and failures</li> <li>• “Institutional knowledge”</li> <li>• Roles of multilateral and bilateral agencies</li> <li>• Advice on study output</li> <li>• Project assessment and evaluation</li> </ul>
<b>Institutional Issues</b>	<ul style="list-style-type: none"> <li>• Legislation</li> <li>• Existing institutions</li> <li>• Organizational structures</li> <li>• Institutional planning</li> </ul>	<ul style="list-style-type: none"> <li>• Incentives</li> <li>• Autonomy of operations</li> <li>• Limits of private companies</li> <li>• Building institutional capacity</li> </ul>
<b>Regulatory and Legal Issues</b>	<ul style="list-style-type: none"> <li>• Requirement for special legislation</li> <li>• Mode of government control</li> <li>• Rights and obligations</li> <li>• Clarity of authorization</li> <li>• Enabling legislation</li> <li>• Security arrangements</li> <li>• Legislation to promote foreign investment</li> <li>• General business legislation</li> <li>• Tax incentives and concessions</li> <li>• Land and other logistical facilities provided by the government</li> <li>• Contribution of existing assets by the government</li> <li>• Government guarantees and standby financing</li> <li>• Loan and equity contributions</li> </ul>	<ul style="list-style-type: none"> <li>• Assurance of no competing projects</li> <li>• Completion and performance incentives and penalties</li> <li>• Transfer of technology and capacity building</li> <li>• Output specifications in bidding documents</li> <li>• Consultant agreements</li> <li>• Preliminary consortium agreements</li> <li>• Project company agreements</li> <li>• Project or concession agreements</li> <li>• Construction agreements</li> <li>• Operation and maintenance contracts</li> <li>• Insurance contracts</li> <li>• Financing contracts</li> <li>• Transfer of ownership</li> </ul>
<b>Project Financing Issues</b>	<ul style="list-style-type: none"> <li>• Funding sources</li> <li>• Financial implications of regulatory frameworks</li> <li>• Project financing environment</li> <li>• Risk management</li> <li>• Multilateral finance</li> </ul>	<ul style="list-style-type: none"> <li>• Bilateral ODA</li> <li>• Public assistance</li> <li>• Cross subsidies</li> <li>• Profit</li> <li>• Forecasting toll revenues</li> <li>• Innovative financing</li> </ul>
<b>Planning and Design Issues</b>	<ul style="list-style-type: none"> <li>• Decision-making</li> <li>• Master planning</li> <li>• System implications</li> <li>• Existing infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Forecasting for design</li> <li>• Toll collection (including ETC issues)</li> <li>• ITS initiatives</li> </ul>
<b>Operations and Maintenance Issues</b>	<ul style="list-style-type: none"> <li>• Public control of maintenance standards</li> <li>• Concessionaire’s ability to attract and retain employees</li> <li>• Relative efficiency of public and private institutions</li> </ul>	<ul style="list-style-type: none"> <li>• Innovative maintenance work that reduces costs and or congestion</li> <li>• Share of operating costs from maintenance and toll collection</li> <li>• Profits from roadside services and real estate development</li> <li>• Overhead costs</li> </ul>
<b>Environmental and Socio-Economic Issues</b>	<ul style="list-style-type: none"> <li>• Pollution assessment and mitigation</li> <li>• Community disruption</li> </ul>	<ul style="list-style-type: none"> <li>• Aesthetics</li> <li>• Innovative pricing strategies</li> </ul>



## APPENDIX D

### LIST OF TOLL ROAD PROJECTS IN SELECTED ASIAN COUNTRIES

#### A. Indonesia

##### 1. Toll Roads in Operation

No.	Toll Road/Bridge Segment Name	Length (km)	Date Opened	Operator
1	Jagorawi	46.00	1978.03.09	PT Jasa Marga
2	Jakarta – Tangerang Barat	27.00	1984.11.27	PT Jasa Marga
3	Jakarta – Cikampek	72.00	1988.09.21	PT Jasa Marga
4	Jakarta – Tomang – Cengkareng			PT Jasa Marga
	Cawang – Tomang	16.00	1989.11.01	
	Cengkareng	14.30	1985.04.01	
	Tomang – Grogol Pluit	7.50	1996.06.19	
	Bagian Pluit – Jembatan Tiga,	0.34	1996.06.19	
	Access Cengkareng	1.12	1996.06.19	
5	Padalarang – Cileunyi			PT Jasa Marga
	Padalarang – Cileunyi	35.63	1991.03.11	
	Access Pasteur	5.71	1991.03.11	
	Access Pasir Koja	5.24	1991.03.11	
	Citarum Bridge	0.91	1979.08.14	
6	Semarang Seksi A & B			PT Jasa Marga
	Srandol – Jatingaleh	6.30	1983.07.09	
	Jatingaleh – Krapyak	8.45	1987.09.07	
7	Surabaya – Gempol			PT Jasa Marga
	Surabaya – Waru	17.00	1986.07.26	
	Waru – Gempol	25.00	1986.07.26	
8	Mojokerto Bridge	1.25	1982.07.15	PT Jasa Marga
9	Belmera, Medan	34.40	1986.12.15	PT Jasa Marga
10	Cawang – Tanjung Priok – Jembatan Tiga			PT. Citra Marga Nusaphala Persada
	Cawang – Tanjung Priok	15.50	1989.11.10	
	Tanjung Priok – Ancol Timur	4.67	1995.09.02	
	Ancol Timur – Jembatan Tiga	7.08	1996.06.19	
	Access Tanjung Priok	1.73	1989.11.10	
	Bagian Pluit – Jembatan Tiga	1.96	1996.06.19	
11	Tangerang Barat – Merak			PT. Marga Mandalasakti
	Tangerang Barat – Tanjung Gerem	72.45	1995.09.03	
12	Surabaya – Gresik			PT. Margabumi Matraraya
	Dupak – Manjar	20.05	1993.03.08	
13	Ujung Pandang			PT. Bosowa Marga Nusantara
	Tallo Lama Gridge	1.00	1981.08.26	
14	JORR Seksi S+E1			PT. Marga Nurindo Bhakti
	Seksi S (Pd. Pinang – Kp. Rambutan)	14.83	1995.09.02	

No.	Toll Road/Bridge Segment Name	Length (km)	Date Opened	Operator
15	JORR Seksi E2+E3+N			PT. Citra Bhakti Margatama
	Cikunir – Cakung	8.80	1991.10.09	
	Total Jasa Marga	324.15		
	Total Private	148.07		
	Grand Total	472.22		

Sources: World Expressways (EHRF, 1998); *Toll Roads: Indonesia Investors Opportunity* (Indonesia Ministry of Public Works, 1997); various MOPW data sources (1998).

## 2. Toll Roads Under Construction

No.	Toll Road/Bridge Segment Name	Length (km)	Operator
1*	Palimanan – Cirebon	26.30	PT Jasa Marga
2	Semarang Section C	9.75	PT Jasa Marga
3	Cileunyi – Nagrek	23.40	PT Jasa Marga
4	JORR W1	9.70	PT. Jakarta Lingkar Barat Satu
5*	JORR W2	11.17	PT. Citra Mataram Satriamarga Persada
6*	JORR S+E1		PT. Marga Nurindo Bhakti
	Section E1 ( Kp.Rambutan - Cikunir)	11.89	
7*	JORR E2+E3+N	10.41	PT. Citra Bhakti Margatama Persada
8	Jakarta – Serpong		
	Pndok Aren – Serpong	7.20	PT. Bintaro Serpong Damai
9*	Bekasi Timur - Kampung Melayu	21.50	PT. Kresna Kusuma Dyandara Marga
10	Cikampek – Padalarang	59.00	PT. Citra Ganesha Marga Nusantara
11	Surabaya – Mojokerto	36.40	PT. Marga Nujuasumo Agung
12	Ujung Pandang	10.21	PT. Bosowa Marga Nusantara
	Total Jasa Marga	59.45	
	Total Private	177.48	
	Grand Total	236.93	

Sources: World Expressways (EHRF, 1998); *Toll Roads: Indonesia Investors Opportunity* (Indonesia Ministry of Public Works, 1997); various MOPW data sources (1998).

