About People’s Republic of China: Toll Roads Corporatization Strategy
Towards Better Governance

This report draws on extensive review, examination, and international experience to explore five key areas that impact corporatization and privatization policy: the separation of owner and service provider functions, competition, value-for-money, contract clarity, and transparency. A strategy of corporatization and privatization will assist the People’s Republic of China finance the current $250 billion expansion of its national highway network. Corporatization and privatization will not only diversify financial resources available for toll road expansion but also improve highway efficiency and quality through commercial management.

About the Asian Development Bank

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People’s Republic of China

Toll Roads
Corporatization Strategy
Toward Better Governance

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Asian Development Bank
Abbreviations

ADB – Asian Development Bank
BOT – build–operate–transfer
DBFO – design–build–finance–operate
EMB – Expressway Management Bureau
FYP – Five-Year Plan
GDP – gross domestic product
HAB – Highway Administration Bureau
HDM – Highway Design and Maintenance Standards Model
JEHDRA – Japan Expressway Holding and Debt Repayment Agency
M&E – monitoring and evaluation
MOC – Ministry of Communications
MOF – Ministry of Finance
MOT – Ministry of Transport
NAO – National Audit Office
NDRC – National Development and Reform Commission
O&M – operation and maintenance
PCD – Provincial Communications Department
PFI – Private Finance Initiative
PRC – People’s Republic of China
PPP – public–private partnership
PPTA – project preparatory technical assistance
SECCD – Sichuan Expressway Construction and Development Corporation
SECL – Sichuan Expressway Company Limited
SPCD – Sichuan Provincial Communications Department
SRA – Swedish Road Administration
SRBG – Sichuan Road and Bridge Corporation
WRDS – Western Region Development Strategy

NOTE

In this report, “$” refers to US dollars.
Between 2006 and 2020, the People’s Republic of China (PRC) will require about CNY2 trillion in resources to expand its network of tolled expressways from the present 41,000 kilometers (km) to some 85,000 km, and expects the private sector to fund a much larger proportion of projects than in the past under a policy of corporatization and privatization.

The People’s Republic of China (PRC) views corporatization and privatization as a policy instrument to achieve two main objectives: bridging the funding gap by diversifying funding and by managing the network on a commercial basis, raising standards of efficiency and quality. The purpose of this report is to review the suitability and effectiveness of this corporatization and privatization strategy, comparing it with approaches used in other countries, and recommending practical changes that would enhance efficiency, transparency, and accountability. It examines whether the present strategy ensures value-for-money from investments, effectively secures private sector participation under the right conditions, and provides for transparency, accountability, and good governance. Its focus is on management mechanisms that govern the toll road network, the institutional arrangements involved, the process of attracting investment and transferring management and tolling rights, and the policy and procedural reforms that could be implemented in the short term by the Ministry of Transport, its representatives at provincial and municipal levels, and the Asian Development Bank (ADB) to address apparent shortcomings.

The report seeks to create a platform for policy dialogue between the government and ADB to guide development of a toll road corporatization strategy for the PRC’s 12th Five-Year Plan.

ADB staff member, Xiaohong Yang, senior transport economist, and John Lee, staff consultant (initially through Meyrick & Associates of Australia), prepared the report under the management of the Transport Division of ADB’s East Asia Department.

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Executive Summary

Between 2006 and 2020, the People’s Republic of China (PRC) plans to spend about CNY2 trillion expanding its network of tolled expressways from 41,000 kilometers (km) to about 85,000 km. Under a policy of corporatization and privatization, the PRC expects that the private sector will fund a larger proportion of projects than previously. The PRC views corporatization and privatization as achieving two main aims: bridging the funding gap by diversifying financial resources, and raising standards of efficiency and quality through a commercially managed road network.

This report reviews the suitability and effectiveness of corporatization and privatization strategy, compares it with international approaches, and recommends practical changes to enhance efficiency, transparency, and accountability. It examines the strategy’s ability to ensure value-for-money from investment; its effectiveness in securing private sector participation under the right conditions; and its ability to ensure transparency, accountability, and good governance. The report focuses on the mechanisms of toll road management, the institutional arrangements involved, the process of attracting investment and transferring management and tolling rights, and the policy and procedural reforms that could be implemented in the short term by the Ministry of Transport (MOT), its representatives at provincial and municipal levels, and the Asian Development Bank to address apparent shortcomings.

With an optimal contract-based relationship between owner and operator, corporatization potentially enhances efficiency and accountability. Privatization can help attract needed investments, delay repayment, release funds for other uses, and make users pay a larger percentage of their road-related costs. Involving private funding and management potentially can bring greater efficiency, make decisions more flexible, and encourage a life-cycle approach to asset management. Risks can be allocated to the party best able to manage them. Because the key drivers of investor return—traffic and toll levels; construction, operation, and maintenance costs; institutional arrangements; and government’s willingness to invest—differ between projects, each option requires assessment on its own merits and comparison with traditional forms of project procurement and implementation.

The PRC has achieved significant success in rapidly developing an extensive network of tolled high-grade highways and expressways. Nevertheless, this review identifies several areas of concern. Recognizing that not all models are suitable for the PRC and its socialist market economy, the report makes recommendations in five key areas, reflecting success factors learned from the overseas experience:

- separating owner and service-provider functions to establish a contract-based relationship that makes the service provider more accountable against specified criteria;
- using competition to promote efficiency, quality, and economy for outsourced tasks as well as full project financing, delivery, and operation;
- including in the preparation process a comparison of value-for-money for all realistic technical, management, and financing options, such as public sector financing and management;
- ensuring that concession agreements or contracts clearly delineate roles, obligations, and measurable performance targets; identify and allocate all risks; and limit permissible renegotiation; and
- creating a fully transparent project planning and procurement process that allows external parties to scrutinize performance and ensure compliance.
Contents

Introduction 1
   Background 1
   Objectives and Focus 1
   The Report 2

Highway Development Plans in the People's Republic of China 3
   Achievements 3
   Plans and Priorities 3
   Financing Highway Development 4

The Government's Approach to Corporatization 11
   Aims of Corporatization 11
   Corporatization Policies 11
   Legal Framework 12
   Tolling Policy 13
   Corporatization Modalities 14

The Case of Sichuan 19
   Sichuan's Highway Network 19
   Institutional Arrangements 19
   Sichuan's Toll Road Plans and Management/Corporatization Policy 20
   Review of Corporatization Models 25
   Summary of Needs and Recommendations for Sichuan 39

Lessons from Overseas 41
   The Overseas Experience 41
   Alternative Approaches 41
   Concession Design 48
   Privatization: A Panacea? 49
   Best Practice and Conditions for Success 49

Issues in Corporatization and Privatization 53
   Off-Budget Capital Financing 53
   Value-for-Money 53
   Better Asset Management 54
   Incentive and Competition 54
   Concession Design and Selection Criteria 54
   Concession Agreements 54
Performance Monitoring 56
Operational and Financial Performance 56
Monitoring, Transparency, and Accountability 57
Recognizing and Allocating Risk 57
Project Financing 57
Forecasts and Optimism Bias 58
Unsolicited Proposals 59
Timing and Technical Standards 60
Approval, Agreement, and Dispute Resolution 60
Toll Setting, Sustainable Financing, and Cost Recovery 60
Economic versus Financial Objectives 61
Project versus Corridor or Group Approach 62

A Strategy for Better Governance 65
Summary Assessment 65
Separation of Functions 65
Competition 68
Comparison of Technical and Management Options 69
Reporting and Transparency 72
Summary of Conclusions and Recommendations 72

Appendix 1: ADB Loan Projects (1991–2005) 76
Appendix 2: ADB Policy and Planning Technical Assistance Projects 78
Appendix 3: Assessing Value-for-Money: Additional Feasibility Study/Project Preparatory Technical Assistance 81
Appendix 4: Contingency Table 84
Appendix 5: Concession Agreement 88
Bibliography 94
Introduction

Background

Over the next 15 years, the People’s Republic of China (PRC) plans to spend some CNY2 trillion building tolled expressways. By 2020, according to the Ministry of Communications (MOC), the network will amount to some 85,000 kilometers (km), a huge increase over the present 41,000 km, in itself a startling achievement—there were only 522 km in 1990—and comparable with the rate of development of the interstate highway network in the United States. Large investments will also be made in Class I and II highways, many with loans repaid from tolls. Capital spending on roads in 2004 was 3.4% of gross domestic product (GDP) and 6.7% of all investment in fixed assets. The private sector has contributed only about 5% of the total to date, but the government expects it to help fund a larger proportion of the network in the future.

Although the government finances most highway investment from its own budgets and domestic bank loans, it also utilizes loans from international financial institutions, notably the Asian Development Bank (ADB), World Bank, and Japan Bank for International Cooperation. ADB has supported 31 highway projects since 1991 with loans totaling $6.2 billion (Appendix 1). It has also helped develop sector policies and plans (Appendix 2), and maintains a dialogue with the government on key policy issues such as rural access, poverty reduction, highway design standards, construction quality, road safety, vehicle emissions, road pricing, toll road corporatization and commercialization, financial resource mobilization, and road transport regulation.

The expressway program focused initially on the busier corridors, mostly in the eastern provinces, where investor returns tended to be more attractive. With a renewed emphasis in the 2006–2010 11th Five-Year Plan (FYP) on addressing regional income and growth disparities, a greater proportion of future spending will likely be in the western and central regions, where the network is less well-developed, construction costs are higher, and traffic levels and financial returns are lower. A tension is emerging between the need to set tolls at levels, which provide acceptable financial returns, and the objective of maximizing the economic benefits of infrastructure investment. Under these circumstances, and with the 11th FYP only beginning, it is appropriate to review the strategy for toll road corporatization and privatization and to consider whether the present approach could be improved upon.

Objectives and Focus

The purpose of this report is to review the suitability and effectiveness of PRC’s toll road corporatization strategy, compare it with approaches used in other countries, and recommend practical changes to enhance efficiency, transparency, and accountability. It seeks answers to the following questions:

- Does the present strategy ensure value-for-money from investments in high-grade highways?
- Is it effective in securing private sector participation, under the right conditions, to help raise efficiency and bridge the financing gap between infrastructure needs and available public sector resources?

1 The administrative classification of the network includes national, provincial, county, township, and other roads. Technical categories include expressways—Class I, Class II, Class III, Class IV—and unclassified roads.

2 This includes investments by state-owned enterprises (SOEs). Elsewhere in this report, statistics referring to private investments may also include those of the SOEs; they often do not distinguish between the two.
• Does it ensure transparency, accountability, and good governance in the development and management of the network?

The report does not question the value of private sector participation in expressway investment and management, but rather suggests ways of making it serve the public interest better. Although the report also does not provide a detailed review of alternative approaches to raising private capital, it does comment about prospects of mobilizing non-bank sources. The main focus is on how the toll road network is managed, the institutional arrangements involved, the processes of attracting investment and transferring management and tolling rights, and the policy and procedural reforms that could be implemented in the short term by MOC, the Communications Departments at provincial and municipal levels (PCDs), and ADB to address apparent shortcomings.

In the course of the review, discussions were held with PCDs; other provincial officials and toll road operators in Gansu, Shanxi, Heilongjiang, Hunan and Sichuan provinces; and representatives of MOC, National Development and Reform Commission (NDRC), Ministry of Finance (MOF), and World Bank. A detailed assessment of corporatization strategies was made in Sichuan Province. Otherwise, the review draws on the ADB’s experience and information from published sources.

The Report

The report is organized as follows:

• Section II outlines the PRC’s achievements in developing its high-grade highway network, its future plans and investment needs, and the role it expects of the private sector.
• Section III reviews the policy and legal framework governing toll road corporatization in the PRC and examines the range of corporatization and privatization models used.
• Section IV examines in greater detail the options used in Sichuan, which has tried several different approaches.
• Section V considers the experience of some other countries and draws conclusions about conditions for success and their applicability to the PRC.
• Section VI discusses some of the issues that affect corporatization and privatization strategies.
• Finally, Section VII suggests how the PRC might benefit from a limited number of reforms aimed at promoting better governance, summarizes the review’s conclusions, and makes a number of recommendations for changing existing policies and procedures, some for implementation by MOC, others by the provinces/municipalities and ADB.

Box 1: Coverage of Toll Road Corporatization

In this report, toll road corporatization involves assigning responsibility for its management and operation to a separate agency to run it in a more cost-conscious, businesslike way. Corporatization and commercialization are essentially synonymous.

Toll road privatization goes a step further, tapping the skills and capabilities of the private sector—including access to capital—by transferring rights to a separate company with private shareholding.

Note, although, that even for government-managed toll roads many advantages of private participation can be achieved by outsourcing the various construction, maintenance, and operating tasks.

Source: Authors.

3 The authors are grateful for the assistance received from all these sources, especially those in Sichuan who made much useful information available.
Highway Development Plans in the People’s Republic of China

Achievements

Between 1990 and 2005, the expressway network in the People’s Republic of China (PRC) grew from a mere 522 kilometers (km) to 41,005 km—an impressive annual growth rate of 33.8%, compared with 4.3% for the network as a whole. By the end of 2005, expressways accounted for 2.1% of all public roads, or 2.6% of all except unclassified roads. Since 1990, some 851,000 km of new expressways and highways of Classes I to IV have been built or substantially upgraded. This almost unprecedented expansion of road infrastructure has played an important role in transforming the economy and promoting growth, especially in the less-developed central and western regions.

Although growth in expressways has been fastest, albeit from a low base, impressive achievements have not been limited to them alone: over the same 15-year period, the length of Class I roads has increased by 35,764 km, Class II by 203,066 km, and Classes III and IV by 571,374 km (Figures 1 and 3). The network of national roads has grown by 25,163 km, provincial roads by 67,701 km, county roads by 153,475 km, and township roads by 611,277 km (Figures 2 and 4). Even so, the PRC’s road network density is only 9.6 km per 100 square kilometers, or 14.76 km per 10,000 people. This is significantly lower than in Southeast Asian countries and the West.

Plans and Priorities

The government’s guidelines for the 11th FYP period, 2006–2010, differ from earlier 5-year plans by avoiding specific targets (except for gross domestic product [GDP] per capita and energy consumption). Instead, they acknowledge the driving factors of globalization, rapid growth, industrialization, urbanization, market forces, and technological change, and outline basic principles for harnessing these to achieve broad goals. Sustained, rapid economic growth remains a priority, but a more harmonious society, (i.e., reducing income inequalities, putting people first, strengthening human resources, protecting the environment, and cushioning the impacts of development on society) is considered important. In addition, the government plans more investment in rural services and infrastructure, including arterial highways and rural roads. The bureaucracy is to be streamlined and the tax system overhauled (including introduction of a fuel tax, foreshadowed in 1997). Hitherto state-controlled sectors—natural resources, utilities, telecommunications, and banks—are to be opened to private investment. The key priorities for the highways sector include developing poorer, rural areas and opening up the western region, introducing the fuel tax, continuing progress toward transparent markets, and reducing the state’s role in infrastructure and services.