\* Project is to be continued after the financial crisis.

## 3. Toll Roads Under Investigation Process

No.	Toll Road/Bridge Segment Name	Length (km)	Operator
1	Ulujami – Pondok Aren	5.90	Jasa Marga
2	Toll Road in combination with Light Rail Transit on North-South Corridor	16.00	PT. Citra Lamtoro Gung Persada
3	Jati Asih – Karawang Jati Asih – Cikarang	34.00	---
4	Cileunyi – Tanjung San	7.30	---
5	Bogor Ring Road	11.20	PT. Nindya Karya (Persero)
6	Bandung Dalam Kota	16.00	PT. Arthayasa Adhiprima & Group
7	Sadang – Subang	37.00	Concord Benefit Enterprise
8	Subang – Dawuan	52.50	PT. Bhaskara Lokabuana
9	Dawuan – Palimanan	24.50	Van der Horst Ltd.
10	Ciawi – Sukabumi	53.50	PT. Bukaka Teknik Utama
11	Sukabumi – Ciranjang	31.00	Bina Puri Holdings Bhd.
12	Ciranjang – Padalarang	30.00	Bina Puri Holdings Bhd.
13	Soreang – Kopo – Pasirkaliki	7.13	PT. Bina Buana Armatha
14	Ujung Berung – Gede Bage	7.13	PT. Dyandra Pancagraha

No.	Toll Road/Bridge Segment Name	Length (km)	Operator
15	Bandung Dalam Kota Rusa Kiaracondong	8.25	PT. Mitra Buana Prakasa
16	Semarang – Batang	75.00	PT. Marga Setiapuritama
17	Semarang – Demak	14.17	PT. Marga Mawatindo Esprit
18	Solo – Yogya	45.00	PT. Citra Lamtoro Gung Persada
19	Kanci – Pejagan	34.00	PT. Bakrie Investindo
20	Pejagan – Pemalang	56.00	PT. Sumber Mitra Jaya
21	Pemalang – Batang	35.00	PT. Sumber Mitra Jaya
22	Semarang – Solo	68.70	PT. Karsa Semesta Indah
23	Gempol – Pandaan	13.64	PT. Margabumi Matraraya
24	Pandaan – Pasuruan	32.40	PT. Marga Pexacor Adya Sejati
25	Jembatan Suramadu	5.44	PT. Dhipa Madura Pradana
26	Gresik – Tuban	75.00	PT. Margabumi Matraraya
27	Aloha – Waru – Tanjung Perak	14.70	PT. Tridaya Esta
28*	Waru IC – Tanjung Perak	31.60	PT. Citra Marga Nusaphala Persada
29	Kertosono – Mojokerto	38.00	PT. Hanurata Coy Ltd.
30	Pandaan – Malang	29.50	PT. Setdco Graha Nusantara
31	Pasuruan – Probolinggo	40.00	PT. Bukaka Teknik Utama
Total		959.16	

Sources: World Expressways (EHRF, 1998); *Toll Roads: Indonesia Investors Opportunity* (Indonesia Ministry of Public Works, 1997); various MOPW data sources (1998).

\* Project is to be continued after the financial crisis.

## B. Malaysia

### 1. Toll Roads in Operation

No.	Toll Road/Bridge Segment Name	Length (km)	Date Opened	Operator
1	North South Expressway	847.7	–	MHA
2	North South Expressway Central Link	48.0	–	MHA
3	Shah Alam Expressway	35.0	–	MHA
4	Kuala Lumpur – Karak Highway	60.0	–	MHA
5	Penang Bridge	13.5	–	MHA
6	Malaysia – Singapore Second Crossing	46.0	–	MHA
7	Seremban – Port Dickson Highway	22.7	–	MHA
8	North Klang Bypass	15.3	–	JKR
9	Kuching Road	5.3	–	JKR
10	Kuala Lumpur City Roads	16.5	–	K.L. City Hall
11	Kulim Butterworth Highway	17.0	–	MHA
Total		1,127.0		

Source: Malaysian Highway Authority Resource Paper (August 1998)

### 2. Toll Roads Under Construction

No.	Toll Road/Bridge Segment Name	Length (km)	Operator
1	Damansara – Puchong Highway	40.0	MHA
2	New Pantai Highway	19.6	MHA
3	Sungai Besi Highway	16.0	MHA
4	Cheras – Kajang Highway	11.5	MHA
5	Ampang Elevated Highway	7.4	MHA
6	Butterworth Outer Ring Road	18.9	MHA
7	Kajang – Seremban Highway	48.5	MHA

No.	Toll Road/Bridge Segment Name	Length (km)	Operator
8	Kajang Dispersal Road	37.0	MHA
9	KL – KLIA Dedicated Highway	42.0	MHA
10	KL Western Dispersal Highway	26.0	MHA
11	Assam Jawa – Taman Rimba Templer Highway	31.0	MHA
Total		297.9	

Source: Malaysian Highway Authority Resource Paper (August 1998)

### 3. Toll Roads Concession Agreement Signed Construction not Yet Started

No.	Toll Road/Bridge Segment Name
1	KL West Traffic dispersal Scheme (SPRINT)
2	Butterworth Outer Ring Road

Source: Ministry of Works

## C. Philippines

### 1. Toll roads in operation

No.	Toll Road/Bridge Segment Name	Length (km)	Date Opened	Operator
1	North Luzon Expressway	78.1	1968	PNCC
2	South Luzon Expressway	42.3	1968	PNCC
3	Metro Manila Skyway (Stage 1, Southern Section- Phase 1)	9.3	Dec. 1998	PNCC / CMMTC
4	Manila-Cavite Toll Expressway (R1)	6.6	May 1998	PEA / Renong
5	Baguio-Bontoc Toll Road	32.0	1960s (?)	DPWH
Total		168.3		

Source: PNCC and DPWH Project Profile Sheets (August 1998)

### 2. Toll Roads Under Construction or Investment Process

No.	Toll Road/Bridge Segment Name	Length (km)	Operator
1	Metro Manila Skyway (Stage 1 Southern Section- Phase 2)	1.7	PNCC / CMMTC
2	North Luzon Expy Upgrade (Balintawak – Sta. Ines)	82.6	PNCC / FPIDC
3	South Luzon Expy Upgrade (Alabang – Calamba)	28.4	PNCC / Hopewell
4	Southern Tagalog Arterial Road Tollway (STAR), Lipa City – Batangas	19.74	Stradec (DPWH “solicited” BOT)
5	Manila-Cavite Toll Expressway (C-5 link)	6.0	PEA / Renong
6	Manila-Cavite Toll Expressway (R-1 Extension)	9.5	PEA / Renong
Total		147.9	

Source: PNCC and DPWH Project Profile Sheets (August 1998)

### 3. Toll Roads Under Investigation or Planning Process

No.	Toll Road/Bridge Segment Name	Length (km)	Operator
1	Metro Manila Skyway (Stage 2 Bicutan – Alabang)	13.8	PNCC / CMMTC
2	Metro Manila Skyway (Stage 3 Quirino Ave. – A. Bonifacio)	11.6	PNCC / CMMTC
3	Circumferential Road 6 (C-6) Tollway Metro Manila Tollway (MMT)	59.5	PNCC / CMMTC

No.	Toll Road/Bridge Segment Name	Length (km)	Operator
4	Circumferential Road 6 (C-6) Tollway Laguna de Bay Coastal Road (LBCR)	18.6	PNCC / CMMTC/ John Laing / DM Consuji / Filinvest
5	Circumferential Road 6 (C-6) Tollway Southern Segment of C-6	20.3	PEA / Renong
6	North Luzon Expressway Extension (new construction)	89.27	PNCC / FPIDC
7	South Luzon Expressway Extension (Calamba – Tagaytay)	20.0	PNCC
8	Southern Tagalog Arterial Road (STAR), Sto. Thomas – Lipa City	22.0	DPWH, Stradec
9	South Luzon Tollway Extension Calamba- Pagbilao	82.2	PNCC
10	Clark Expressway	14.3	PNCC / BCDA / CDC / CIAC
11	Ortigas Expressway	5.7	PNCC / Ireka Group
12	Pasig Expressway (R-4 and R-5 Expressway)	17.8	PNCC / STRADEC
13	Laguna de Bay Tollway	--	PNCC (open to investors)
14	R-10 / C-3 Expressway	6.95	PNCC / Kværner
15	“X-O” Project	---	PNCC / SEED
16	Sierra Madre Eastern Corridor	---	PNCC (open to investors)
17	Mabalacat – Castillejos Road	---	PNCC (open to investors)
18	North Luzon Expressway East (NLEE)	250	DPWH (open to investors)
19	North Luzon East Tollway	---	PNCC (open to investors)
	Total	632.0	

Source: PNCC and DPWH Project Profile Sheets (August 1998)

## D. Thailand

### 1. Toll roads in Operation

No.	Toll Road/Bridge Segment Name	Length (km)	Date Opened	Operator
1	First Stage Expressway	27.1	1981.10.29	ETA
2	Second Stage Expressway	29.8	1983.01.17	BECL
3	Ram Inthra - At Narong	19.7	1997.12.05	ETA
4	Don Muang Tollway	15.4	1994.12	DMTC
	Total	91.0		

Source: ETA, DOH (as of June 1998)

### 2. Toll roads Under Construction

No.	Toll Road/Bridge Segment Name	Length (km)	Operator
1	Second Stage Expressway	8.0	BECL
2	Bang Na – Bang Pankong,	55.0	Belfinger+Berger
3	Bang Pa In – Pakkred	34.0	–
4	Third Stage Expressway	35.0	Belfinger+Berger
5	Dao Kanong – Samut Sakorn	25.7	–
6	Bangkok ORR (Eastern Portion)	64.0	–
7	Bangkok – Chonburi New Highway	82.0	–
	Total	303.7	

Source: ETA, DOH (as of June 1998)

### 3. Toll Roads Under Investigation Process

No.	Toll Road/Bridge Segment Name	Length (km)	E. Operator
1	Srinakarin – Samut Prakarn	18.5	–
2	Fourth Stage Expressway	17.8	–
3	Fifth Stage Expressway	24.2	–
4	Phaya Thai – OBRR	14.0	–
5	Ram Inthra – OBRR	6.1	–
6	OBRR – Nakorn Pathom	40.0	–
7	Sixth Stage Expressway	13.5	–
8	Bang Yai – Ban Pong	53.0	–
9	Ban Pon – Phetchaburi Cha-am	134.0	–
10	Phattaya – Mab Ta Phut	38.0	–
11	Lampang – Chiang Mai	106.0	–
12	ORR (Southern Portion)	35.0	–
13	ORR – Chiang Rai	649.6	–
14	ORR – Nong Khai	535.5	–
15	ORR – Chanthaburi	171.9	–
16	ORR – Songkhla	764.4	–
17	Nakorn Ratchasima - Ubon Ratchathani	301.1	–
18	Outer Bangkok Ring Road	68.7	–
19	ORR – Kanchanaburi	100.0	–
20	ORR – Suphan Buri	62.0	–
21	ORR – Aranyaprathet	211.7	–
22	Chon Buri – Nakhon Ratchasima	239.1	–
23	Ratchaburi – Chachoengsao	365.8	–
24	Landbridge(Krabi – Khanom)	190.7	–
25	Surat Thani – Phuket	136.0	–
26	Nakhon Si Thammarat	36.9	–
Total		4,333.5	

Source: ETA, DOH (as of June 1998)

## APPENDIX E

### LIST OF INTERVIEWEES AND AGENCIES CONTACTED DURING THE FIELD VISITS

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Florida Department Of Transportation  
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Florida's Turnpike  
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Georgia State Tollway Authority  
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Indiana Department of Transportation  
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Kentucky Turnpike Authority  
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Greater New Orleans Expy Commission  
<http://www.thecauseway.com/>

Maryland Transportation Authority  
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Massachusetts Turnpike Authority  
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New Jersey Highway Authority  
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<http://www.state.nj.us/transportation/>

New Jersey Turnpike Authority  
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<http://www.state.nj.us/turnpike/>

Port Authority of NY & NJ  
<http://www.panynj.gov/>

New York State Thruway Authority  
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<http://www.thruway.state.ny.us/>

MTA Bridges & Tunnels  
<http://www.mta.nyc.ny.us/mta/>

Ohio Turnpike Commission  
<http://www.dot.state.oh.us/>

Oklahoma Turnpike Authority  
<http://www.pikepass.com/otahome.htm>

Pennsylvania Turnpike Commission  
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## APPENDIX G

### IMPACTS OF THE ASIAN FINANCIAL CRISIS ON TOLL ROAD DEVELOPMENT IN SELECTED ASIAN COUNTRIES

#### A. Overview

1. **Status of Toll Road Development.** Over the last two decades the demand for high-standard highways in these countries has increased substantially—a reflection of rapid economic growth and increasing levels of vehicle ownership and use. Average annual growth of real GDP in these countries between 1990 and 1996 ranged from 2.8 percent in the Philippines to 10.1 percent in China.<sup>1</sup> Because of the limited resources available to the public sector for financing infrastructure development, many countries have turned to tolling as a promising method for funding highway development. Each the five countries has adopted private-sector concessions as their dominant mode for designing, building, financing, and operating their toll roads.

2. The current status of toll road development in these countries is presented in Table 1. Based on the existing information, among the five countries, Malaysia was the first to introduce toll roads (in 1966), while China now has the greatest total length in service. Most of the early stages of toll road development were advanced by public-sector highway authorities (see Table 2), while the private sector has become involved with toll roads in each of the countries primarily within the last ten years. Among these countries, one of the first privately concessioned toll roads was Cawang – Tanjung Priok Toll Road in Jakarta opened in 1989. Currently, the majority of ongoing and planned toll roads in the countries involve the private sector.

**Table 1 Status of Toll Road Development in Selected Asian Countries, 1997-98**

Country	China	Indonesia	Malaysia	Philippines	Thailand
Length of Toll Roads in Service	4,735 km	472 km	1,127 km	168 km	91 km
Length Under Construction*	1,765 km (by 2000)	237 km	298 km	148 km	304 km
Length Planned or Under Negotiation	6,500 km**	1,444 km	1,300 km	632 km	4,334 km
Grand Total	13,000 km	2,153 km	2,725 km	1,116 km	4,729 km
Sources	<i>NewsNet Asia</i> Jan. 1998	<i>World Expressways</i> 1998 (EHRF)	MHA Sept. 1998	DPWH Aug 1998	DOH, ETA June 1997

\* includes projects for which construction may have been suspended

\*\* planned in China's Ninth Road Master Plan

<sup>1</sup> International Monetary Fund, *International Financial Statistics Annual Report*, 1997.

**Table 2 Initial Toll Road Projects in Each Country**

Country	Project Name	Project Length	Project Administrator	Year Open	Source
China	Daliang–Hanyu Expressway, Shanagdong Province	92 km	--	1987	EHRF, <i>World Expressways 1998</i>
Indonesia	Jagorawi Expressway	46 km	Jasa Marga	1978	EHRF, <i>World Expressways 1998</i>
Malaysia	Tanjung Malim – Slim River Highway	20 km	JKR	1966	John G. Hunt, <i>Toll Roads: The Malaysian Experience</i>
Philippines	Balintawak – Tabang (NLE) Nicols – Alabang (SLE)	27.7 km 13.3 km	DPWH	1968	EHRF, <i>World Expressways 1998</i>
Thailand	Ding Daen – Port Area (First Stage Expressway)	8.9 km	ETA	1981	EHRF, <i>World Expressways 1998</i>

3. The Asian financial crisis that began in mid-1997 has had a variety of consequences for toll road programs in these countries. Table 2-3 presents a number of financial and economic indicators for the 1997-1998 period, illustrating the degree to which the investment environments in each of the countries have changed. The degree of impact on the toll road development programs has been the highest in Indonesia, relatively high in Thailand and Malaysia, and relatively low in the Philippines and China. Traffic volumes are down in Indonesia, Thailand, and Malaysia, but have not changed significantly in China and the Philippines.