The PRC’s focus on the underdeveloped central and western regions mirrors earlier concerns about regional disparities that gave rise to the Western Region Development Strategy (WRDS) in 1999. Among other things, the WRDS aimed to increase the pace of infrastructure development in the western region, with major transport routes between larger cities and economic zones. The proportion of central government budgets

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*The western region comprises Chongqing municipality; the provinces of Gansu, Guizhou, Qinghai, Shaanxi, Sichuan, and Yunnan; and the Tibet, Ningxia Hui, Xinjiang Uygur, Inner Mongolia, and Guangxi Zhuang autonomous regions, home to most of the PRC’s minority populations and many of those living in poverty.*
and loans earmarked for the region was to be increased, with state-funded infrastructure projects and the distribution of subsidies targeting impoverished areas. State-owned enterprise (SOE) reform, private sector development, and favorable tax treatments were designed to attract investment. Foreign investment was encouraged in infrastructure and resource development, including projects in the transport sector.

The 11th FYP envisages a total expenditure of CNY1.83 trillion (almost $230 billion) for highway development, of which 46% (CNY846 billion) is targeted for expressways. User taxes, (i.e., the road maintenance fee and vehicle purchase fee but not the proposed fuel tax) are expected to contribute CNY840 billion and toll revenues CNY50 billion, leaving a gap of CNY940 billion (51% of the total) to be funded from national and local government budgets, loans, and sources of private capital.

The core network of expressways—the “7918 network”5—will total 55,000 km by 2010, 85,000 km by 2020. All will be tolled, as will a large proportion of new Class I highways. Three main factors determine priorities for project scheduling: linking all major cities in central and western regions with expressways, providing additional capacity in heavily-trafficked corridors in the east, and filling remaining gaps in the network. ADB has made a great contribution to the “7918 network.” Figure 5 shows road project financed by ADB from 1991–2005.

Individual projects in the national highway network require the approval of the Ministry of Communications (MOC) and the National Development and Reform Commission (NDRC), the government’s intersectoral planning agency. Before being submitted, they undergo feasibility studies carried out mostly by provincial highway research institutes, some of which are under Provincial Communications Department (PCD) control. As with other international finance institutions, projects proposed for ADB loans are reviewed by external consultants under grant-funded project preparatory technical assistance (PPTA) projects. People’s Committees approve projects in municipal or provincial networks—following review by their respective provincial planning agencies.

MOC sets technical standards, which vary by road class, traffic volume, function, and level of service. The most recent, developed with ADB assistance, were issued in 2004.6 These contain provisions for environmental protection, road safety, and integrated highway development. ADB has also helped upgrade the government’s capacity to monitor and evaluate project quality and performance.

Financing Highway Development

Attracting private capital is an important policy aim. Until now, however, only 5–6% of toll road development expenditures have been privately funded. Figure 6 shows growth in road development expenditure between 2000 and 2004 by class of road. The proportion of spending on trunk highways has fallen, from 46.8% of CNY231.6 billion in 2000 to 37.2% of CNY470.2 billion in 2004, reflecting the government’s emphasis on achieving balanced network development and improving access to rural areas. However, the composition of funding resources has been fairly stable (Figure 7). For 2005, 42% of total road development spending were to be funded from domestic and (to a much lesser extent) international bank loans, 28% from provincial governments’ own sources (including revenues from the annual road maintenance fee charged to vehicle owners), 15% from local government sources, 12% from central government grants and only 4% from the private sector and SOEs (Figure 8). Although it was never intended that private finance would be the predominant mode (many projects, particularly in central and western regions, do not carry enough traffic to make the investment commercially profitable, and investors have found other alternatives more attractive), the government wants to encourage more.

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5 Seven routes radiating from Beijing, nine running north–south, and 18 east–west.
Figure 1: Highway Network by Technical Class, 1990 and 2005

Source: Ministry of Communications. Statistical Yearbooks.

Figure 2: Highway Network by Administrative Class, 1990 and 2005

Source: Ministry of Communications. Statistical Yearbooks.
Figure 3: Network Growth by Technical Class, 1990–2005


Figure 4: Network Growth by Administrative Class, 1990–2005

Figure 5: ADB-Financed Road Projects in the People's Republic of China, 1991–2005
Figure 6: Investment in Road Development by Class of Road, 2000–2004

CNY = yuan.

Figure 7: Investment in Road Development by Source of Funds, 1998–2004

CNY = yuan.
Source: China Highway and Waterway Transport Statistical Yearbooks.
Figure 8: Sources of Highway Development Funding, 2005 (CNY billion)

CNY = yuan, MOC = Ministry of Communications, NDRC = National Development and Reform Commission.
Source: China Highway and Waterway Transport Statistical Yearbooks.
The Government’s Approach to Corporatization

Aims of Corporatization

The government views corporatization and privatization as a two-step process of diversifying financing sources and bridging the funding gap by involving private capital, whether directly (through equity participation) or through the markets (stock listing). Corporatizing a toll road involves assigning responsibility for its management and operation to a separate agency that runs it in a more cost-conscious, businesslike way. The aim is to establish an arm’s-length relationship between the toll road owner—the municipal or provincial government, acting through its Provincial Communications Department (PCD)—and the operator. A concession agreement sets out the terms of this relationship and the rights and obligations of the operator, although not always for expressway entities that remain under direct PCD control. The advantages of corporatization include giving the owner the ability to hold the operator accountable under the terms of the agreement, and giving the operator freedom to make decisions and assign resources within the terms of the agreement, without interference from the owner.

In assessing alternative corporatization strategies, therefore, a key question is whether this arm’s-length relationship is established effectively and whether the agreement allows objective assessment and monitoring of management, technical, and financial performance.

Privatization (i.e., transferring rights to a separate company with private shareholding) goes a step further, tapping the skills, capabilities, and sources of finance in the private sector. This is expected to result in greater cost certainty, expedited implementation, greater efficiency, higher quality, innovative technology, specialized expertise, and access to private capital. It can bring an entrepreneurial, profit-oriented approach to highway development, management, and operation. The private sector benefits through the opportunity to profit from its investment.

Toll roads require large, up-front investments recouped from toll revenues over a long period of time. Because this is risky, it is arguably effective to shift some of these risks onto a commercial entity with more incentive to control them. Thus, a critical issue for private participation is how risks are identified and allocated. Public–private partnerships (PPPs), which include most privatized toll roads, convey the notion of a partnership only by virtue of the way risks are identified and assigned by agreement, usually to the party best able to control them. For toll roads, it is generally more effective to shift the risk and responsibilities of meeting tight construction schedules, controlling costs, and attracting traffic to the private party, who usually is better placed and has greater incentive to manage them. Toll road partnerships can also involve the private sector in providing innovative approaches to debt and equity finance, augmenting public funds.

Corporatization Policies

The government has a policy of corporatizing toll roads and promoting private sector participation. As noted previously, it expects the private sector to contribute a proportion of the funds needed to develop the expressway and Class I and Class II networks, and recognizes the need for inducements and risk mitigation. The Ministry of Finance (MOF) and the Ministry of Communications (MOC) are working to improve the legal basis for transferring operating and tolling rights.
International lending agencies, including ADB, also support toll road corporatization and, where possible, privatization. The ADB private sector assistance strategy focuses especially on finance and infrastructure support for private intermediaries in banking, leasing, venture capital financing, merchant banking, microcredit, small and medium-sized enterprises, housing finance, private equity funds, mutual funds, insurance, securitization, credit enhancement, and credit rating, as well as the development of telecommunications, power and energy, water supply and sanitation, ports, airports, and toll roads. ADB-sponsored projects involve risk-sharing and ownership arrangements that include build–own–operate and build–operate–transfer (BOT) structures.

ADB operations in the People’s Republic of China (PRC) seek to balance poverty reduction with the government’s need for support in infrastructure development, environmental protection, agriculture and natural resource management, social sector development, private sector development, and regional cooperation. In the highways sector, these include: building highways between major growth centers and improving access in the western and central regions; integrating the national trunk highway system with local roads, particularly by providing access to poor areas; promoting road safety; reducing vehicle emissions; strengthening corporatization and commercialization of expressway organizations; adopting appropriate pricing policies to ensure optimum use of road capacity; addressing traffic safety and environmental issues; and using alternative methods of investment financing, including private sector participation.

**Legal Framework**

The main laws and regulations governing development, management, and operation of toll roads in the PRC include:

- the 1997 Highway Law, which authorizes tolls on highways built using loans or funds provided by enterprises, economic organizations, or individuals, but not on highways wholly funded by the government unless toll rights have been assigned to such organizations. Tolls can be used to service debt and recover operating expenses. Toll rates must be set by reference to an appropriate return on funds invested, rates charged on other toll roads, users’ ability to pay, the benefits of the tolled road to users, and traffic flows. The law also authorizes the use of fuel taxes to finance roads; this provision has not been implemented, but the 11th Five-Year Plan (FYP) guidelines contain a new reference to a fuel tax.

- the 2004 Regulation on the Administration of Toll Roads (State Council Decree 417), based on the Highway Law, which aims to regularize toll road administration, encourage development of the network, and define the rights and obligations of owners, operators, and users.

- the 2006 Company Law, which governs the establishment of companies and enterprises and provides the legal basis for corporatizing infrastructure projects.

- the 1998 Securities Law, which regulates stock-listed companies, including

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9 Other relevant laws include the Constitution, the 1999 Contracts Law, the 1995 Arbitration Law, the 1994 Compensation Law, the 1989 Environmental Protection Law, the 1987 Land Administration Law (recently amended), the 1979 Sino–Foreign Equity Joint Venture Law, the 1994 Compensation Law, the 2003 Road Traffic Safety Law, and the 2004 Road Transport Ordinance, but these do not impact significantly on the corporatization and privatization process. Along with other members of the World Trade Organization and other regional trade bodies, the PRC agreed to open access by foreign parties to the markets for transport services and infrastructure. Wholly foreign-owned enterprises are already permitted to develop and operate toll roads.
10 The regulations governing tolls are set out in MOC’s Regulations on the Collection of Vehicle Tolls for High-Grade Highways and Large Highway Bridges and Tunnels Constructed with Loans (effective February 1988), Regulations Concerning the Establishment of Toll Stations Along Highways (effective June 1994), and Toll Road Vehicle Classification System for Tolling, 11/14/19-2003.
fund-raising for infrastructure projects on securities markets.

- the 1999 Bidding Law, which governs procurement and tendering for public sector projects.
- the 2002 Procurement Law, which aims to improve transparency, reduce corruption, and lower government costs by increasing competition and transparency in the purchase of goods, construction contracts, and services by government and parastatal entities.

Decree 417 reaffirms that roads financed from government budgets cannot be tolled, and that the primary method of road management excludes tolls (i.e., tolling is to be the exception rather than the rule). The decree distinguishes between two kinds of toll roads:

- government loan–repaying toll roads built by public communications agencies and funded by government loans or bonds, and
- “operational” (commercial) toll roads that have the right to levy tolls assigned to domestic or foreign economic organizations or enterprises.

Except for airport access roads, tolled expressways must exceed 30 kilometers (km) and tolled Class I roads must exceed 50 km. Two-lane tolled bridges or tunnels must exceed 800 meters (m) and four-lane bridges and tunnels must exceed 500 m. Tolls are allowed on Class II roads only in the central and western regions, and only if they exceed 60 km.

In keeping with its principle of separating the functions of government from those of the toll road operator, Decree 417 requires the establishment of special nonprofit legal organizations to build and administer government loan–repaying toll roads. Revenues must be deposited into a special account and used only to repay funds raised or borrowed. PCD must approve all toll increases. As for government loan–repaying toll roads, the tolling will cease after a maximum of 20 years in the central and western regions and 15 years elsewhere.

Operational/commercial toll roads must be built, operated, maintained, and administered by legally constituted road enterprises. Construction contractors and investors must be selected by open competitive bidding. Tolls should recoup investment and provide a reasonable return. As for operational/commercial toll roads, the tolling period may not exceed 30 years in the central and western regions and 25 years elsewhere.

For government loan-repaying toll roads, the tolling period may, on application, be extended by up to 5 years, but not for operational toll roads or for two-lane bridges/tunnels of less than 1,000 m, Class II highways, or if more than two thirds of the tolling period has already elapsed.

Decree 417 specifies broad conditions for assigning rights and interests over toll roads; more detailed regulations are being prepared, including the right to levy tolls, sell advertising space, and operate service facilities. Operators must be selected by open competitive bidding, and their rights and interests set out in a formal contract. Revenues from the assignment of rights and interests must go into general revenue and be used for highway development.

The decree also specifies conditions for the safe operation, maintenance, inspection, and state acceptance of completed toll roads, the assignment of legal liability, and the procedures to be followed in case of violation.

**Tolling Policy**

Toll rates are approved by provincial pricing bureaus on the recommendation of the PCDs. Figure 9 shows how they vary between provinces. Three features of the toll-setting

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11 MOC issued a further ordinance, strengthening regulation on toll road rights transfer, following completion of the draft of this report. (Decree No. 11, approved in 2008).
process affect investor return, risk premium, and financing costs: the impact of toll levels on traffic diversion and revenue; government equity or grant contributions made to reduce borrowing levels and hence the tolls needed to repay loans; and the predictability of tolls (and the reliability of commitments regarding future toll increases), which affects investors’ perceived long-term risks.

Although users complain about the high tolls charged, most provinces have established a reasonable balance between financial and economic returns. Since the feasibility study usually analyzes the effect of tolls on traffic levels and revenues, the initial toll rate adopted represents a practical compromise between the needs of users and financiers. However, PCDs are unable to commit to a firm policy on future toll adjustments that would allow the developer to predict future revenues with confidence. Most concession agreements are vague regarding this matter, mainly specifying that toll adjustments will adhere to provincial policies. Thus, investors have no option but to provide for an additional risk premium. This additional cost would be lower if the concession agreement clarified how future toll increases would be handled (e.g., by specifying a fixed adjustment frequency and indexing the tolls to an independent standard of cost inflation).

**Corporatization Modalities**

**Institutional Structures**

The Highway Law sets out the responsibilities of each level of government for highway planning, development, and operation. Responsibility for national highways devolves to provincial and municipal governments and their PCDs, with plans subject to the approval of MOC and the National Development and Reform Commission (NDRC), which represent the State Council. Below this, responsibilities for provincial, county, and township roads are assigned to the respective communications departments (provincial) and communications bureaus (county and township), subject to the approval of their People’s Committees.