**Table 3 Financial and Economic Indicators in Selected Asian Countries, 1997-98**

Country	China	Indonesia	Malaysia	Philippines	Thailand
Expected GDP Growth in 1998 (1997) <sup>1)</sup>	8.0% (8.8%)	-13.7% (5.0%)	-4.8% (NA)	1.0% (5.2%)	-7.0% (-0.4%)
Expected increase in consumer prices, 1998 <sup>2)</sup>	NA (+2.8% in 1997)	+80%	+7-8%	+10%	+9.2%
Problem Loans <sup>3)</sup>	NA	61%	33%	17%	48%
Currency Devaluation from 1997/1 to 1998/1 <sup>4)</sup>	0%	-78%	-43%	-39%	-51%
Interest Rates in 1998/4 (1997/4) <sup>5)</sup>	7.98% (10.08%)	70.68% (13.47%)	12.16% (9.25%)	13.00% (10.00%)	12.50% (10.50%)
Country Risk Rating in 1998/9 (1997/9) <sup>6)</sup>	47.5 (59.9)	32.9 (51.8)	59.0 (66.7)	43.0 (44.3)	57.7 (57.8)
Standard and Poor's Rating in 1998/9 (1997/7) <sup>7)</sup>	BBB+ (BBB+)	CCC+ (BBB)	BBB- (A+)	BB+ (BB+)	BBB- (A)
Traffic Volume <sup>8)</sup>	Minimal Change	Substantially Reduced	Reduced	Minimal Change	Reduced
Degree of Impacts on Toll Road Programs <sup>8)</sup>	Relatively Insignificant	Significant	Moderate	Relatively Insignificant	Moderate

Notes:

- 1) *Asian Wall Street Journal*, 26 October 1998
- 2) Yearly average, *Asian Wall Street Journal*, 26 October 1998.
- 3) *Restructuring Asia's Banks*, Lehman Brothers, September 1998.
- 4) Exchange rate comparison for January 1997 and January 1998 are against the U.S. dollar, *Asian Wall Street Journal* and others.
- 5) Local interest rates represent the official money rate in Thailand and the call rate in other countries as of April 1998 and April 1997. These figures may not accurately represent the actual commercial loan rates that would be available to toll road developers, as indicated elsewhere in this report.
- 6) A higher number indicates less country risk; based on country credit ratings by *Institutional Investor* in September 1998 and September 1997.
- 7) Long term debt rating in September 1998 and July 1997.

- 8) Based on interviews by the study team members in September through November 1998. Conditions in China are as reported by Hong Kong-based Chinese toll road developers.

## B. General Assessment

4. Most of the countries, except perhaps for China, are experiencing financial turmoil manifested in currency devaluation, rising interest rates, and a banking sector struggling with increased numbers of non-performing loans. These problems, coupled with rising construction costs and a recession-induced decrease in vehicular traffic and toll revenues, have affected many privately financed toll road projects, with some in turn further affecting the financial sector with problem loans of their own. As a result, toll road projects throughout Asia are now being restructured to various degrees. In Indonesia, all toll road construction work has come to a complete stop, and the projects in the planning stages have been postponed indefinitely or shelved completely. In Malaysia, work goes on but the basic terms and conditions of many projects are being renegotiated, and project specifications are being redesigning.

5. **Currency Devaluation.** The collapse of the Thai baht in July 1997 triggered a drastic devaluation of currencies in all of the countries except China.<sup>2</sup> Between January 1997 and January 1998, the United States dollar value of the Indonesian rupiah decreased 78 percent, the Thai baht 51 percent, the Malaysian ringgit 43 percent, and the Philippine peso 39 percent. The impact of currency devaluation has been threefold: (1) the asset value of foreign investors has decreased in hard currency terms; (2) the prices of imported materials have risen substantially, triggering price inflation and increased interest rates; and (3) foreign debt service has become a great burden for lenders whose earnings are solely in terms of local currency (such as toll roads). However, since there are very few private-sector toll road projects in these countries that have successfully managed foreign debt financing, the problem of drastically increased foreign debt-service payments has not been prevalent.<sup>3</sup> On the other hand, the devaluation of investment assets has had a direct impact on foreign investors, because the value of their equity is directly related to the value of the foreign currency. Toll revenues and dividend payments from the project have been affected in the same manner.

6. **Increased Interest Rates.** Increased interest rates have had a significant impact on concession-based toll road development in these countries. Interest rates have increased across the board, and spectacularly in some cases—from 12 percent in January 1997 to 60 or 70 percent in August 1997 in Indonesia, and from 11 percent in January 1997 to 34 percent in October 1997 in the Philippines. Because toll road projects are highly capital-intensive in nature, a large part of cash flow in the early years must be allocated to debt service payment. Therefore, even a small increase in interest rates may deplete a large portion of the remaining project reserves. These problems have been compounded by decreasing term lengths for fixed-rate debt. An important lesson may be that the availability of long-term, fixed-rate debt financing, preferably from domestic sources, is a key (if not essential) element for successful infrastructure project finance.

7. **Changes in Financing Structures.** The financing structures of toll road projects may provisionally be classified into the following general categories:

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<sup>2</sup> The value of the Chinese renminbi and the Hong Kong dollar continues to be pegged to that of the U.S. currency.

<sup>3</sup> A few projects in Indonesia and the Philippines are dealing with this problem, however.

- Majority local private equity and minority foreign private equity; all project debt from domestic commercial sources (Malaysia, Indonesia, the Philippines, Thailand);
- Roughly equal shares of local and foreign private equity; both domestic and foreign commercial debt (Indonesia, the Philippines, China, Thailand);
- A local public agency as the majority shareholder of a joint venture with significant foreign private equity; foreign shareholders' loans, but no domestic debt (China, Indonesia); and
- A foreign holding company financing local toll road joint ventures (either through equity or shareholders' loans), and raising funds by issuing debt securities/an initial public offering in foreign capital markets (China, Indonesia).

8. The current financial crisis has sharply restrained activity in all of the financial markets related to toll road development in these countries—domestic equity, foreign equity, domestic debt, foreign commercial bank loans, and foreign debt securities markets. This general decline in support from local and international financial markets has brought about the following changes in toll road development financing structures:

- Leading local equity investors have become weak and some projects have sought foreign equity partners—sometimes to take over the entire domestic equity portion;
- Governments are becoming receptive to considering more generous public-private risk sharing structures for priority projects;
- The involvement of bilateral and multilateral institutions is becoming more focused; and
- The equity portion of project finances may have to be increased to provide more financial security.

9. It is expected that such changes to the financing structures of the country projects will bring them closer to global standards for private-sector participation in public works infrastructure development.

10. **Changes in Debt and Equity Markets.** Most of the debt for toll road projects in these countries has been in the form of senior commercial bank loans (except in China where loans and equity from project sponsors have been the main sources of financing). Commercial banks are the traditional providers of project finance loans because they tend to be more willing and able than other debt providers to structure acceptable debt packages in the context of complex and risky project finance transactions. As such, the major source of financing for toll road projects in these countries has been loans from domestic commercial banks in each country, and both existing and future debt procurement for toll road projects has been seriously affected by the current financial crisis. Excessive non-performing loans throughout the banking sector (including some toll road project loans as well) has created liquidity problems for many banks, and brought about a credit crunch for new toll road projects.