No fixed institutional structure is specified for the management and operation of toll roads, other than those in Decree 417 above. Each province or municipality adopts its own structure. Since most projects take the form of government loan–repaying toll roads, these structures usually take one of the following forms: 12

- a management and/or operating unit established for each project, usually an expressway company incorporated under the Company Law with majority PCD shareholding (some companies also have minority shares owned by local governments, representing their contribution of land rights).

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Figure 9: Distribution of Toll Rates, 2005

km = kilometer.

Source: Provincial Communications Departments.
• a provincial or municipal government-owned holding company, usually with PCD shareholding, which in turn owns shares in several separate operating companies, some managing only one toll road and others managing several.

These are referred to later in the report as the one-company/one-project approach and the one-company/several-projects approach.

Privatization Options

The cooperative joint venture is a commonly used mechanism for involving the private sector. In return for capital, the investor takes a (usually minority) share of equity and toll revenues. In the past, selection of the joint venture partner often lacked transparency. Although joint ventures have been popular, they are less so now. They are expensive, often requiring private returns of 16–20% per year. To reduce these costs, PCDs sometimes grant the private investors a disproportionate share of initial revenues, allowing them to reduce longer-term risk and recoup investment sooner. Because of the PCD’s continuing control, investors tend to acquiesce, losing many of the incentives of commercialization. The one-company/one-project approach also forgoes possible benefits of consolidation, scale economies, and cross-subsidy.

Alternatives to the joint venture approach include leasing (transferring a share of tolling rights in return for management and operating services) and full concessioning (assigning rights in return for construction and financing as well). Concessions cover longer periods and usually require more incentives and risk mitigation. Depending on the level of risk, the investor usually requires a higher annual return (18–22%). In the past, both leasing and concessioning also lacked transparency in the award process: partners have been selected without open tender and details of the concession agreement have often been opaque. As with cooperative joint ventures, concession agreements are often not comprehensive, with unidentified and unallocated risks, unclear schedules for future toll adjustments, incompletely defined rights and obligations, and vague dispute resolution arrangements.

There have been 18 toll road security listings since 1995. Usually around 20–40% of shares in a toll road operating company are floated on the Hong Kong, Shenzhen, or Shanghai exchanges, and PCD-owned corporations or bureaus and other provincial enterprises usually retain majority ownership. Because of an onerous approval process including 3 years of profitable operation for the Shenzhen or Shanghai listings, securitization is mainly used to refinance established toll roads. As such, it can play a potentially useful role in a rolling program of toll roads, with new projects funded from earlier proceeds of securitization, but in some cases the proceeds have been used for other, non-road purposes.

Tendered BOT concessions—under which the concessionaire finances, builds, and operates the toll road for a defined period and also assumes most categories of risk—are also gaining favor. Sichuan offered its first BOT project, the 137 km Leshan–Yibin (Leyi) Expressway, through open bidding in 2005. Suitably designed, BOT concessions have the advantage of requiring no government funding or ongoing management unless special incentives are needed. The concessionaire usually provides all the capital. Lower-than-expected traffic and revenue levels, however, and public pressure to delay toll increases can trigger renegotiation of terms. Thus, a carefully designed award process, clear selection criteria, and a comprehensive concession agreement are important. A well-crafted BOT concession is characterized by transparency and accountability, with the award process establishing a clear, contract-based relationship between owner and independent operator.

Only company shares are sold, not the separate rights to future toll revenue streams. Securitization is usually not limited to single project revenue streams; an operating entity can securitize revenue streams from more than one project.
**Examples**

PCDs commonly have a Highway Administration Bureau (HAB), an Expressway (Construction and) Management Bureau (ECMB), and sometimes one or more expressway companies, usually with majority PCD shareholding; other PCD units look after design, training, research, and traffic/transport management. Toll road projects are assigned for management and operation among the HAB, Expressway Management Bureau (EMB), and expressway companies using various criteria, often simply to even out workload.

Gansu PCD has three toll roads totaling 224 km managed by its HAB, five totaling 167 km (some still under preparation) assigned to the Changda Expressway Company (which is given responsibility for projects funded by international financial institutions), four totaling 261 km assigned to the Gansu Highway Development Company, and four totaling 354 km assigned to the Gansu Road and Bridge Investment Company, all with some PCD shareholding.

In Shanxi, loan-repaying projects are in separate expressway units under the Shanxi EMB, with 1,211 km managed by 11 EMB units. The EMB also manages the Taiyuan and Jincheng divisions, which provide maintenance and support services. The Shanxi Transport Construction and Development Investment Company manages another 1,507 km with PCD share participation. The Shanxi CHEC Jihou Expressway Company Ltd. is responsible for the Jihou expressway under a BOT arrangement and, in October 2005, transferred tolling and operating rights for the Jingda expressway to a separate expressway enterprise, also with PCD involvement.

The Heilongjiang PCD manages toll roads through its HAB and ECMB. Once operational, the PCD places them under a division of the ECMB, passing revenues through a special PCD account. The private sector participates mainly through construction and maintenance contracts. The limited experience with commercial toll road operation has been through the Northeast Expressway Company Ltd., established in 1999 by the Heilongjiang Expressway Company, Jilin Expressway Company, and Huajian Transport Economic Development Centre, and listed on the Shanghai exchange.

An EMB manages Hunan’s government loan-repaying projects, which account for half of all projects in the province, while the Hunan Expressway Construction Development Company (ECDC) handles operational and commercial projects. Hunan’s ECDC is the main shareholder in the Shenzhen-listed Hunan Changyong Expressway Company Ltd and has interests in the Shaohuai ECDC and Changsha Yiyang Expressway Company (with Hong Kong Road King Infrastructure Ltd). Hunan transferred rights for the Yiyang–Changde Expressway to the China Ruilian Industrial Group. BOT is common in Hunan. For example, the Guangdong Liantai Group built the Shaoyang–Yongzhou Expressway and maintains interests in the Changsha–Zhuzhou, Changsha–West Xiangtan, Hengyang–Shaoyang and Shaoyang–Yongzhou expressways. The Macao Triumph International Investment Company Ltd. is the sole investor in the west Changsha–Xiangtan (Changtan) Expressway, opening in late 2006; the Wuhan Aoshen Technology Development Company Ltd. is involved in the Changsha–Zhuzhou Expressway, opening in 2008. In 2003, the Hunan Haiwei Investment Company Ltd. (established by Hunan Road & Bridge Construction Group, Guangxi Bridge Engineering Company, and Hunan Transport Planning Research Institute) won an ECDC concession to build and operate the Liling–Xiangtan (Litan) Expressway (due to open mid-2007) as the Hunan Litan Expressway Construction Development Company Ltd., 85% held by Haiwei Investment Company Ltd., and 15% by the ECDC.

In 1998, the Hunan Changyong Expressway Company Ltd. issued shares to purchase rights to 52 km of the Changtan Expressway and 51 km of the Yueyang Motorway on National Highway 107. Originally established as the Hunan Changyong Highway Company Ltd., it was held jointly by the ECDC, Hunan Railway Branch of China Construction Bank, Hunan Electricity Branch of China Construction Bank, Changsha Highway Engineering Management Division, and Changsha Land Development Company Ltd.
The company listed in Shenzhen in 1999 and became Xiandai Investment Company Ltd. in 2000, when it raised CNY1 billion to buy rights to the Xiangtan–Hengyang and Hengyang–Leiyang sections of the Jingzhang Expressway. Xiandai now operates 297 km of toll roads (246 km of which are expressways), including Changsha–Yongan Expressway, Yueyang Motorway, Changtan Expressway, and Xiangtan–Hengyang and Hengyang–Leiyang sections of the Tanlei Expressway. Xiandai focuses on toll roads, but also engages in related refueling, repair, tourism, land development, and advertising businesses.

Section IV examines Sichuan’s experience with expressway corporatization in greater detail and provides a useful illustration of several common models, including one-company/one-project, one-company/several-projects, cooperative joint ventures, entrust financing, securitization, and BOT.

Table 1 summarizes the approaches reportedly taken by several other provinces. Notably, in all cases the operating entity includes continuing PCD interest.

<table>
<thead>
<tr>
<th>Province</th>
<th>Management</th>
<th>Construction</th>
<th>Operation and Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shandong</td>
<td>Shandong Provincial Expressway Bureau—a limited company in charge of financing, construction, and operation of expressways, reporting to the Provincial Communications Department (PCD).</td>
<td>The Provincial Highway Administration Bureau (HAB) maintains expressways but does not operate them.</td>
<td></td>
</tr>
<tr>
<td>Henan</td>
<td>Henan Provincial Expressway Company—a provincial holding company providing financing for toll roads and with shares in operating companies.</td>
<td>Separate project (construction), operations and maintenance (O&amp;M) companies.</td>
<td></td>
</tr>
<tr>
<td>Jiangsu</td>
<td>Hu Ning Expressway Limited (HNEL) is publicly listed (Hong Kong and Shanghai stock exchanges), focusing on toll road investment, construction, operation, and management. It owns all or part interest in the provincial tolled highways and bridges.</td>
<td>Individual construction, O&amp;M companies are all under HNEL</td>
<td></td>
</tr>
<tr>
<td>Guizhou</td>
<td>Expressway Construction Development Company (ECDC), with several operating departments that act as individual road entities; reports to the PCD</td>
<td>HAB has responsibility for O&amp;M, including toll collection; reports to the PCD</td>
<td></td>
</tr>
<tr>
<td>Guangxi</td>
<td>Guangxi PCD</td>
<td>Guangxi Communication Infrastructure Construction and Administration Bureau (GCICAB), responsible for preparation and construction of expressways and major highways.</td>
<td>Guangxi Expressway Administration Bureau (EAB), responsible for O&amp;M of expressways and major highways</td>
</tr>
<tr>
<td>Guangdong</td>
<td>Guangdong Provincial Expressway Managing Company controls development and overall operation of toll roads, with joint control between the PCD and investors. Guangdong Transportation Group Company is a large state-owned single-share company, with over 110 entities; main business is construction and operation of tolled roads and bridges, especially expressways. The Guangdong Freeway Company and Guangdong Highway Construction Company are responsible for most expressways.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Case of Sichuan

Sichuan’s Highway Network

At the end of 2005, Sichuan’s highway network totaled 114,694 kilometers (km), including 1,759 km of expressways and 1,599 km of Class I; 10,123 km of Class II; and 13,531 km of Class III highways.

Sichuan’s plans for the 11th Five-Year Plan (FYP) period will extend the network to 136,000 km by 2010 at an estimated cost of CNY110 billion. Expressway length will increase by 80% to 3,160 km, at an estimated cost of CNY70 billion–80 billion. All new expressways and other high-grade highways in the 11th FYP will be toll roads. Figure 10 shows the locations of the main expressways.

Institutional Arrangements

Figure 11 shows the institutional structure governing expressway management in Sichuan.

The Sichuan Provincial Communications Department (SPCD) maintains oversight of the highway network, including toll roads, preparing development plans, and ensuring...

Figure 10: Main Toll Expressways to Sichuan Province

km = kilometer.
Source: Author.
that technical standards and management arrangements comply with the People’s Republic of China’s (PRC) Ministry of Communications (MOC) and provincial government policies. The divisions mainly concerned with expressways are Policy and Regulations, Planning and Statistics, Finance and Audit, Construction Management, and Foreign and Economic Affairs. SPCD’s Transport Administration Bureau regulates road traffic and transport, while its Highway Administration Bureau supervises county and township administration of lower-level roads.

Under a policy of separating administrative and regulatory functions from commercial or revenue-earning operations, SPCD established in 1997 a fully state-owned enterprise, the Sichuan Expressway Construction and Development Corporation (SECDC), to manage SPCD’s expressway assets, including capital financing, investment management, project implementation, concessioning, maintenance, and operations, mostly through subsidiary companies. All toll road construction projects and operations in Sichuan are fully corporatized (i.e., managed by limited liability enterprises incorporated under the Company Law), except for a few companies that have SECDC as the major shareholder.

Expressways have usually been organized under the one-company/one-project principle, but four have been grouped under a parent company, the Hong Kong H-share listed Sichuan Expressway Company Limited (SECL), in which SECDC holds 39.3%. SECL operates the 226 km Sichuan Chengyu Expressway (Chengdu–Chongqing border), originally financed with support from a $75-million World Bank loan. It also owns (i) the Sichuan Chengya Expressway Company, which operates the 144 km Chengdu–Ya’an Expressway; (ii) 60% of the Sichuan Chengbei Expressway Company, which operates the 8.65 km Chengbei Exit Dajian Road Section I, the 10.42 km Chengdu Chengbei Exit Expressway, and the 4,800 m Qinglongchang Bridge; and (iii) 25% of the Airport Expressway Company, which operates the 11.92 km Chengdu Airport Expressway. Table 2 lists SECL’s expressway interests.

While most of these companies have majority or substantial SECDC ownership, the Chengmian Expressway Company is different. Established in 1994, it operates the 92 km Chengdu–Mianyang Expressway, which opened to traffic in December 1998, and the 27 km Dajian Highway North Section (a Class I highway) as a cooperative joint venture between SECDC and Hong Kong–based investors.

In 2005, SPCD signed a build–operate–transfer (BOT) project contract with the Leyi Expressway Company (a company established for the project by the Shandong Expressway Group, a state-owned group based in Shandong Province) to build, operate, and maintain the 136.8 km Leshan–Yibin (Leyi) Expressway.

In addition to these SPCD/SECDC projects, the Shanghai A-share listed Sichuan Road & Bridge Company and its related state-owned Sichuan Road & Bridge (Group) Corporation (SRBG) operate six tolled bridges (Minjiang First Bridge, Jinshajiang Zhongba Bridge, Tuojiang First and Second Bridges, and two others), and are developing one tolled BOT expressway (the Luzhou Ring Road) for the Luzhou local government. SRBG is the province’s largest civil works contractor, but toll revenues account for a growing share of its income. Originally an SPCD unit, SRBG’s shares are now owned by the provincial State Assets Committee, and the company operates independently of SPCD, although subject to its technical standards and policies. Local governments supervise the operation of smaller toll roads and bridges.

**Sichuan’s Toll Road Plans and Management/Corporatization Policy**

**Plans**

In the 11th FYP period, SPCD plans to complete most of the province’s main arterial network of

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14 SECL’s shareholding in Chengya was increased from 63% to 100% in July 2006.
Figure 11: Corporatization Models and Relationships between Expressway Operations in Sichuan

ADB = Asian Development Bank, BOT = build-operate-transfer, km = kilometer.

Source: Sichuan Provincial Communications Department.