11. Foreign commercial bank loans for toll road projects have become even more difficult to obtain. Fund raising for infrastructure through the issuance of domestic bonds has also been minimal to date, and is expected to remain inactive as long as the appetites of domestic and foreign investors remain weak. According to sources within the industry, it may be at least another six months to one year before the market will turn positive for infrastructure project lending. For both domestic and international commercial banks, the collapse of the Thai baht

in July 1997 was taken as a strong signal that the old ways of doing business were over, particularly for domestic commercial banks whose interest rates had been under government control. Rebuilding the economies and financial sectors in these countries will involve more than just recapitalizing the banks and the writing off of bad loans. The banks will need to evaluate credit in a much more risk-focused manner, with sophisticated project finance structuring and contract documentation.

12. A large proportion of toll road projects has been contractor-driven in nature. As with the commercial banks, many such toll road project sponsors (contractors) have also been hit hard by the financial crisis due to their involvement in real estate development. Many local sponsors are having difficulty maintaining their majority equity shares and some are looking for equity support from abroad. However the activities of major foreign sponsors in the region, such as Kværner, Bouygues, Dumez GTM, and various Japanese contractors, have slowed down considerably lately due to the difficulty of procuring off shore debt for their projects. On the other hand, infrastructure equity investment funds such as the AIG (American Investment Group) Asian Infrastructure Investment Fund, the Asia Infrastructure Fund, and the Asia Infrastructure Development Company (AIDEC) are continuing to pursue investment opportunities throughout the region actively. Because of the weakness of both foreign and domestic toll road project sponsors, the relative strength and appropriate role of such funds is being considered closely at this time.

### C. Assessment of Impacts by Country

13. **China.**<sup>4</sup> China appears to have been the least affected of the five countries by the recent Asian financial crisis; its annual GDP growth is still forecast to be eight percent for 1998. There has also been little indication of toll road project suspensions or postponements in China due to the economic crisis. There has thus far been no currency devaluation against the United States dollar as the Government has maintained its exchange rate controls. Since the Hong Kong dollar is also pegged to the United States currency, there has been no visible depreciation of equity invested in China by Hong Kong-based investors. Also, the central government has ordered state banks to increase lending in order to achieve its eight percent growth target. At least for the short term, these developments are expected to cater to the financing requirements of ongoing infrastructure projects across the country.

14. Although China plans to develop a 35,000-km system of trunk highways by 2010, requiring an investment of US\$150 billion, there remains a substantial shortfall in the financing available for implementation. Therefore, the country has been laying the foundation for substantial and long-lasting private-sector participation in its express highway sector. Traditional project finance approaches have been rarely used to finance Chinese toll road projects. The majority of foreign financing is done through equity investments and shareholder's loans to Cooperative Joint Ventures in China from parent companies abroad.<sup>5</sup> In some cases, a normal project finance structure with foreign lenders has been achieved on the basis of the public sector effectively guaranteeing the project company's revenues. In most cases, though, the asset-based securitization approach has been applied to raise project funds in recent years. However, the securities markets in China and Hong Kong are not performing well at present; the leading indices of share prices have fallen about \_\_\_ percent during 1998.

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<sup>4</sup> The observations presented here have been prepared based on interviews made with Hong Kong and Singapore based lenders, investors, and operators of toll road projects in China.

<sup>5</sup> These companies are typically based in Hong Kong SAR and they raise funds through public offerings of equity shares, issuing debt securities, and/or long term commercial loans.



It is expected that there will be some delays in near-term asset securitization-based fundraising plans incorporating bond issues and/or initial public offerings.

15. **Indonesia.** The private-sector participation-based approach to toll road development was considered to have a promising future in Indonesia until the financial crisis came. However the collapse of the domestic commercial banking sector has brought all ongoing Indonesian toll road projects to a halt. Both construction work and land acquisition has stopped on all sections. Without a revenue stream from a completed facility, many concession companies are either facing bankruptcy or suspension of funding support, or are close to default on their concession agreements with Jasa Marga, the state toll corporation. The collapse of the banking sector has also forced a number of concession companies to consider re-capitalizing their toll roads that are under construction.

16. As a result of the extreme devaluation of the rupiah during 1997-98, the hard currency portion of toll road project debts suddenly increased 6 to 7 times. At the same time, domestic interest rates have increased from 19 percent to over 60 percent per annum. The most severely hit Indonesian toll road operator has been the largest, Citra Marga Nusaphala Persada, which is facing a critical situation regarding the redemption of a Euro dollar bond due in December 1998. While labor costs have not increased, the consumer price index is expected to have risen 80 percent during 1998 compared with an 11 percent increase in the previous year. The price of petrol has also increased from 700 to 1,000 rupiah per liter and car sales are down, resulting in an estimated 15 to 20 percent decrease in traffic on the local streets and toll roads in the Jakarta region. PT Astra International, Indonesia's largest automobile manufacturer, expects new car sales to have dropped 88 percent in 1998. Real GDP for Indonesia is forecast to have decreased by 13 to 18 percent during 1998.

17. The Government of Indonesia has taken steps to restructure its toll road program in light of the economic crisis. The Government has called for a review of all ongoing projects, and is now prioritizing those to be supported by various means including soft loans from the state banks as well as "targeted" foreign investment. A total of 64 toll road projects in various stages of development have been classified into three priority categories, and only nine projects have thus far been chosen to receive support in the form of government soft loans.

18. Delays in the toll road development program will also invariably increase maintenance costs and prolong the motorized traffic capacity limitations imposed by the state-run non-toll highways. The Ministry of Public Works is currently assessing the magnitude of these impacts. The Government is also preparing new regulations of the development and award of concessions so that all projects in the planning stage would accord with national development objectives, meet cost-effectiveness goals, and be governed by fair and transparent procedures. It is anticipated that such procedures would delay project implementation and requires some projects to be redesigned. The net profit of PT Jasa Marga, the state toll road corporation and joint-venture partner to all private-sector projects, decreased by 25 percent to 114 billion rupiah during the first half of 1998. The reasons for this decline include a decrease in the number of toll road users and an increase in operations and management costs—particularly an increased debt service burden due to higher interest rates.

19. **Malaysia.** As of October 1998, there were 26 toll bridges and expressway projects in Malaysia for which concessions had already been signed. Of these, 12 projects are open to traffic, six are under construction, and eight are under negotiation. The current financial crisis has affected many of these projects, and the Government has so far been quite amenable to

adjusting the terms and conditions of concession contracts in response. In December 1997, for instance, the Government invited all project proponents that were negotiating concessions to submit alternative proposals for restructuring their projects in view of the financial crisis.

20. A representative example of the way in which this restructuring has taken place can be seen in the case of the Putrajaya–Sepang Dedicated Highway. This project has encountered difficulties in raising project financing due to the current financial crisis. Alternative proposals that would enable the project to quickly proceed with implementation have been submitted to the Government but will require additional Government funding. Objectives of the Dedicated Highway’s alternative proposal are (i) to strengthen its cash flow position, (ii) to address the low liquidity of its commercial lenders, and (iii) to reduce its estimated revenue shortfall. In order to meet these objectives, the following four measures have been proposed:

- Convert the highway’s “split” alignment to a single one;
- Convert part of the proposed elevated section to a grade-level section;
- Provide only the number of lanes necessary based on initial traffic demand; and
- Revise the construction sequencing and program.

21. Another Government initiative announced in 1998 is the establishment of an Infrastructure Development Fund of 5.000 billion ringgit to support troubled infrastructure projects. Out of the total amount, 1.800 billion ringgit is to be allocated to land acquisition costs and soft loans for priority toll road projects.

22. The Government is also attempting to refine its toll rate adjustment mechanism based on lessons learned from the case of the North-South Expressway (for which the Government has had to pay huge sums to the private-sector developer/operator on account of deferred toll rate increases). The proposed new method is to annex the forecast traffic volume to the concession agreement. If the actual traffic level is more than the forecast at a determined point in time, then the Government could request either the deferral or the lowering of the level of the toll rate increase. But if the actual traffic is less than the forecast, the concessionaire could request to bring forward the timing of toll rate increase.