Cooperative Joint-Venture Model

BOT Model

Local Government BOT Model

One-Company/Several-Projects Model

One-Company/One-Project Model

Sichuan Expressway Co

Sichuan Expressway Construction & Development Corporation (SECDC)

Chengya Expressway 144 km

Chengbei Exit Dajian Road Section 1 8.65 km

Chengdu Chengbei Exit Expressway 10.42 km Qinglongchang Bridge 4.8 km

Chengdu Airport Expressway 11.92 km

Chengmian Expressway 92 km Dajian Hwy North (Class I) 27 km

Chengle Expressway 87 km

Chengnan Expressway 215 km

Luhuang Expressway 70 km Xipan Expressway 160.7 km

Longna Expressway 87 km

Dayu Expressway 165 km

Guangling Expressway 45 km

Nanguang Expressway 70 km

Suihui Expressway 22 km

Neiyi Expressway 107 km

Mianguang Expressway 230 km

Chengdu Ring Road (East) 43 km

Chengdu Ring Road (West) 43 km

Note: SECDC shareholding in Chengya shown as 100% following recent share transfer (see main text)

ADB loan project. Others under construction or planned: Xipan (Xichang–Panzhihua) 160.7 km, Yalu (Ya'an–Lugu) 244 km, Dawan (Dazhou–Wanyuan) 138.4 km.

ADB = Asian Development Bank, BOT = build-operate-transfer, km = kilometer.

Source: Sichuan Provincial Communications Department.
expressways, linking 19 cities and townships, including all 15 cities with population more than 200,000, and the 12 main border crossing points with Shaanxi, Gansu, Qinghai, Yunnan, and Guizhou provinces; Tibet Autonomous Region; and Chongqing Municipality. SECDC will be responsible for 16 major projects, including 11 expressways, totaling 1,025 km and CNY49.2 billion in investment. Eight expressway projects carried forward from the 10th FYP, totaling 563 km, will be completed (Ya'an–Xichang and Dazhou–Shaanxi border) and construction will start on one other (Guangyuan–Shaanxi border, totaling 63 km). All projects will be built following competitive bidding. Tolling and management rights will be transferred to SECDC-owned expressway companies for operations and maintenance under concession agreements of, usually, 30 years.\(^{15}\)

<table>
<thead>
<tr>
<th>Company</th>
<th>Expressways Operated</th>
<th>km</th>
<th>SECDC Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SECL</td>
<td>Chengyu (Chengdu–Chongqing border) (100%)</td>
<td>226</td>
<td>39.3</td>
</tr>
<tr>
<td></td>
<td>Chengya (Chengdu–Ya'an) (100%)</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Airport Expressway (25%)</td>
<td>11.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chengbei Exit (60%)</td>
<td>10.4</td>
<td></td>
</tr>
<tr>
<td>Chengmian</td>
<td>Chengmian (Chengdu–Mianyang)</td>
<td>92</td>
<td>40.0</td>
</tr>
<tr>
<td></td>
<td>Dajian Highway North Section (Class I highway)</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Chengle</td>
<td>Chengle (Chengdu–Leshan)</td>
<td>87</td>
<td>40.0</td>
</tr>
<tr>
<td>Chengnan</td>
<td>Chengnan (Chengdu–Nanchong)</td>
<td>215</td>
<td>100.0</td>
</tr>
<tr>
<td>Panxi</td>
<td>Luhuang (Lugu–Huangtian)</td>
<td>70</td>
<td>89.0</td>
</tr>
<tr>
<td>Nanfang</td>
<td>Longna (Longchang–Quba)</td>
<td>87</td>
<td>88.0</td>
</tr>
<tr>
<td>Dayu</td>
<td>Dazhou–Lingshui</td>
<td>165</td>
<td>38.0</td>
</tr>
<tr>
<td>Chuandong</td>
<td>Guangling (Guang’an–Lingshui)</td>
<td>45</td>
<td>83.0</td>
</tr>
<tr>
<td></td>
<td>Nanguang (Nanchong–Guang’an)</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Zhongtong</td>
<td>Suihui (Suining–Huima)</td>
<td>22</td>
<td>67.0</td>
</tr>
<tr>
<td>Chuanan</td>
<td>Neiijiang–Yibin</td>
<td>107</td>
<td>74.0</td>
</tr>
<tr>
<td>Chengmianle</td>
<td>Mianguang (Mianyang–Guangyuan)</td>
<td>230</td>
<td>100.0</td>
</tr>
<tr>
<td>Raodong</td>
<td>Chengdu Ring Road (East)</td>
<td>43</td>
<td>100.0</td>
</tr>
<tr>
<td>Raoxi</td>
<td>Chengdu Ring Road (West)</td>
<td>42</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\(^{15}\) Decree 427 allows a maximum of 30 years in the central and western regions, including Sichuan.

\(^{15}\) Decree 427 allows a maximum of 30 years in the central and western regions, including Sichuan.
The Leyi BOT project is scheduled for completion by October 2009, and at least four other projects (Ya’an–Leshan, Yibin–Luzhou–Chongqing border, Naxi–Guizhou, and Suining–Neijiang) will be offered to developers and investors as BOT contracts.

In addition to the Chengdu–Nanchong project, which opened in December 2002, two ADB-supported projects Xichang–Panzhihua (Xipan) and Ya’an–Lugu (Yalu) should reach completion by 2010, and the expressway between Dazhou and the Shaanxi border will have started construction.

Three main objectives appear to drive SPCD’s strategy for expressway development in Sichuan:

- implementing the high-grade highway plan approved by MOC and the provincial government, completing the remaining arterial links radiating from Chengdu and connecting them with adjacent provinces/regions/municipalities and major cities within the province;
- encouraging efficient technical and financial management of expressway operations by largely autonomous enterprises that act, where possible, under the pressure of competition; and
- testing new approaches to raising additional funds for planned projects.

Management/Corporatization Policy

As noted earlier, Decree 417 defines two types of toll road: those built by public communications agencies and funded from government loans or bonds (loan-repaying toll roads), and those that have tolling rights assigned to separate enterprises (operational toll roads). Sichuan’s are all in the second category.

The one-company/one-project approach is consistent with the Highway Law’s requirement to separate toll road management and operations from administrative functions. SPCD understands the risk of duplication and the possible benefits of consolidation, and SECL is partly a response to such concerns. The variety of corporatization modalities in Sichuan exemplifies SPCD’s willingness to try alternatives in its search for best value-for-money.

While most of the network is managed by state-owned companies, or ones in which the state has majority stake, no policy excludes the private sector or limits competition. Most functions (e.g., design, construction, and maintenance) are openly and competitively bid, as are BOT opportunities. Most of the key features of the approach encouraged by ADB also characterize other government-initiated expressway projects, including independent review of feasibility studies; openly tendered design, construction and procurement; and independent monitoring and evaluation (M&E).

Tolling Policy

The Highway Law authorizes tolls to service debt, recover operating expenses, and provide a reasonable return on investment. Rates are set by reference to a return on funds invested, rates on other toll roads, users’ ability to pay, benefits of the tolled road to users, and traffic levels. In Sichuan, SPCD sets the toll rates, subject to approval by the Provincial Price Bureau. Normally reviewed every 5 years, the current rates (set in December 2005 and effective in April 2006) replace rates set by MOC in 2003. The current rates apply to all tolled highway infrastructure in the province, partly to facilitate integration of toll collection systems. A set of coefficients (Table 3), varying by vehicle class, are applied to basic toll rates of CNY0.18 per vehicle-km for Class II highways, CNY0.25 per vehicle-km for Class I highways, CNY0.35 per vehicle-km for four-lane expressways, and CNY0.45 per vehicle-km for six-lane expressways.

16 Toll Road Vehicle Classification System for Tolling, JT/T489-2003.
The province allows additional tolls for long bridges and tunnels, generally at the basic rate of CNY3.0 per Class 1 vehicle; other vehicles are charged according to the coefficients in Table 3. Exceptionally large bridges or long tunnels (i.e., over 800 m for two-lane bridges and tunnels or 500 m for four-lane bridges and tunnels) may charge higher rates, depending on the cost of the infrastructure.

The new toll rates followed a 2004/2005 review by SPCD, which examined the contribution of different sizes of vehicles to operation and maintenance (O&M) costs. The previous scale reportedly overcharged heavy vehicles and undercharged smaller vehicles. Figure 12 compares the rates for selected pairs of toll stations on the Chengyu Expressway. While rates for Class 1 vehicles increased by an average of 7.7% for the toll points chosen and those for Class 2 vehicles increased by 10.4%, the rates for Class 3 vehicles fell by 17.0%, those for Class 4 vehicles fell by 26.2%, and those for Class 5 vehicles (heavy trucks) fell by 30.7%. Since earlier toll scales varied between expressways, the percentage changes for other expressways were likely similar but not necessarily identical.

In addition, SPCD has maintained a “green corridor” policy since 2003, exempting all trucks carrying fresh agricultural and husbandry products from tolls. While this helps reduce the prices of basic necessities, the impact on the revenues of the expressway companies is unknown and summary traffic statistics do not allow the proportion of traffic benefiting from this concession to be identified. However, the composition of traffic on selected Sichuan expressways suggests that the impact is relatively small.

### Project Financing

SPCD has used several methods to finance toll road projects, including

- foreign loans, taken out by SPCD and on-lent to expressway companies, including four ADB loans totaling $1.35 billion and one World Bank loan (for Chengyu) of $75 million;
- MOC grants, based on a formula that reflects road length and gives priority to central and western regions;
- bank loans, usually guaranteed by SPCD, SECDC, or SECL: for example, SECDC has borrowed CNY12.8 billion from banks for

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Table 3: Expressway/Highway Toll Coefficients

<table>
<thead>
<tr>
<th>Vehicle Class</th>
<th>Freight Vehicle</th>
<th>Passenger Vehicle</th>
<th>Toll Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L ≤ 2t</td>
<td>S ≤ 7</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2t &lt; L ≤ 5t</td>
<td>8 ≤ S ≤ 19</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>5t ≤ L ≤ 10t, 20-ft container</td>
<td>20 ≤ S ≤ 39</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>10t &lt; L ≤ 15t, 40-ft container</td>
<td>S &gt; 40</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>L &gt; 15t</td>
<td>V.</td>
<td>5</td>
</tr>
</tbody>
</table>

*ft = foot, km = kilometer, L = standard freight vehicle load (ton), S = standard passenger vehicle seats, t = ton.*

*Applied to a maximum of CNY0.35/vehicle-km (4-lane) or CNY0.45/vehicle-km (6-lane).*

Source: Sichuan Provinical Communications Department.
expressways thus far, including loans for 15 projects from the China Development Bank;
- SECDC equity contributions and loans to expressway subsidiaries made from retained earnings;
- SPCD budgets determined by the provincial government;
- capital contributions from a joint venture partner (such as Chengmian);
- share listing on the Hong Kong H-share (SECL/Chengyu) and Shanghai A-share (SRBCG) markets;
- construction funding by the Leyi BOT concessionaire; and
- entrust financing, used initially by SECDC in 2005 to borrow CNY350 million from Equity Entrust Company and China Minsheng Bank against the revenues of the Chengmian Expressway.

SPCD prefers no single model but acknowledges that private financing for the Chengmian joint venture was relatively expensive and that the listing and BOT approaches are less expensive than bank loans. However, the debt/equity ratio represents an important issue in project financing: several companies face relatively high financing charges because of inadequate capitalization and/or lower-than-expected revenues in the earlier years. Under PRC law, a minimum 35% capital requirement now applies.

Review of Corporatization Models

One-Company/One-Project Model

Basic Features

Initially used in the mid-1990s for project development rather than management, the one-company/one-project model is still the most common; indeed, many companies that built expressways under that arrangement still operate those roads today. The one-company/one-project approach is the main mechanism for establishing an arm’s length relationship between management/operations and highway administration in accordance with the Highway Law.

Figure 12: Examples of Toll Rates Before and After the 2006 Changes, Chengyu Expressway

CNY = yuan.

Source: Sichuan Provincial Communications Department.

It accounts for 1,366 km, or 78% of the length of all expressways open to traffic in Sichuan.
The typical Sichuan expressway company is a wholly state-owned, limited liability company with all or most shares owned by SECDC. SPCD supervises the assets,\textsuperscript{20} determines corporate bond issues and transfers of assets or tolling rights, and appoints the Board of Directors. The company’s financial controls and reporting must comply with MOF rules, and audited annual financial reports must be issued, but its management enjoys a degree of autonomy regarding staffing levels, salary/wage rates, borrowings, and contracts for goods and services. The company collects and manages its own revenues and is responsible for meeting its own expenses, including taxes, loan repayments, and interest. Although SPCD sets toll rates, it can take other limited measures to attract traffic, improve service quality, reduce costs, and raise profitability.

Some expressway companies carry out routine maintenance themselves;\textsuperscript{21} others call tenders for annual or 3-year maintenance contracts, usually based on work quantities and unit rates. Sichuan companies do not yet utilize performance contracts (i.e., with payments based on outcomes rather than inputs), but these are being considered.

Key factors affecting company profitability include traffic (hence, revenue) levels and loan servicing costs. Management and O&M costs reportedly vary more with the scale of operations than with the type of corporatization model. For example, in the case of the Chengnan Expressway Company cited below, loan servicing—a function of the original equity/debt financing mix and accumulated operating losses or profits to date—is the largest cost item; other companies reportedly enjoy a lower debt burden.

Example: Chengnan Expressway Company

The Chengdu–Nanchong Expressway Co. Ltd. (Chengnan) operates the 215 km controlled-access expressway between Chengdu and Nanchong, part of the Shanghai–Chengdu corridor. Opened in 2002, the expressway is mostly four-lane, dual carriageway, but 25 km have six lanes. Traffic (around 14,500 vehicles/day in 2005\textsuperscript{22}) is increasing at 9–10% per year. There are 14 toll stations, with 74 toll lanes.

The company was established in 1998 to build and operate the first ADB-supported project in Sichuan. The $250-million ADB loan covered 37.5% of the total project cost ($667.2 million). While SECDC provided most of the share capital, two local government companies hold minority shares.

The company has 620 employees (2.88 per km of expressway\textsuperscript{23}), of which 70 are classified as management and 246 as toll collectors. The general manager oversees three operating divisions (Nanchong, Daying, and Chengdu) and nine administrative departments supervised by four deputy general managers (road management and resettlement; engineering, maintenance and finance; administration and toll collection; and personnel). The company outsources most major maintenance tasks through competitive bidding for 12-month contracts.

Tolls adhere to SPCD guidelines (Table 3). Toll revenues increased by 21.4% (to CNY256 million) in 2005 after an increase of 27.3% the previous year. Chengnan participates in an integrated, online toll management system organized by SECDC based on magnetic cards and is planning to trial electronic toll collection.