23. **Philippines.** The Philippines is perhaps stronger than many of the other developing countries affected by the Asian economic crisis because it has already reformed its financial markets and “graduated” from IMF reforms. In 1993 the Philippine central bank was made independent, the financial system was liberalized, foreign exchange controls were removed, and new foreign banks were allowed for the first time since 1949. Only US\$2 million has been needed to shore up the financial sector, and it has come largely from Foreign Currency Deposit Unit (FCDU) loans of commercial banks (both domestic and overseas). There have been no major bank closures (only one or two percent), nor a collapse in the real estate sector (which has been attributed to a low rate of speculative construction). Despite a currency devaluation, the real GDP growth forecast for 1998 is still positive at 1.0 percent.

24. There has been a slight decrease in traffic on the North and South Luzon Expressways over the past year, mostly due to less large truck traffic as import/export activities have declined dramatically during 1998. The level of light vehicle traffic has remained constant. Construction costs have not changed much; steel, asphalt, and cement are all available domestically (diminishing the effect of the peso devaluation), while labor expenses have continued to increase only at the rate of inflation (15 percent per annum). Higher interest rates have made it more difficult to borrow money, however. The commercial lending rate at present

in the Philippines is 22-24 percent, whereas it was about 18 percent prior to the regional economic downturn. Ongoing toll road projects have seen no construction suspensions or slowdowns as a result of the economic crisis. Due to the Philippine's unclear and mostly private sector-driven planning process for new toll road projects, it is difficult to identify precisely any causes of delays in implementation for several projects that remain in the proposal stage. Presumably the current economic crisis is having some effect, but it is difficult to estimate how much.

25. Officials at the Metro Manila Skyway (MMS) project office indicated that the peso devaluation has not much effect on their equity investors since their shares happen to be denominated in United States dollars, and (as with all Philippine toll road projects) the toll rate adjustment formula takes into account exchange fluctuations. In addition, the primary MMS construction contracts were negotiated on a fixed lump-sum basis in United States dollars. Many of the subcontractors are being paid in pesos, a situation which has reduced costs for the main contractors. On the other hand, the Malaysian investors in the Manila-Cavite Toll Expressway project have taken an "equity hit" due to the peso devaluation, but they are expecting to recover their losses over the 35-year life of their concession (and through future toll adjustments).

26. **Thailand.** The banking sector crisis in Thailand has had some impact on toll road projects, but to a much lesser extent than in Indonesia. At 13 percent per annum, commercial interest rates are 2 to 3 percent higher now than they were before the crisis. Banks in general are less willing to lend now, due to their non-performing loan problems. The general belief is that they need to take care of their internal problems first, before taking on additional complex project finance commitments.

27. The financial crises has indefinitely delayed the start of construction on most of the free and toll highways proposed by the Thai Department of Highways in their Eighth Eight-Year Plan (1997-2001). Despite the delays in planned projects, work continues on the five toll roads that are presently under construction. The three ongoing projects with private-sector involvement provide key links to athletic sites for the 13<sup>th</sup> Asian Games to be held in December 1998, and their prompt completion was a high priority throughout 1998.

28. No Thai toll road projects have been renegotiated directly as a consequence of the recession; rather the reorganizations that have occurred have been based on project performance. For example, a restructuring of the Don Muang Tollway was brought about by a number of factors independent of the recession, while interminable delays to the massive toll road/commuter railway project proposed by Hopewell Holdings (Thailand) Ltd. substantially reduced investor confidence. There have also been no defaults yet on project loans—traffic volumes are still sufficient for the toll road companies to pay for operations, maintenance, and debt expenses. The impact has mostly been felt by investors, because drops in income have reduced profitability and shareholder return.

29. Regional growth projections, particularly for the Bangkok area, have been scaled back slightly. Growth is still expected in spite of the economic downturn, primarily due to continued migration into the region. Car sales in Bangkok over the past 12 months have totaled 100,000 vehicles, just 20 percent of the 500,000 vehicles sold annually during the previous five years. Traffic congestion has also leveled off, in contrast to 13-18 percent annual increases in previous years. Road travel speeds have increased by about 30 percent over early 1997 levels, as a result of both a decline in new cars and the addition of new road capacity for motor

vehicles. Newspaper reports tell of Bangkok's once-ubiquitous motorcycle taxi operators now losing customers since car travel is no longer so slow.

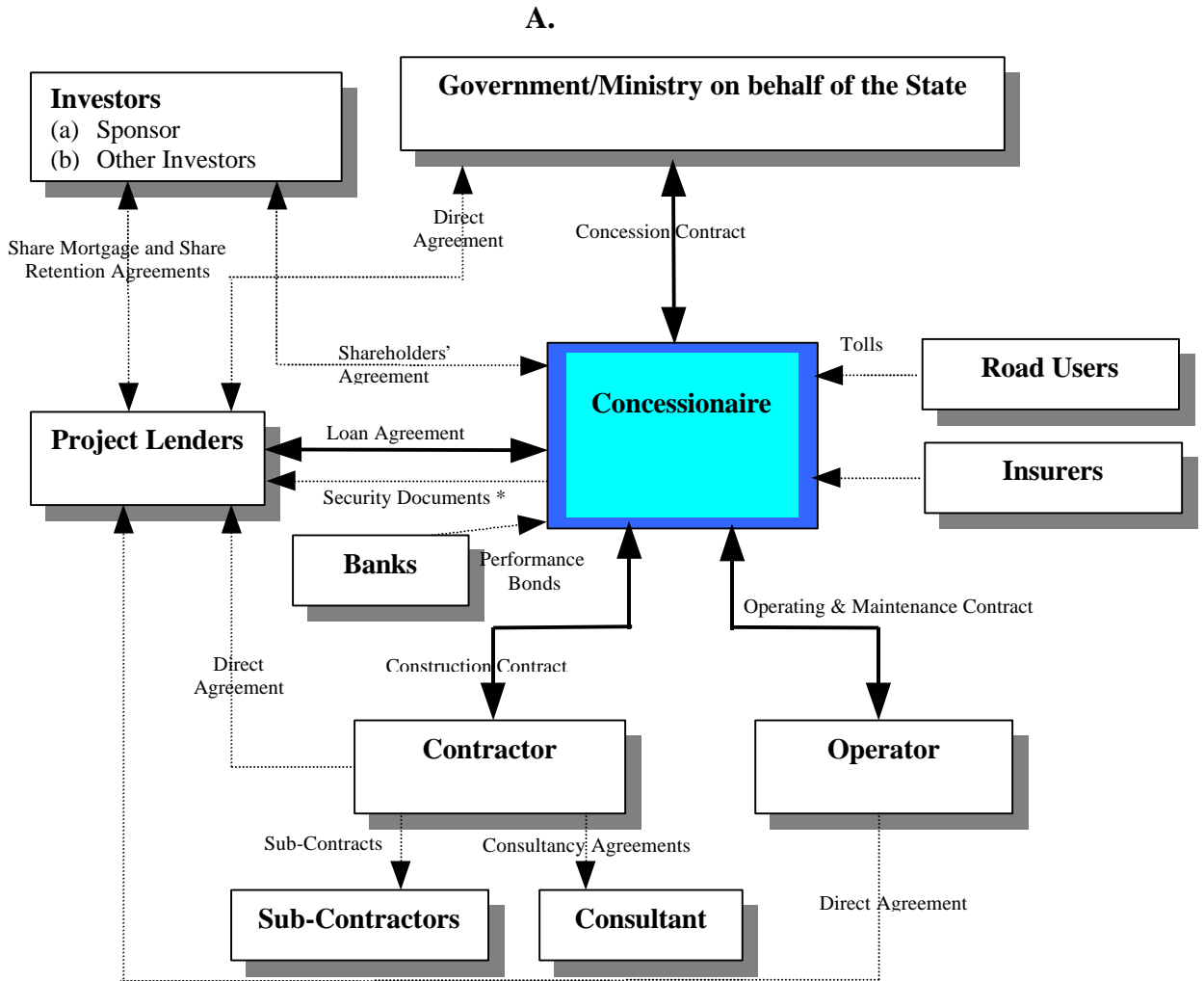
## APPENDIX H

### TOLL ROAD BOT MODEL

#### A. BOT Contract Structure

1. The principal responsibilities for toll road development include design, construction, maintenance, toll collection, arranging financing, and legal ownership. The build-operate-transfer (BOT) model is the most common approach used to assign responsibilities in toll road projects. BOT is a broadly defined term that includes build-own-operate-transfer (BOOT), build-lease-transfer (BLT), rehabilitate-operate-transfer (ROT), lease-rehabilitate-operate (LRO), and similar arrangements that are used to develop new facilities or improve existing ones.
2. BOT structure involves the grant of a concession (sometimes called an authorization or a license) by a properly empowered governmental authority (the grantor) to a special purpose company (the concessionaire). Under the concession, the concessionaire would agree to finance, build, control and operate a facility for a limited time, typically 20 to 35 years in Asia, after which responsibility for the facility is transferred to the government, usually free of charge. The concessionaire typically assume primary responsibility for constructing the project, arranging financing, performing maintenance, and collect tolls, while the public sector retains legal ownership. In most projects design responsibility is shared, with the public sector taking the lead in the preliminary design (including route alignment, number of lanes, interchanges, and other high-level design specifications) and the private sector completing the detailed design, subject to government approval.
3. The concessionaire would engage a construction company (the contractor) to perform the construction works on the terms and conditions contained in a construction contract. The concessionaire would also usually engage an independent party (the operator) to operate and maintain the project on the terms and conditions contained in an operating and maintenance contract.
4. The intention would be that the concessionaire is to receive sufficient revenues during the operational phase: to service the debt that would be provided by the banks and financial institutions (the project lenders) for the design, development and construction of the toll road; to cover the concessionaire's working capital and maintenance costs; to repay the investment of the investor who are initiating the project (the sponsors), as well as the other investors who would participate in the project later; and, hopefully, also provide a reasonable profit for the sponsors and other investors (Figure 1).

**Figure 1 Toll Road BOT Contract Structure**



- \* Assignment of Concession Contract
- Assignment of Construction Contract
- Assignment of Operation & Maintenance Contract
- Charges over Bank Accounts
- Liens & Pledges over Movable Property
- Mortgages over Land
- Assignment of Insurances
- Assignment of Performance Bonds

## B. Project Economics (Costs and Revenues)

5. Project economics refers to the cost of developing, constructing, and operating a project relative to the revenue it generates. This is typically measured in terms of net present value or internal rate of return on investment/ equity. The project economics of a toll road are determined by a number of factors, including the toll road's function, physical characteristics, and market demand:

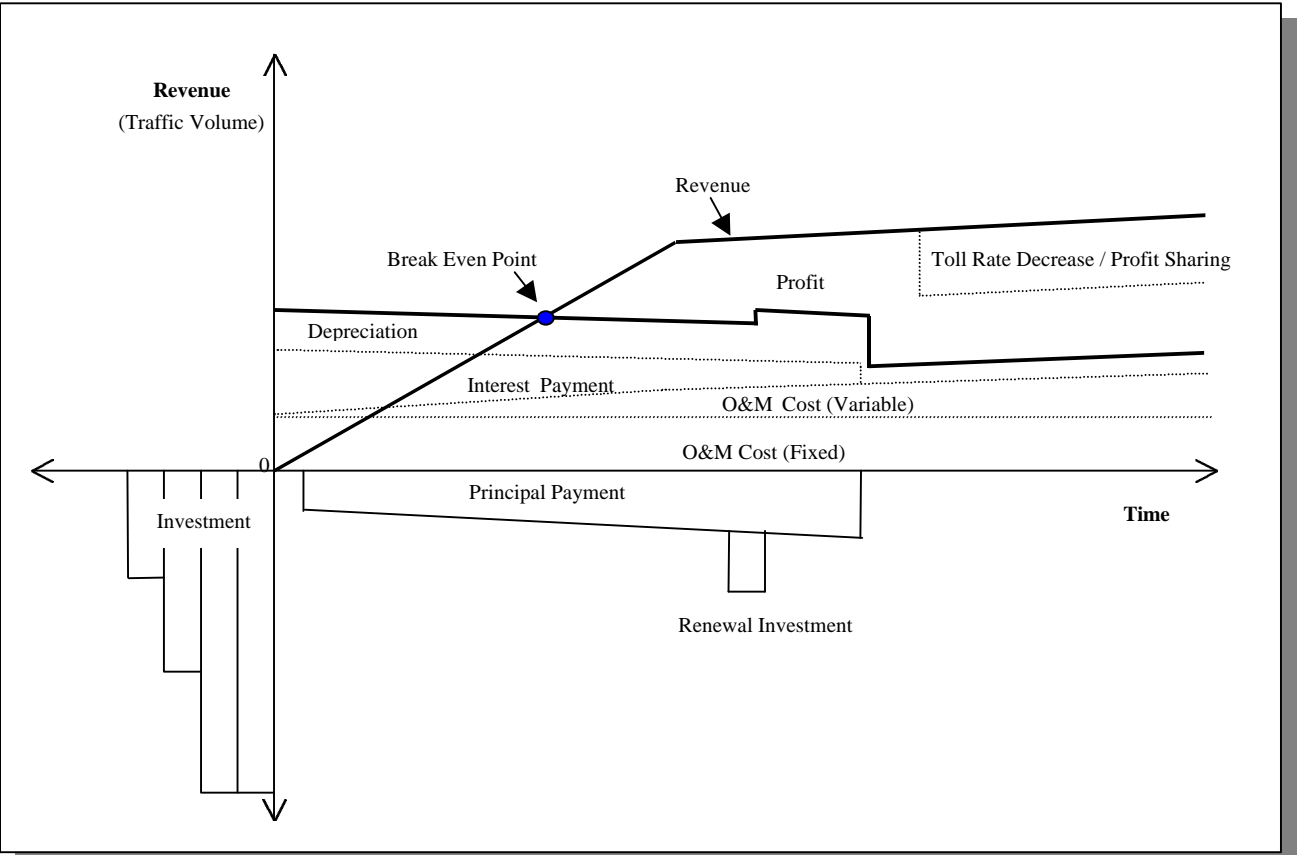
- *Function:* congestion relievers, inter-city arteries, development roads, or bridges and tunnels.
- *Physical characteristics:* new facility or expansion, length and capacity, geography, toll collection mechanism.
- *Market demand:* actual or expected traffic levels, predictability of expected traffic, willingness of user to pay tolls.

6. A BOT toll road project, when it is a greenfield project, has a typical cost and revenue profile of capital intensive business where a break-even point is high and if such threshold level revenue (namely traffic volume) is not attained, huge loss would occur. On the other hand, once the traffic volume exceeds such threshold level, the project could enjoy a high profitability. Therefore, the project economics of toll road development is very sensitive to the threshold level of traffic volume.

7. If it is financed on highly leveraged and floating interest rate basis, as most of toll road projects are, the amount of debt service payment in the beginning years may become considerable, sometimes much more than the aggregate of operation and maintenance costs required. Therefore, again the project economics is very sensitive to the threshold level of interest rate.

8. A toll road project in general has a long start up operating years in loss due to its long lump-up period for the traffic level to stabilize. Therefore the sponsors of the project would have to wait for many years before they start enjoying dividends from the project meaning that recouping of the investment would generally take a long time (Figure 2).