\textsuperscript{20} The State Council may, however, assign asset ownership rights to such companies in special cases.
\textsuperscript{21} Technical standards for maintenance are set by SPCD, following MOC guidelines.
\textsuperscript{22} 72.8% were Class 1 vehicles, 19.8% Class 2, 5.6% Class 3, 1.7% Class 4, and only 0.1% Class 5.
\textsuperscript{23} Similar figures for other companies were not provided. By normal standards, however, given the number of toll stations, this does not appear to be excessive.
Chengnan posted a CNY38.47 million loss in 2005 (Figure 13), largely due to debt-service costs that consumed 66.9% of toll revenues. However, toll revenues exceeded direct operating costs and taxes by CNY142.45 million. The company expected to make a net profit in 2006, with toll income approaching CNY300 million. Over the medium term, Chengnan should be able to retire debt and reduce interest costs, as net profits grow and the need for additional fund injections comes to an end.

Chengnan expects to assume management responsibility for the contiguous 36.6 km Suining–Chongqing Expressway, due to open in 2007. This expressway will enhance the Chengnan corridor’s appeal as an alternative route to the Chengyu Expressway for vehicles traveling further south between Chengdu and Chongqing. Recent SPCD studies suggest that 25% of Chengyu traffic, including a higher proportion of trucks, might divert to Chengnan, where traffic at present is mainly light vehicles. This will substantially strengthen Chengnan’s revenues and profitability and negatively affect the revenues of the H-share listed Chengyu company. SPCD is studying the implications of this improvement in Chengnan’s financial position, as well as the alternative financing and management options it facilitates. No decision has yet been made, but the options include bringing it under SECL, changing it to joint-stock status, securitizing future toll revenues, and H- or A-share listing. Complicating the last of these options is the question of what to do with the original project’s capital contributions from ADB and MOC; this will require review by MOC and ADB, as well as SPCD.

Assessment

Although the one-company/one-project approach results in a limited perspective for each

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**Figure 13: Chengnan Revenue and Expenditures, 2003–2005**

![Revenue and Expenditures Diagram]

Source: Sichuan Provincial Communications Department. Net profit is calculated.

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24 Chengnan has also participated in discussions about corporatization options for the ADB-supported Ya’an–Lugu (Yalu) Expressway, but only because of its experience with ADB policies.

25 In a confidential submission to SPCD, SECL rationalized that it would result in lower management and overhead costs, allow better integration of toll and maintenance management, lower the level of tax paid by the group overall, and permit raising additional funds through A-share listing.

26 This commercialization strategy concurs with ADB policy and would likely be supported.
company it simply manages the assets—it is given and makes no contribution to broader network objectives—it appears to function well. SPCD deals with strategic concerns. SECD monitors, and is accountable to, its state shareholder for the performance of the expressway companies in which it has interests. Management and staff seem competent and focused on their assigned tasks, yet there is some freedom in assigning budgeted resources to achieve corporate targets.

The potential shortcomings, however, include

- the lack of any competitive framework for assigning management rights, and the possibility that other participants might have managed each project more efficiently; and
- the possibility that, notwithstanding SECD's common interest, separation of the companies creates duplication of functions and resources and limits the benefits that might otherwise be gained by pooling skills and resources.

Since SPCD sets the toll rates, the biggest benefits of competition would occur during construction, when tasks are already outsourced. SECD control and supervision generally ensures cost-effective management and operations. Moreover, a degree of competition between companies exists because of performance comparisons within the entire SECD group.

Potential centralization opportunities within SECD include data processing (toll revenues, personnel records and payments, financial management, and reporting); maintenance management; information technology system support, including systems of area-wide electronic tolling and revenue allocation; and procurement for the group of companies as a whole. However, SECD already coordinates online reporting of toll collection, offers maintenance inspection services (including equipment) for hire by subsidiary companies, and uses SPCD standards to approve maintenance management strategies.

More importantly, the one-company/one-project structure dilutes opportunities to raise additional funds through securitization of revenues or joint ventures. A consolidated group, with a broader spread of performing assets, offers less risk to potential investors. However, evidence from Chengnan suggests that recovery from initial losses is fairly rapid, opening wider possibilities for fund raising or transferring management responsibility to a more commercial entity with private shareholding.

One-Company/Several-Projects Model: Sichuan Expressway Company Limited as a Parent Company

Sichuan Expressway Company Limited

The one-company/several-projects model is also used in Sichuan. Its main perceived advantage derives from benefits of consolidation and economies of scale in terms of

- reducing the duplication of functions, staff, and other resources that likely would occur with a series of separate companies, even if they had common shareholding (e.g., through SECD);
- coordinating network management (for example, through uniform systems of toll collection and revenue allocation, pooled facilities and uniform standards for data processing, maintenance management, technological applications, etc.); and
- strengthening the group's ability to raise capital and operating funds by leveraging its larger and more diverse assets and revenue streams, and reducing the associated borrowing risks and costs.

In Sichuan, the model centers on SECL (Figure 11), a limited-liability company
incorporated initially in Chengdu as the Chengyu Expressway Company Ltd. in August 1997 and listed on the Hong Kong stock exchange in October 1997. In March 1998, the company changed its name and its status to foreign-invested limited liability. Other than SRBCG (mainly a contractor), it is the only listed expressway company in Sichuan. SECL’s main business focuses on the development, operation, and management of highway infrastructure and related activities in the province. Unlike some listed infrastructure companies in other parts of the country, SECL’s operations are limited by its articles of association to highway infrastructure and related businesses; it does not engage in unrelated businesses such as commercial land or property development. SECL’s management views its long-term goal as developing, managing, and enhancing the value of the province’s high-grade highway assets.

SECL is supervised by a twelve-seat board; two members represent SECDC, with four independent nonexecutive directors and a Supervisory Committee of four members. Its corporate governance, financial management, and reporting comply with listing rules of the Hong Kong exchange and its accounts are audited in Sichuan and Hong Kong. SECL employs an independent audit committee.

As noted earlier, SECDC owns 39.3% of SECL’s shares. H-share owners—mostly Hong Kong-based institutional investors and fund managers—own 35% and Huajian Transport Economic Development Centre, a state-owned company controlled by MOC, owns 25.7%. Thus, the state retains 65% of the company. SECL’s main interests are in the Chengyu, Chengya, Chengbei, and Airport Expressways. Total assets at the end of 2005 were CNY77.7 billion. Reports indicate that SECL is considering purchasing a stake in the 87 km Chengdu–Leshan (Chengle) Expressway, aiming to float A-shares to fund further investments.

**Chengyu Expressway**

Initially built with a $75 million World Bank loan, the 226 km Chengdu–Chongqing Expressway opened in July 1995. It is a closed system expressway with 15 tolling stations. Average traffic increased 4.43% in 2005 to only over 14,000 vehicles/day, generating toll revenues of CNY1.88 million, up 4.46% from 2004. Traffic growth has slowed in recent years as the project matured. Traffic was only 7,000 vehicles/day when the project opened 10 years earlier.

Before the introduction of SPCD’s unified toll schedule, the basic toll for a Class 1 vehicle was CNY0.32/vehicle-km, with an extra CNY5.00 for Class 1 vehicles (ranging up to CNY32.00 for Class 5 vehicles) for the Longquanshan Tunnel.

Chengyu contributed CNY686.226 million to SECL’s revenues from its principal activities in 2005, 69.1% of the group’s total. It made an operating profit of CNY353.78 million (52% of toll revenue), or a net after-tax profit of CNY301.20 million.

SECL has tolling rights until October 2027, when they revert to SPCD.

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27 SECL also has a 99.5% interest in the Shusha Enterprise Company (involved in billboard advertising, fuel stations, vehicle maintenance, and emergency repair services); 96.64% in Shugong Expressway Engineering Company (involved in expressway repair and maintenance); and 99.9% in Shuhai Investment Management Company (involved in highway investment management, investment consulting, and technological development).

28 Traffic comprises small (15.7%), medium (20.4%), large (2.2%), and very large (0.5%) trucks; small passenger vehicles (48.2%); and large passenger vehicles (13.0%).
**Chengya Expressway**

The 144 km Chengdu–Ya'an Expressway opened in December 2000 as a closed system with 15 tolling stations. Traffic increased 2.85% in 2005 to 12,700 vehicles/day, and daily toll collections were CNY0.65 million. The Chengya Expressway Company has tolling rights until December 2029. SECL recently boosted its stake in Chengya (total share capital CNY800 million) to 100%, justifying its decision in terms of lower costs of debt servicing, tax, management, and maintenance, the last two by eliminating duplicated functions. Total assets amount to CNY3.12 billion.

Before the introduction of the new unified rates, Chengya charged a basic Class 1 vehicle toll of CNY0.28/vehicle-km, adding an extra CNY2.00 (rising to CNY16.00 for a Class 5 vehicle) for the Jinjiguan Tunnel. Toll revenues increased 11.97% in 2005 to CNY236.64 million, accounting for 23.83% of the group total. Despite an operating profit of CNY7.53 million, the company posted a net loss of CNY64.80 million, largely because of financing charges. Total accumulated loans, excluding shareholders’ funds, totaled CNY2.06 billion.

Chengya's revenues will be boosted in 2010 when the 244 km Yalu (Ya'an–Lugu) Expressway section in the Chengdu–Kunming corridor is due for completion. ADB supports the Central Sichuan Roads Development Project with a $600-million loan.

**Chengbei Expressway**

The Chengdu Chengbei Exit Expressway Company Ltd. (Chengbei) operates the 10.42 km Chengbei Exit Expressway, the 8.65 km Chengbei Exit Dajian Road Section 1 Expressway, and the 4.8 km Qinglongchang Bridge. SECL holds a 60% stake of the company’s CNY220 million capital. At the end of 2005, total assets were CNY544 million. The Chengbei Exit Expressway opened in December 1998 and the company's concession runs until June 2024.

Daily traffic, mostly light vehicles, on Chengbei Exit Expressway increased by 8.04% to 21,250 vehicles in 2005, and daily toll revenues by 17.75% to CNY0.18 million. These figures, however, reflect changes in the network: because of planning approvals, the parallel Chengbei Exit Dajian Road Section 1, which opened to traffic in March 2004, could not collect tolls until September 2005. After tolling began, Chengbei’s revenue increased by 11.3%. Users of the Chengbei Exit Expressway pay between CNY7.00/vehicle (Class 1) and CNY56.00/vehicle (Class 5); since September 2004, the rate has included a charge for the Qinglongchang Bridge.

Annual operating revenue increased 27.94% in 2005 to CNY70.10 million (7.06% of SECL’s total), mainly because of additional tolling of Chengbei Exit Dajian Road Section 1, which boosted revenues by CNY5.93 million. The company recorded an operating profit of CNY22.41 (net CNY4.41 million). Interest charges totaled CNY15.9 million on accumulated loans of CNY293.6 million, including a CNY243.6-million loan from the Industrial Bank.

**Other Expressways**

SECL owns a 25% stake in the Chengdu Airport Expressway Company, which operates the 11.92 km Airport Expressway. Through the

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29 Traffic composition: Class 1 vehicles, 71.2%; Class 2, 21.7%; Class 3, 5.9%; Class 4, 0.9%; and Class 5, 0.3%.
30 After buying the remaining shares in Chengya (CNY360 million), SECL plans to issue a CNY1.5 billion short-term financing bond to help reduce financing costs and meet operating expenses.
31 Loans are from Industrial Bank (at interest rates ranging from 4.78 to 5.02%), Construction Bank (4.78%), Minsheng Bank (5.02%), SECL (4.94%), and SECDC (2.28 or 5.0%). Apart from Mensheng (mortgage), all bank loans are guaranteed by SECL or SECDC.
32 Interest rates range between 5.18% and 5.58%.
Shuhai Company (99.9% SECL-owned), it also held shares in toll roads and a toll bridge in Zigong and Luzhou, but sold them in 2004. Shuhai currently seeks a CNY200-million interest (21.16% of equity) in the Sichuan Jiuzhai Huanglong Airport Company.

Group Financial Performance

Figure 14 shows the SECL group’s overall financial performance. Net profit before distributions in 2005 was CNY252.6 million (CNY229.6 million in 2004 and CNY199.4 million in 2003) on gross toll revenues of CNY1.0 billion. The net profit contribution of each expressway company was: Chengyu CNY301.2 million, on toll income of CNY686.2 million; Chengya CNY64.8 million (loss), on CNY236.6 million revenues; and Chengbei CNY4.4 million, on CNY70.1 million toll revenues. Financing charges likely account for the differences in profitability.

Assessment

Grouping expressways under a listed parent company includes the following advantages:

- the listing rules, in this case those of the Hong Kong exchange, require high standards of probity, corporate governance, and transparency; and
- operational and financial management are subject to greater scrutiny by shareholders, the Board of Directors, the independent Supervisory Committee, and external auditors.

These factors pressure managers to justify their decisions and act in shareholders’ interests. As a result, SECL imposes strict accounting and reporting standards on its subsidiaries and monitors performance carefully. All SECL subsidiaries have chief financial controllers. SECL also seeks to identify areas where service quality and income can be improved and costs lowered, such as through integration of tolling systems (an online toll collection system was introduced in March 2005); the planned introduction of nonstop electronic toll collection in 2010; and the development of maintenance and other ancillary services, such as billboard advertising, to serve the group as a whole.
Most important, however, is the enhanced ability to raise funds, thus supplementing SPCD resources and helping to increase the value of its assets. SECL’s initial investment in Chengyu (CNY2.66 billion) is now valued at CNY3.63 billion; SPCD’s initial investment (CNY1.59 billion) is currently valued at CNY2.56 billion. By listing, SECL raised CNY1.43 billion for the Chengya, Chengbei, and Airport Expressways, thus reducing SPCD’s funding requirement and decreasing reliance on more expensive bank loans. Additional SECL borrowings of CNY596 million in 2004 helped strengthen SECDC finances. The H-share issue significantly lowered the cost of financing: the CNY1.43 billion raised was at an effective annual interest rate of 2.03%, while bank borrowings over the same period averaged 6.81% (currently 6.12% for long-term secured loans).

These qualities allow SECL an enlarged role, together with SECDC, as SPCD’s vehicle for future expressway management and coordination. Its listed status increases the likelihood of managing projects in shareholders’ interests, but through its responsibilities to SECDC and SPCD, SECL has also been able to reconcile these interests with the needs of expressway users and the provincial government’s responsibilities for promoting social and economic development. Given the nature of its infrastructure assets, SECL’s goals are long-term, not focused on short-term profitability. Its Hong Kong shareholders, which include a high proportion of institutional, mutual and retirement fund managers, also tend also to prefer long-term growth in asset values.

SECL is also well placed to achieve economies by eliminating duplication within the group by pooling resources and using its leverage to secure cheaper finance. It has already made some progress through integrated toll collection, data processing, accounting, and borrowing, but further opportunities remain. The subsidiary expressways still manage their own maintenance; pooling the maintenance planning and outsourcing functions might offer further economies. SECL plans to introduce nonstop electronic tolling. Loans are assumed by the group, rather than by individual companies, and then on-lent, thereby reducing financing costs.