**Figure 2 Project Economics of Toll Road BOT Model (Green Field Project)**





### **C. Critical Elements for BOT Project Evaluation**

9. In order to attract private capital, a toll road project must have strong project economics and contract structure which result from a combination of the following elements (Figure ):

- country environment
- concession environment
- public-private risk sharing
- sponsors' ability
- project economics/project structure
- financing structure
- financial market environment

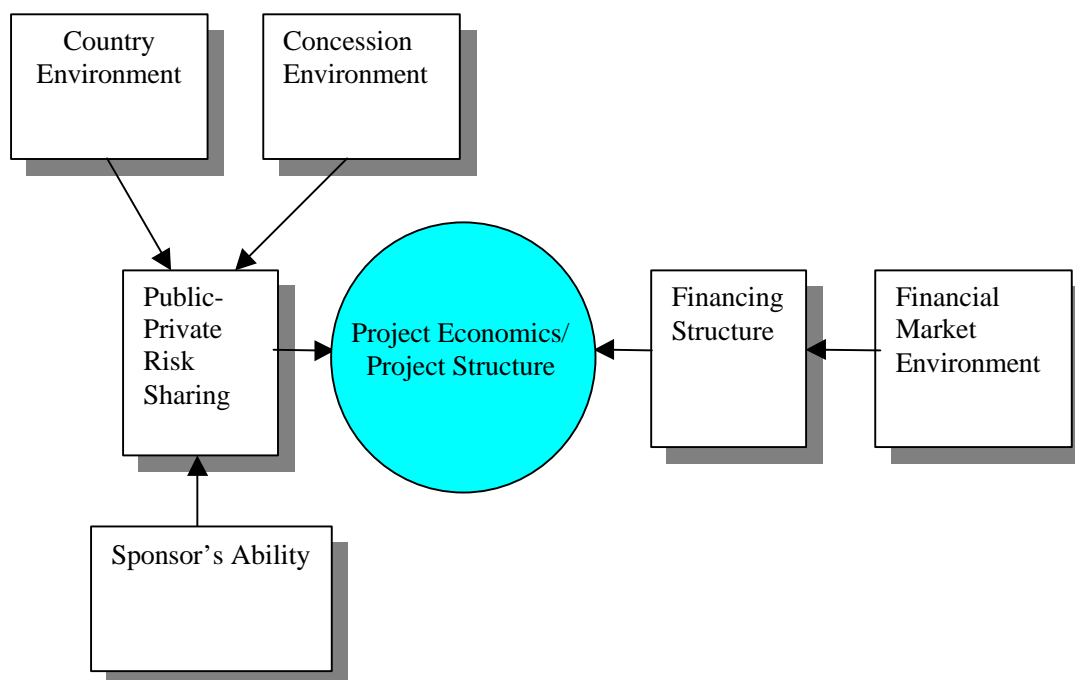
10. A favorable country and concession environment can be crucial to attracting financing and limiting the need for government assumption of risk, while an unfavorable environment may preclude financing without substantial government support.

11. In principle, project risks in private toll road development should be assigned to the public or private entity that is best able to manage them. The private sector is generally better at managing Comerica risks and responsibilities, such as those associated with construction, operation, and financing. But in order for a project to obtain financing, public participation may be required in areas such as acquisition of right-of-way, political risk, and, in some cases, traffic and revenue risk.

12. Sponsors' ability to successfully construct and operate a project is very important to attract financing. In the same manner, the sponsors' ability to assume necessary project risk is considered critical since it is very rare for a toll road project to be financed on a purely non-recourse basis.

13. Financing structure of a project is a reflection of all the above elements, but is generally composed of the equity of sponsors and other investors with debt financing of various sources, which sometimes includes that of the governments. The financing structure is also affected by the situation of financial market environment at the time of financial closing.

**Figure 3 Critical Elements for BOT Project Evaluation**



14. **Country Environment.** A stable economic and political environment is critical for attracting investment to a project. The environment can be evaluated on the basis of macro-economic stability, country risk rating, and sovereign debt ratings. Table 1 illustrates an example of comparative analysis for the economic and political environment among the target countries.

**Table 1 Economic and Political Environment of Target Countries**

Country	Country risk rating <sup>1</sup>	Standard & Poor's rating <sup>2</sup>	Annual inflation rate <sup>3</sup> (percent)	Annual GDP growth (percent)	Local interest rate <sup>4</sup> (percent)	Change in U.S. dollar value of currency <sup>5</sup> (percent)
Indonesia	32.9/51.8	CCC+/BBB	59.9/4.83	1.37(97)/9.5(96)	70.68/13.47	409.3
Malaysia	59.0/66.7	BBB-/A+	4.13/2.24	8.21(96)	12.16/9.25	57.8
Philippines	43.0/44.3	BB+/BB+	41.93/4.78	4.69(97)	13.00/10.00	45.18
PRC	57.7/57.8	BBB+/BBB+	7.45/10.11	11.6(94)	7.98/10.08	-0.13
Thailand	47.5/59.9	BBB-/A	10.7/4.43	5.52(96)	12.50/10.50	28.63

<sup>1</sup> Higher number indicates less country risk; based on a country credit rating by Institutional Investor (left is dated in September 1998 and right is dated in September 1997)

<sup>2</sup> Rating of long term debt (left is dated in September 1998 and right is dated in July 1997)

<sup>3</sup> left is dated in June 1998 and right is dated in June 1997

<sup>4</sup> Local interest rate is measured by official money rate in Thailand and measured by call rate in other countries(left is dated in April 1998 and right is dated in April 1997)

<sup>5</sup> Change in currency relative to the U.S. dollar between July 1997 and July 1998

15. **Concession environment.** The concession environment refers to the policy, laws, and procedures a country has in place to support the implementation of a concession program, including:

- *Overall road concession policy.* Is the government committed to a sound concession program that is coordinated with its broader transportation policy? Has the government successfully concessioned other roads?
- *Concession legislation.* Has the government enacted legislation to encourage concessions generally and to authorize toll road concessions specifically?
- *Concession process.* Are the concession term and regulatory mechanism conducive to attracting long-term private capital? Is the process competitive, transparent, and based on reasonable evaluation criteria?

16. **Public-Private Risk Sharing.** The private sector is primarily responsible for construction and toll collection, while the public sector retain legal ownership of the facility. Design responsibility is generally shared. The main risks facing private toll road projects include pre-construction, construction, traffic and revenue, currency, force majeure, tort liability, political, and financial. These risks must all be addressed in a manner satisfactory to debt and equity investors before they will commit to project funding.

17. **Sponsor's Ability.** A project company is generally a consortium of parties with different specialty required for the development of toll road project. The sponsor(s) of the project must have sufficient track records in executing a number of similar projects in the area and must be able to assign appropriate team of people at various stages of project development to coordinate the complicated process of a private financed toll road project. The team at the early stage must have an expertise not only in the technical aspect of the project but the financial and legal aspects in order to construct financial model and to draft essential contracts using outside experts in the areas.

18. **Financing structure.** Most private toll roads are undertaken on a project finance basis, whereby investors rely on the performance of the project for payment rather than the credit of the sponsor. This arrangement is also referred to as limited recourse financing, which indicates that lenders have limited recourse to the sponsors for payment if the project fails to generate adequate returns.

19. A primary benefit of project finance structure is that they allow sponsors to leverage their resources and expertise with outside capital in order to undertake projects that otherwise would not be able to finance on the strength of their own balance sheet. In addition, project finance allows sponsors to share project risks with lenders and maintain the project debt off their balance sheet. Governments also seek to limit the recourse of investors to their credit, except to the extent that they provide financial support through such means as minimum traffic and revenue guarantees and loans.

20. Toll road project financing normally involves:

- Complete analysis of the country, economic, legal, and political environment in which the project will be developed.

- Detailed studies by engineering experts and financial advisers, including traffic and revenue projections, construction cost estimates, preliminary design documents for the project, and financial feasibility studies.
- Complex loan and security documentation, often involving multiple lenders, investors, project sponsors, and government agencies.
- Negotiation of a concession agreement, including a detailed allocation of risks and responsibilities among the various project participants.

21. **Financial markets environment.** A private toll road project financing involves various financial markets; foreign equity investment, local equity investment, foreign commercial bank loan, domestic commercial bank loans, ECA loans and guarantee, Multilateral Agencies loans and guarantee, Bilateral Official Development Assistance, domestic and foreign bond markets, infrastructure equity funds, subordinated loans and so on.

22. Financial structure and financial closing of private toll road project may significantly be affected by the conditions of these markets, the details of which should be discussed in various chapters of this report.