Cooperative Joint Venture: Chengmian

The Chengmian Expressway Company, Sichuan’s only expressway cooperative joint venture, was incorporated in June 1994. It is slightly atypical of expressway joint ventures in the PRC: the foreign partner, Xinzhonggang Expressway Company Ltd., a Hong Kong–based infrastructure group, holds 60% of the shares and SECDC holds 40%; usually the private share is smaller. With a 30-year concession (including a 4-year construction period), it operates the 92 km Chengdu–Mianyang Expressway, opened in December 1998, as well as the 27 km Dajian Road North Section (a Class I highway). Total investment was CNY1.6 billion. Toll revenues in 2004 were about CNY200 million and increased to about CNY300 million in 2005. SECDC reports that Chengmian is profitable.

Xinzhonggang, the private partner, enjoys favorable terms. Traffic and revenue or return guarantees are not allowed under law, but Xinzhonggang receives 100% of net (post-tax) operating revenues for years 1–10 of operations, 60% for years 11–15, 50% for years 16–20, and 45% for years 21–25, thereafter, SECDC keeps all net profits. Xinzhonggang appoints the general manager and chief financial officer, and SECDC nominees fill other positions. There are no requirements or plans to reinvest profits in further expressway projects in Sichuan.

The Chengmian experience should be viewed in context at the time of its establishment, in the early days of the reform process, when this model was the best available. It was the first expressway in Sichuan. The provincial government could not afford the full costs of the investment. At that time, no government policy covered bank financing of projects with loans repaid by tolls, so the project had to rely on the Cooperative Enterprise Operations Law, the
only available vehicle at the time for allowing profit distribution not linked to share of equity. By bringing the project forward through private participation, the province benefited from the social and economic development it promoted, and traffic flow benefited considerably from improved conditions (previously it took 4–5 hours to travel 120 km). The joint venture approach relieved the government of financial risk, and revenue growth subsequently has benefited the government as much as the private investors. While the cooperative joint venture might still represent a good modality for developing countries at the early stages of reform, it has been overtaken by other opportunities in the PRC, where cheaper corporatization and financing options are now available and supported by a broader framework of laws and regulations. There are now also better prospects for competitive selection of joint venture partners. The Chengmian approach lacked transparency to some degree, and this reportedly resulted in some conflicts between the joint venture parties over management and operational matters, as well as raised expectations of financial return by potential investors in subsequent projects. SPCD does not plan to use the cooperative joint venture model for future projects.

Build–Operate–Transfer

Example: Leyi Expressway

Conversely, BOT concessions are coming into favor in Sichuan. A SPCD review of BOT approaches in other provinces found that many lacked competition and transparency or used evaluation procedures that were too subjective and vulnerable to manipulation. Wishing to avoid such weaknesses and following approval from MOC, NDRC, and the provincial government, SPCD offered the 137 km Leshan–Yibin (Leyi) Expressway project to open competitive bidding in 2005. Among 22 groups that bought prequalification documents, eight prequalified, six bought full tender documents, and four submitted tenders. The winning bidder was the Shandong Expressway Group, which estimated total project costs at CNY4.9 billion.

The main evaluation criterion was the lowest construction and tolling period (including the construction period was intended as an incentive to build the project quickly), with the evaluation verified by independent monitors. The winning bid was for a construction/tolling period of 27 years, 9 months, and 16 days, 2.2 years less than the permitted 30-year maximum. Toll rates will be in accordance with SPCD policy throughout the concession period. Land will be provided, but the concessionaire will carry all other risks, except that it is entitled to receive compensation if costs exceed feasibility study estimates by more than 10%.

Under the concession agreement, the concessionaire must obtain SPCD approval if it wishes to mortgage assets or securitize future revenue streams, but only to assure that such plans adhere to the agreement.

SPCD planned four additional BOT concessions in 2006/2007, expecting BOTs to contribute as much as CNY20 billion of the CNY70 billion–80 billion needed for expressways in the 11th FYP period. The Leyi experience now provides standard-format documents and a tested approval process. SPCD is also considering offering O&M contracts on established projects for competitive bidding.

Assessment

SPCD’s approach offers many good features, including competitive bidding, comprehensive documentation, a transparent evaluation/award process, and a simple, clear selection process. Both SPCD and MOC like the model; how well it works in practice will only be seen once the project becomes operational.

Ensuring clear statement of the rights, responsibilities, and allocated risks of both parties is very important. These statements should cover situations such as tolls set
People’s Republic of China: Toll Roads Corporatization Strategy—Toward Better Governance

below a specified threshold and future user concessions like the green corridor policy. The concession agreement should limit the circumstances under which renegotiation of terms can be triggered. Bidding documents should clarify the detailed funding information required in support of bids. The present concessionaire claims it has not yet decided whether it will seek securitization in future. It might be more informative and confidence-building to require its intention to be stated in the bid, even though it is appropriate for the decision to be made by the concessionaire, rather than SPCD.

The selection criterion possibly could be improved. While the current criterion is simple, a maximum difference between bidders of only 2.2 years at the end of a 30-year concession period, when future conditions are impossible to forecast accurately, is not large. If the concessionaire had some flexibility in setting tolls below the regulated maxima, it might be better to combine an up-front fee with future toll revenues discounted at a specified rate, the latter allowing the bidder to adjust the concession and tolling period as well as the amount by which tolls are set below the SPCD maxima. Any new criteria should remain simple, transparent, and objective, as did the Leyi approach.

A more critical long-term flaw involves the absence of a proper legal framework governing BOT projects, including guidelines for design, preparation, and approval. Now that SPCD has established a model process, BOT projects can proceed more quickly and with greater confidence, but MOC should work with NDRC to issue more comprehensive guidelines.

Foreign Loan–Funded Projects

Examples: ADB-Supported Projects

ADB has provided three expressway project loans—$250 million for the Chengdu–Nanchong Expressway (Loan 1638-PRC), $300 million for Southern Sichuan Roads Development including the Xichang–Panzhihua Expressway (Loan 1918-PRC), and $600 million for the Central Sichuan Roads Development Project, including the Ya’an–Lugu Expressway (Loan 2181-PRC)—and has agreed in principle to a fourth, the $200 million Eastern Sichuan Expressway Project, including the Dazhou–Wanyuan (Tiejiangya) Expressway. All involve expressway and local roads components. The loan-funded projects contribute significantly to social and economic development, poverty reduction, trade, and income growth in the province. They also benefit other SPCD projects by setting high standards for project preparation and evaluation (including arrangements for resettlement compensation and mitigating any environmental impacts), providing model concession agreements, and outlining a pathway and conditions for corporatization and commercialization of expressway management.

Project funding typically combines an ADB loan, a MOC grant, provincial government funds, and bank loans, with secondary loans to a corporate entity established to manage the project and granted tolling rights. Apart from conditions related to social and environmental protection, resettlement, compensation, construction standards, procurement, etc., the loan agreement requires the project to be managed by a corporatized entity, separate from SPCD, capable of managing it in an efficient, businesslike way in accordance with a concession agreement with SPCD. Recent agreements also make provision for the possibility of securitizing revenue streams once the project is operational and has become fully established. World Bank projects usually have similar features.

Assessment

ADB procedures for project preparation, implementation, and subsequent management have become a model that SPCD is
keen to follow. Although the documentation, resettlement, and procurement procedures may seem onerous, they are consistent with government guidelines. Most notably, they do not rule out any realistic option for assigning revenue/tolling and management rights or outsourcing selected functions, providing only that they include arrangements for maintaining loan repayments in accordance with the original loan agreement and that the basic principles of competition, transparency, and accountability are followed.

**Comparison of Options**

*Criteria*

An assessment of Sichuan’s corporatization/commercialization strategy should ask the following questions: Does the strategy ensure efficiency and value-for-money from investments in high-grade highways? Does it secure private sector participation effectively, under the right conditions, to increase efficiency and bridge the financing gap? Does it ensure transparency, accountability, and good governance in the development and management of the network? In addressing these questions, reference should also be made to the following key lessons from the overseas experience:

- to separate owner and service provider functions, providing for a contract-based relationship and allowing the service provider to be held accountable against specified criteria;
- to use competition to promote efficiency, quality, and economy, ranging from outsourced tasks to full project financing, delivery, and operation;
- to include in the preparation process a comparison of value-for-money of all realistic technical, management, and financing options, including public sector financing and management;
- to ensure that concession agreements/contracts clearly delineate roles, rights, obligations, and measurable performance targets, identify and allocate all risks, and limit the circumstances for permissible renegotiation; and
- to make the entire process of project planning and procurement fully transparent, so that external parties can scrutinize performance and force compliance.

**Efficiency and Value-for-Money**

The best way to promote efficiency and value-for-money is through competitive bidding and contract incentives that reward performance and penalize noncompliance. Sichuan’s various approaches do this in different ways, but each has generally been effective:

- Under the one-company/one-project approach, SECDC’s role as main or sole shareholder appears effective in requiring each company to achieve agreed objectives within strict budgets, and in monitoring their performance. Some degree of competition arises from performance comparisons between SECDC’s subsidiaries. Agreements between SPCD, SECDC, and the operating companies may lack full specificity and might not constitute enforceable contracts between arm’s-length parties, but with SPCD and SECDC controlling senior staffing and budgets, the companies can be held in check relatively easily.

- The one-company/several-projects approach (SECL) does this better, prompted by greater pressure on performance arising from independent shareholder interest and the Hong Kong exchange’s requirement for higher standards of governance, reporting, and transparency.

- The BOT model likely will achieve value-for-money. Properly designed, the competitive bidding process should ensure the best solution. Thereafter, it is important to hold the concessionaire strictly to
the terms of a well-designed agreement, limiting opportunities for renegotiation but allowing flexibility in resource management—including sources of finance—to deliver the required outcome.

**Competition**

The one-company/one-project and one-company/several-projects approaches already require competition for key construction, equipment procurement, and maintenance tasks. For established projects, including projects built with ADB funding, the gains from competitive outsourcing of O&M tasks are, by comparison, fairly small, and an operator can do little to alter tolls or attract traffic; indeed, their main hope for improving profitability is by cutting staff levels and skimping on maintenance.

Potentially, BOT can capture more of the benefits of competition, even though competition risks lower service levels. BOT’s built-in incentives should bring innovative approaches to construction and life cycle maintenance; tap alternative sources of finance, including share listing and securitization; allow competitive outsourcing of tasks like maintenance, including performance-based maintenance under contract; and bring in specialized management, financial, and technical expertise.

On balance, therefore, BOT is an attractive model for new projects. It would be even better if the criteria for award of concession were fine-tuned to provide better incentives to (i) build the project to specification as quickly and efficiently as possible, (ii) operate the project to required service standards as efficiently as possible, (iii) raise funds as cheaply as possible, and (iv) set tolls to maximize revenue (this does not mean setting tolls as high as possible, since that will suppress or divert traffic away). Potential bidders could be given more flexibility to incorporate these features in their bids, including the possibility of varying toll rates below the SPCD-specified maximum. A selection criterion based on (i) up-front fee inducements (or required subsidy for loss-making projects) and (ii) discounted net toll revenues (i.e., proposed revenues less feasibility study projections) over a specified period would offer the inducement to complete the project early, attract customers, keep O&M costs under control, and hand over the project early at the end of the operating period. Under such an arrangement, the contract would commit the operator to discounting SPCD maximum tolls by a specified percentage.

If more projects move to BOT, how could ADB help? Interest in ADB loan-funded projects would continue, particularly where social and economic objectives are more significant and for projects unlikely to attract private investors. MOC, provincial governments, and ADB could explore ways to finance successful BOT bidders through the ADB private sector-financing mechanisms, including equity contributions, loans, guarantees, and complementary financing.33

**Accountability and Transparency**

Sichuan’s approach to BOT is also encouraging for its transparency—the result of SPCD’s finding that other provinces had used more subjective criteria to select concessionaires. The bidding and evaluation process was fully open: the opportunity was advertised; bidding was open and fully competitive, with a clear, objective selection criterion; the results were reviewed by an independent third party; and all information was posted on SPCD’s website. It is not always so in other provinces.

The management and performance of one-company/one-project projects are not always this transparent either, at least to external reviewers.34 It would be better if performance targets and key financial indicators were

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34 This is not the case for SECL, whose key reports are available under Hong Kong listing rules.
also made available on SPCD’s website, allowing external scrutiny and helping to put pressure on company management to raise performance. It would be in both SPCD’s and SECDC’s interests to achieve this.

**Network Management**

There is a risk that Sichuan’s expressways will eventually form a patchwork of individual links, each collecting their own tolls at overly frequent tolling points. A strategic view of network management is needed, with a plan prepared for eventual integration of these separate companies. One way, of course, would be to move companies out of their SECDC “incubator” phase and into SECL once they have become established. SECL could then manage more of the network as an integrated whole.

Another would be to establish, within SECDC, a central operations function that concentrates on reducing duplication and pooling resources to achieve economies and service improvements for the group of companies in which it has interests. This might extend from contracting out maintenance of groups of links under performance-based contracts to integration of nonstop tolling systems using prepaid smart cards, with arrangements for allocating revenues between companies according to expressway usage. Keeping the companies under SECDC and strengthening its efficiency and standards of governance would also help maintain a degree of competition with SECL, something that SPCD is keen to do.

**Financial Performance and Private Financing**

Sichuan has done as much as any other province to tap alternative sources of finance, even though several of its projects, being high-cost and less heavily trafficked, are less profitable than in the eastern seaboard. Sichuan rightly looks to securitization or A-share listing when projects are successfully operational.

A major problem facing existing expressways, however, involves their debt burden. Some, like Chengya, are emerging into profitability and now offer fund-raising opportunities to help finance additional projects; others are less attractive (and will continue to be so while they borrow to meet shortfalls) without injection of additional capital. To avoid this problem, the capital structure of new projects may require strengthening. Unless some up-front government contribution is needed to make them attractive, this is not an issue for BOT projects.35

There are no easy solutions to strengthen the capital structure of new or struggling expressways: national or provincial governments will need to add more capital on a grant or deferred-repayment basis or, in the case of ADB private sector–financing initiatives, through increased equity. Private sector investors would otherwise not be keen without government guarantees.

There are several options, including securitization of revenues from individual projects or share listing, once a project becomes operational. SECDC and SECL are aware of the possibilities. But additional work should go into examining ways of tapping institutional, mutual savings, and insurance funds, now that regulations governing the insurance industry have been relaxed to allow investment in infrastructure. MOC should hold discussions with the insurance industry and its regulators to establish a mechanism for channeling these funds.

**Summary of the Comparison**

Table 4 summarizes the corporatization options used in Sichuan. In general, each model was implemented effectively, resulting

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35 Notably, although, one or two other provinces are less enthusiastic about BOT, reckoning that the BOT concessionaire often borrows from domestic banks at rates no better than the provincial government could negotiate itself.
Table 4: Summary Comparison of Corporatization Models in Sichuan

<table>
<thead>
<tr>
<th>Corporatization Model</th>
<th>Efficiency and Value for Money</th>
<th>Competition in Management</th>
<th>Accountability and Transparency</th>
<th>Network Management</th>
<th>Financial Performance and Private Financing</th>
<th>Overall Assessment and Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 One-Company/One-Project</td>
<td>✓ Achieved through budget pressure and supervision by parent SECDC</td>
<td>✓ Some quasi competition to perform best within the group</td>
<td>✓ Meets government reporting standards, performance information not made readily available</td>
<td>✓ Some attention to overall network management through SECDC</td>
<td>✓ SECDC has mix of profitable and unprofitable links; private investment opportunities increase with rising revenues</td>
<td>Overall, this model works effectively in Sichuan; SECDC does an effective job of coordination and supervision.</td>
</tr>
<tr>
<td>2 One-Company/ Several-Projects (SECL)</td>
<td>✓ Achieved through SECL supervision and shareholder interest; greater pressure to achieve scale economies</td>
<td>✗ Limited competitive pressure on management</td>
<td>✓ High standards of governance and transparency</td>
<td>✓ Some attention to overall network management through SECL and SECDC</td>
<td>✓ Good, because of shareholder expectations. Long-term view of asset growth. SECL tends to pick best-performing expressways</td>
<td>Overall, this model also works effectively in Sichuan; SECL also does an effective job of coordination and supervision, with SECDC as key stakeholder.</td>
</tr>
<tr>
<td>3 Cooperative Joint Venture (Chengmian)</td>
<td>✓ Achieved through joint venture partner's interest in profit</td>
<td>✗ None as implemented, but model is capable of providing this</td>
<td>✗ Little pressure to provide performance information</td>
<td>✗ Little/no attention to overall network management</td>
<td>✓ Fair, but hampered by favorable terms for private partner; relatively expensive</td>
<td>The best model at the time of the project, but other models now offer cheaper finance and better governance.</td>
</tr>
<tr>
<td>4 Build–Operate–Transfer (BOT) (Leyi)</td>
<td>✓ Achieved through performance incentives under BOT contract</td>
<td>✓ Open, competitive tendering for BOT concession</td>
<td>✓ Highly transparent as implemented</td>
<td>✗ Little/no attention to overall network management</td>
<td>Too early to say</td>
<td>Good governance and performance incentives; well implemented in Sichuan.</td>
</tr>
</tbody>
</table>

Overall Assessment and Comments

In Sichuan, all four models appear to offer efficient management. Pressure to perform is greatest for models 2 and 4. Models 1, 2, and 4 involve competitive tendering for construction and maintenance; 3, as implemented, does not. Models 1 and 3 could be made more transparent, and management more accountable, if information on performance was posted on SPCD’s website. This is mainly the function of SPCD, but models 1 and 2 are capable of taking a broader network view through SECDC’s role.

Even though Sichuan projects are expensive and relatively poorly-trafficked, they soon become profitable with rapid traffic growth.

✓ = Good, ✓ = Fair, ✗ = Poor

SECDC = Sichuan Expressway Construction and Development Corporation, SECL = Sichuan Expressway Company Limited, SPCD = Sichuan Provincial Communications Department.

Source: Asian Development Bank Research Team.
in good financial and technical performance. Even the cooperative joint venture model reflected the best option available at the time, as does the recently implemented BOT model, although it is too early to judge its effectiveness in practice. Sichuan's successful corporatization is largely because of the way SECDC and SECL operate as a businesslike intermediary between SPCD and the corporate entities operating each expressway. Although this relationship is not fully detached or contract-based, it provides an effective link with long-term network development policies and a mechanism for supervision that works effectively in practice. This approach might present risks elsewhere, including the risk of corruption, but it appears to work well in Sichuan.

**Summary of Needs and Recommendations for Sichuan**

**Corporatization Strategy**

As noted, Sichuan has tested several corporatization options. It continues to build expressways, adopting one or another of these modalities on a case-by-case basis. To avoid a patchwork of separately managed projects, the system might benefit from a broader strategy for project corporatization and overall network management. This might take one of two alternative courses, each with SPCD retaining overall network planning and coordination functions:

- a “progressive” approach, with SECDC acting as incubator for new non-BOT expressway projects (including ADB-funded projects), bringing them to the point where commercial prospects are good and tolling and operating rights can be sold to SECL, and using the proceeds to help finance future projects. Under this approach, SECL would act as the principal manager/coordinator of commercial (profitable) expressway companies, enhancing expressway assets and raising funds from share listings, securitization and attracting mutual/institutional funds, and acting as guarantor for loans taken by SECDC and its operating companies.

- a more “competitive” approach, with SECDC and SECL both acting as separate managers and/or coordinators of expressway companies, and each developing its own strategy (within SPCD’s broad policy framework and under its direction) for developing and managing its assets efficiently.

Despite common ownership of the two corporate groups through SECDC, SPCD favors the competitive approach as providing the means to compare the performance of each, much as SECDC currently manages quasi competition (on performance) between its subsidiary companies. In contrast, the progressive approach would differentiate between a SECDC saddled with less commercially attractive expressways and an SECL enjoying the benefits of managing a portfolio of profitable companies.

Under both options, BOT projects would play a growing role in the development of new projects that have good commercial prospects, with contracts directly with SPCD or through SECDC.

**Comparison of Options at the Feasibility Study Stage**

Decisions about the assignment of projects to operating companies are based on a range of different considerations. Yet the options, particularly regarding a choice between government and private sector management, can have potentially quite different consequences for timing, efficiency, transparency, government financing, and public sector risk. Formal analysis of the costs and benefits of alternative corporatization options carried out as part of the feasibility study for new projects would examine...
• alternative technical standards and timing for the project, including the possibility of staged implementation;
• the financing mix of grants, bank loans, bonds, and private sources of capital, tracing their impacts on optimum toll levels, economic rate of return, financial performance, and the prospects of private investment; and
• corporatization and privatization options, and especially a comparison of alternatives to the one-company/one-project approach, including the group approach, outsourced fee-for-service tasks (including outsourced expressway management and operation), and BOT variants. The analysis should compare risks, productivity/efficiency (a function of the degree of competition incorporated in the award of contracts and concessions), and delays in procurement.

Guidelines and Legal Framework

MOC and NDRC must provide a better legal framework to govern BOT concessions, streamlining the approval process and setting minimum conditions for bidding, evaluation, award, and contracts. In the interim, MOC should issue guidelines regarding BOT project design and management, including model contract documents and bid/evaluation criteria that free bidders to structure their projects (including financing) in the way they consider best while incorporating incentives that help improve quality and reduce government and user costs.

Capital Strengthening

MOC and ADB should consider strengthening their minimum requirements for project equity, and MOC, in conjunction with SPCD, should examine possible strategies for justifying greater initial government contributions to help promote infrastructure development in the west. This process may require clarification of the government’s investment incentives and subsidy policy for the Western Region, announced as part of the 12th FYP.

To strengthen the capital structure of projects designed to attract private capital, MOC, ADB, and SPCD should discuss the possibility of making additional funds and loan guarantees available through the bank’s private sector financing facilities.

Financing Through Markets

SPCD, SECD, and SECL are familiar with market listing opportunities and the procedures involved, and already consider this option when raising additional capital. An as yet untested avenue involves tapping emerging markets for institutional, mutual savings, and insurance (especially life insurance) funds.

MOC and ADB should initiate contacts with fund managers and regulators to establish mechanisms for channeling investment into expressway infrastructure. Technical assistance from the ADB, under its program of assistance to finance institutions and securities markets, may be necessary to help achieve this.

Expressway Investment Forum

Lastly, consideration could be given to holding an Expressway Investment Forum in Chengdu, attended by representatives of financial institutions, fund managers, banks, developers, contractors, consultants, foreign aid donors, and potential foreign investors. Such a forum would require preparation time to create a comprehensive strategy for corporatization, commercialization and privatization, and to prepare investment prospectuses and model documentation for planned projects. Planning for the forum would benefit from ADB grant-supported technical assistance, possibly added to an upcoming project loan.
Lessons from Overseas

The Overseas Experience

Privatized highway projects became popular in the early 1990s, part of a wave originating in the Thatcher-era reforms in the United Kingdom (UK). The number of projects and level of investment peaked in 1997 (Figure 15) but since then have decreased worldwide in terms of annual number and average project size, partly due to the impacts of Latin American and Asian financial crises. With the biggest and best projects now mostly taken up, financial returns have been lower in recent years. Recent criticisms of the public–private partnership (PPP) model have led to a more sober assessment by governments of their value-for-money. Only some 55% of proposed PPP toll road projects have been accomplished successfully.

The People’s Republic of China (PRC), however, remains among the most committed PPP supporters, ranking third in both value (Figure 18) and number of toll road projects. Although other countries may have corporatization and privatization lessons for the PRC, only the United States and the UK exceed the PRC’s experience.

Alternative Approaches

Between traditional and fully privatized approaches, numerous variations (see diagram) offer opportunities for private participation, whether by outsourcing tasks on a fee-for-service basis or transferring a share of control over assets and revenues. The traditional approach pays for projects using general or earmarked taxes. The alternative tolled approach has been used in many countries, including Australia, Brazil, PRC, Croatia, France, Iceland, Italy, Malaysia, Portugal, Spain, and South Africa. Others (e.g., Finland, Portugal, Spain, UK) have used shadow tolls, repaying investors based on usage without charging users directly. The United States has used many variants, including outsourcing operation and maintenance (O&M) and program management tasks, and different forms of the BOT approach.

PPPs share risks between public and private sectors and usually take the form of management contracts, lease contracts, or concessions. They must be attractive to the

Figure 15: World Toll Road Public–Private Partnerships, 1990–2004

$ = United States dollars.
private sector to be viable. Risks increase in relation to debt and equity. To keep private borrowing costs within acceptable limits, the government usually assumes some risk through equity or guarantees. To address concerns about value-for-money, the UK and several Australian states, among others, stress early evaluation of the costs and benefits of alternative management and financing options, comparing privatized options with the traditional public sector approach (the “public sector comparator”), opening the process to greater competition, establishing stricter rules for handling unsolicited proposals, and making more transparent the bidding, award, and performance-monitoring procedures and the conditions agreed to under concession contracts.

Figure 16: Toll Road Public–Private Partnership Projects by Region

Figure 17: Toll Road Public–Private Partnership Investment by Region ($ million)

$ = United States dollars.
Source: http://ppi.worldbank.org
Concessions give the operator the right to operate the toll road for a period of time in return for a share of revenues. In most countries, concessions are awarded through competitive bidding. Concessions require complex design, monitoring, and enforcement, and are often abused, with concessionaires seeking early renegotiation and rent-seeking. Overcoming these concerns requires the use of incentives (e.g., getting the concessionaire to commit significant up-front funds) and/or limiting opportunities for renegotiation.

**United Kingdom**

The United Kingdom pioneered corporatization and private participation in infrastructure. In 1994, it established the Highways Agency\(^\text{36}\) under the Ministry of Transport (currently the Ministry for Environment, Transport and the Regions) to manage and maintain the 10,000-kilometer (km) trunk road network, part of a process of separating operations from policy formulation. The Highways Agency produces an annual business plan and a 3–5-year corporate plan against which it is held accountable to the Minister. The agency outsources 95% of its work. Staff members are civil servants and the agency receives its budget from the ministry—not from tolls, since the most common modality used by the agency is shadow tolling. Earlier, in 1992, the government had introduced its Private Finance Initiative (PFI) to provide financial support to PPPs. Similar schemes have since been adopted in Canada, France, Netherlands, Portugal, Ireland, Norway, Finland, Singapore, Japan, and Australia, among many others. The PFI delivers projects in return for payments to the private sector partners. Costs are usually higher than if the government were to implement the project alone, but efficiency and quality gains are expected to outweigh the additional costs. The developer/operator is accountable for meeting agreed standards and usually penalized for noncompliance. Risks are identified and allocated. The independent National Audit Office (NAO) reviews overall performance. Most NAO reviews show that PFI projects are more likely

\(^{36}\) www.highways.gov.uk/
People’s Republic of China: Toll Roads Corporatization Strategy—Toward Better Governance

Figure 19: Corporatization and Privatization Options

Public supply and operation

Outsourcing

Corporatization and performance agreements

Management contracts

Leasing

Franchise

Concession

Build–operate–transfer (BOT)

Build–own–operate (BOO)

Divestiture by license

Divestiture by sale

Private supply and operation


To be completed on time and within budget, but contract arrangements are complex, expensive, and nontransparent. A NAO report on the first four PFI-financed design–build–finance–operate (DBFO) road projects involving shadow tolls found in their favor, but recent reviews have been more critical (see Box 3). So far, the agency has granted only one tolled motorway concession, to an Australian investment group. In response to concerns about PFI projects, the United Kingdom Treasury has developed guidelines and a standard evaluation spreadsheet to assess whether PFI/PPP offers better value-

This paper by J. Shaoul, A. Stafford, and P. Stapleton examines the cost of using private finance in the first eight shadow-tolled DBFO roads commissioned by the Highways Agency. The authors found publicly available financial information about the schemes to be limited and opaque. Within only three years, the agency had paid out more than the construction cost. Its private partners reported a post-tax return on capital of 29% and an effective cost of capital of 11% in 2002, twice the cost of public finance. A complex web of subcontracting created additional, undisclosed sources of profit for the parent companies, making it difficult to compare private financing with traditional alternatives. The paper questions the wisdom of using private finance.

UK = United Kingdom.

for-money compared with the traditional approach.

New Zealand

New Zealand relies heavily on competitive outsourcing of road-related functions. In 1984, the government decided to separate regulatory and service delivery functions, contract out or sell all activities able to be carried out commercially, and hold government agencies strictly accountable for performance. In transport, policy formulation was separated from service delivery; ownership and operation of transport services were transferred to the private sector; intermodal neutrality and user-pays pricing were adopted; and the government confined its role to strategic policy matters. The ministry was restructured into separate policy and commercial divisions, initially splitting commercial functions into two enterprises, a consultancy and a contracting business; both enterprises were then sold. The policy stipulated corporatization and privatization wherever possible, retaining only regulatory controls and a strict system of accountability. The policy (and funding) function was placed in Transit New Zealand, a Crown entity responsible for state highways—the strategic highways and motorways that comprise about 12% (10,900 km) of New Zealand’s roads and carry 50% (18 billion vehicle-km) of all traffic. With an annual budget of over NZ$1 billion and staff of 350, Transit New Zealand is accountable to the Minister through an annual performance agreement. It is required to ensure competitive bidding for all services.

The government encourages private sector funding and tolling for new facilities, but thus far Transit New Zealand has received approval for only two toll roads: the SH1 Northern Motorway Extension (ALPURT B2) and the Harbour Link in Tauranga. Harbour Link is currently under review, as is tolling the Western Ring Route in Auckland and the Waikato Expressway. ALPURT B2 will be a public toll road, operated by Transit New Zealand and financed partly from the National Land Transport Fund, with the balance from government debt to be repaid by toll revenue.

Australia

PPPs in Australia are going through a rough patch. Most privately financed highways have been in urban areas under the responsibility of state governments. The Cross City Tunnel in Sydney and proposals for tunnels in Brisbane

38 www.transit.govt.nz/
39 Examples include CityLink, the Mitcham–Frankston Expressway and EastLink in Melbourne, the Brisbane Bypass Tunnel and, in Sydney, the Harbour Tunnel, Eastern Distributor, Cross-City Tunnel, Lane Cove Tunnel, and M2, M4, M5, and M7 toll roads.
have raised concern about whether private sector financing and management serve the public interest.

Previously, most major highway projects were funded from federal grants to the states, and private involvement was limited to fee-for-service contracts with state road authorities. In 2000, the government introduced a goods and services tax, which replaced the system of grants to the states. Highways now compete for state funds with other sectors, and road authorities rely on privately financed toll roads to ease capital shortages. Decision making is highly politicized and optimism bias is widespread, encouraged by a practice of requiring up-front fees. Road authorities have entered into PPP agreements that make major concessions to the private developer. In the case of the Sydney Cross City Tunnel, these concessions included high toll rates, modification of local networks to funnel traffic onto the project, and restrictions on public transport. PPPs are the target of public anger and calls for a return to direct government funding.

Australia has found a single preferred modality for toll road projects elusive. Earlier concerns with financing off the public balance sheet and maximizing risk transfer to the private sector led to unsustainable contracts and considerable political fallout. Concern about value-for-money has increased, expressed, for example, in strict guidelines issued by Victoria and Queensland. 40 Australia established a National PPP Forum 41 to promote a more consistent approach to PPP projects, including standard risk-allocation models and tendering procedures, improve coordination and information-sharing with private industry, provide a forum for resolving industry concerns, and develop PPP skills through training and staff secondment. The forum publishes a list of planned PPP projects throughout Australia, a market worth A$20 billion ($5 billion).

**Italy**

Italy’s approach 42 supports established incumbents. Much of its early toll road network, developed in Mussolini’s time, was funded privately, but limits on government contributions, toll levels, and financial returns led to a progressive takeover by state-owned Autostrade SpA beginning in the 1950s. By 1975, Autostrade operated more than 50% of the 5,000 km network; local public institutions controlled, 42%; and private companies, 6%. In 1999–2000, the government privatized Autostrade to reduce public debt, granting a 35-year concession extension and generous conditions for future toll increases. This prompted other operators to seek extensions of their concessions, despite having already largely recovered their investment costs, and avoid the European Union’s regulations requiring rebidding at the end of the initial concession period. Two family-owned groups now dominate the market: Autostrade and its subsidiaries, with about 60% of the tolled network, and ASTM-SIAS, with about 1,000 km managed directly and shares in a further 138 km.

With stable revenues and little risk, most concessions are highly profitable. 43 Between 2000 and 2004, they generated net revenues of €17.6 billion, but invested less than one-third of this amount. Tolls vary between €0.04 and €0.15 per vehicle-km. Rates are subject to price cap regulation by ANAS (Road and Highways Authority of Italy), the regulatory

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41 www.pppforum.gov.au/home
42 This section draws largely on Ragazzi, G. 2006. Are highways best run by concessions? The Italian experience. World Transport Policy & Practice, Vol 12, No 2.
43 The value of Autostrade increased by a factor of 2.4 in the first 4 years after privatization. Between 1997 and 2004, its revenues rose from €1.76 billion to €2.88 billion and operating costs fell from 45% to 36% of revenue. Revenues in the last year of the 1998–2002 concession period were a quarter higher than forecast, return on investment increased from 6.8% to 16%, and net profits more than doubled, largely because of higher-than-expected traffic and lower investment than planned.
authority, based on changes in inflation, productivity, and quality of service, but the formula uses parameters that are liable to considerable subjectivity.

Italy’s approach, intended mainly to reduce the public sector deficit and move capital expenditure off the government balance sheet, has several shortcomings. Claimed gains in efficiency, intended to compensate for higher private financing costs, are small, with limited opportunities to reduce O&M costs, attract more traffic, or diminish long delays in project approval. Private Italian concessionaires are no more efficient than those owned by local governments, nor does Autostrade’s efficiency appear to have improved after privatization. Guarantees and tariff adjustments mean that the government and users carry a high proportion of financial risk. Investments in profitable toll roads tend to crowd out spending on other roads. Pricing uncongested toll roads diverts traffic to congested alternative routes. Separate links, each with its own tolling agreement, sometimes with nontolled alternatives, produce a fragmented network. Tolls on isolated links differ from those on marginal extensions to existing links. There is little effective competition: each operator manages its own local monopoly over a long concession period, and competitive bids for concessions, or extensions of them, are rare; a few well-connected groups dominate the industry. Regulation is difficult and discretionary: traffic volumes are largely outside the control of the concessionaire, so it is difficult to establish incentives for greater efficiency (or better quality) through the price-cap mechanism.

Japan

In October 2005, Japan privatized its four public road corporations and established the Japan Expressway Holding and Debt Repayment Agency (JEHDR), an incorporated administrative agency, and six expressway shareholding companies (East Nippon, Central Nippon, West Nippon, Metropolitan, Hanshin, and Honshu–Shikoku Bridge). JEHDR assumed the debt service obligations of the former road corporations, as well as their highway and bridge assets, which totaled some 14,000 km and carried about 13% of the country’s vehicle-km of traffic. It now leases these assets to the expressway companies to generate income for debt repayment: about ¥40 trillion ($346 billion) will be repaid over 45 years. The companies manage and operate the expressways, but can also implement new projects and transfer the assets and liabilities to JEHDR upon completion. Management and maintenance costs decreased 30% in the 4 years before privatization, but the government expects the expressway companies to reduce them further and generate more revenues from tolls and roadside concessions. The long-term plan is that when the debts are retired JEHDR will cease to exist, the expressways will revert to central and local governments, and the tolls will be removed.

South Africa

In South Africa, responsibility for financing, management, control, planning, development, maintenance and rehabilitation of national roads lies with the National Roads Agency Ltd (NRA), an incorporated company that lists the Minister of Transport as its single shareholder. It manages a network of 7,200 km (ZAR30 billion, or $4.4 billion, in asset value, excluding land), mainly through outsourcing of design, inspection, survey, supervision, maintenance and construction tasks. Maintenance allocations are based on a central road management system and implemented through output-based performance contracts. Sources of income include tolls and

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44 Japan Highway Public Corporation, Metropolitan Expressway Public Corporation, Hanshin Expressway Public Corporation, and Honshu–Shikoku Bridge Authority.

45 www.nra.co.za/
government budget allocations for nontolled roads. NRA manages all public and private toll roads. Public toll roads (equivalent to PRC’s loan-repaying toll roads) were initially funded from NRA borrowings backed by state guarantees and procured through competitive bidding. From the income stream, NRA raised capital through bond sales, also backed by state guarantees. Financing costs have been cheaper than commercial loans. Private toll road concessions are competitively bid, based on toll level or length of concession. Revenue and risk sharing are included in the concession agreements.

Key lessons from the NRA experience involve establishing the institutional capacity for financial and contract management; clearly separating public and private sector responsibilities; adopting a flexible approach to procurement (e.g., testing performance-based methods, but maintaining competition to lower costs and increase quality); using a mixture of sources for sustainable financing at the program level; and leveraging the income stream to improve the viability of concessions by subsidy or cheaper borrowing.

**Sweden**

Sweden uses a more traditional model of public sector—highway management. The Swedish network includes about 140,000 km of state roads managed by the Swedish Road Administration (SRA), 40,000 km of municipal roads, and more than 280,000 km of private roads, 75,000 km of which receive financial support for maintenance. The SRA resulted from a decision in 1991 to separate road management and civil works functions into two divisions: the Road Management Division and Production Division, with the Production Division financed mainly through contracts with the Road Management Division. Apart from its head office, SRA has four self-financing profit centers that compete to provide services to the Road Management Division and set prices to recover costs. In 1995, the Production Division was reorganized into autonomous units responsible for production, consultancy, ferries, traffic data, and training. No step has been taken to establish these as legal entities, but the policy is to promote market competition and a level playing field in relation to private competitors. All unit income comes from competitively bid contracts, and all new construction and maintenance is subject to competitive bidding. The government funds most road development and maintenance expenditures, and road user taxes go directly to the government. The use of toll roads has been very limited, though an important link between Malmö and Copenhagen is financed by tolls.

**Concession Design**

Concession design of bid selection criteria has important consequences for the success of a project and the probability of renegotiation. The following key features characterize good design:

- competitive award of contracts, drafted to avoid ambiguities and to clarify asset treatment, investment evaluation, outcome indicators, procedures for tariff
reviews and adjustments, criteria and penalties for early termination, and procedures for conflict resolution;

- contracts that hold operators to their submitted bids, disallowing renegotiation except in response to well-defined triggers, thus forcing operators to shoulder the costs of aggressive bids and normal commercial risks; tariff reviews disallowed for long periods (at least 5 years) unless contingencies are triggered; additional fees for renegotiation requests, reimbursable only if renegotiation is decided in the operator’s favor;

- provision for compensation and penalties in the event of unilateral contract changes by government (e.g., the sudden imposition of a green corridor policy);

- careful analysis of seemingly aggressive bids before a concession is awarded; disqualification of doubtful bids; significant performance bonds; and

- renegotiation claims assessed as transparently as possible, preferably by an independent party.

The selection criteria for toll roads should encourage up-front investment and operator commitment, discourage early renegotiation, and provide incentives for good performance. To ensure consistency, lock-in effects, and adequate tariffs, contracts generally should be awarded on the basis of the lowest proposed government contribution rather than the lowest proposed tariff or, if contracts set tariff-setting mechanisms, the least present value of revenues.

Privatization: A Panacea?

Concessioning and privatization are not without detractors. Apart from questions of dogma (many consider roads a public good, to be provided only by governments), they are criticized on the following grounds: private financing is usually more expensive than public borrowing; private sector partners are not always more efficient than public sector counterparts (this might arguably be true in the PRC and Italy); opportunities for efficiency gains arise mainly during construction, which is usually competitively outsourced anyway; government guarantees needed to attract private capital often result in relatively risk-free private investments; the need for performance monitoring effectively makes government a hands-on manager anyway (privatization does not absolve government of ultimate accountability); and the concession periods lock parties in for a very long time, although changing circumstances make renegotiation almost inevitable.

It is difficult to assess from international experience whether PPPs deliver projects better than governments. There is no single preferred corporatization or privatization model. There have been successes and failures, most commonly a failure to implement proposals. Few successful projects have been evaluated for value-for-money, and experience with PPP programs is limited. Committing to a single operator for up to 30 years may be no more efficient than outsourcing construction, maintenance, and management tasks separately and more frequently. In most cases, the public pays a high price for transferring risk to the private partners. The allocation of risk between parties is very complex, and it is often costly to compensate the private investor for government actions that affect the project’s profitability.

Best Practices and Conditions for Success

Several countries have developed PPP project guidelines intended to apply more rigor to

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51 See, for example, Sheil C., The trouble with PPPs – An unholy alliance. Available at http://evatt.org.au/
Box 4: Are PPPs the Panacea?

Public–private partnerships (PPPs) are no panacea, but they can play a role in delivering well-managed infrastructure under the right circumstances. It is therefore important to ensure that the necessary conditions are met—and that the privatization option is compared with non-PPP alternatives.

Source: Authors.

the assessment of funding and management options, including those of the United Kingdom Treasury and the Australian states of Victoria and Queensland, as noted earlier. The guidelines share common features. For example, the Queensland guidelines, applicable to PPP projects with capital value exceeding A$30 million ($22 million) or net present value exceeding A$50 million ($37 million), stipulate “clarity and certainty of process to provide the private sector with the confidence to invest in the development of high quality, cost-effective and efficient project solutions; value-for-money focus, to ensure the government’s objectives are delivered by the mechanism that best represents value-for-money; competitive process to drive value-for-money and innovation; consistency with government policies, objectives and planning principles, and with PPP policies being developed in other jurisdictions; analytical rigor that focuses on objective, whole-of-life, risk-adjusted costing as part of a thorough investigation of available delivery options; effective risk allocation to ensure risk is allocated to the party best able to manage it; protection of genuine intellectual property to encourage development of innovative solutions; transparency and accountability through clear definition of the process and of the respective roles and responsibilities of the government and private sector parties; clear definition and understanding of project outcomes through constructive information exchange with potential proponents.”

Since countries differ in their policies, legal environments, and perceptions about the public sector’s role, there is probably no single best way to corporatize and privatize toll roads. However, there is fairly widespread recognition that private sector participation in management and operation can, under the right circumstances, improve quality and expedite implementation, although not always reduce overall costs. The models chosen by different countries depend on political considerations as much as any technical, institutional, economic, or financial feature, but even countries that view toll road development and management as strictly government functions have shown recent preference for

- establishing a clearer distinction between the functions of government—formulating policies, establishing the regulatory framework, setting technical standards and procurement procedures—and the functions and role of independent service providers, whether fee-for-service inputs to a largely public sector activity (feasibility studies, design, construction, supervision, maintenance, operation) or financing, developing, and managing assets on behalf of the public sector;
- establishing a policy on unsolicited proposals and subjecting potential projects to strict tests of economic and financial viability and conformity with strategic plans;
- using competition between service providers as the primary means of ensuring quality and efficiency, and establishing clear criteria for selecting the preferred bid; these increasingly include several parameters (i.e., the toll level, length of

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concession, required government subsidy or guarantee, technical standards, staging of capacity increases, use of technology, etc.), thus allowing project bidders flexibility in developing an integrated solution to needs;

- developing a better understanding of the impact of risk on project financing and performance, and recognizing the need for agreement on how to allocate all risk categories;

- establishing contract arrangements that formalize more comprehensively the rights and responsibilities of both parties, and incorporate procedures—increasingly open to independent or external scrutiny—for monitoring compliance and dealing fairly and effectively with disputes;

- viewing private finance and management participation as an advantage in appropriate circumstances but not a necessary precondition for successful project implementation; private financiers’ pricing of risk or required guarantees may be too onerous when compared with public sector alternatives; and

- introducing better procedures for testing whether alternative financing and/or management options are sufficiently clear to allow confident financial projections? Is there room for alternative approaches whereby operators set toll rates or toll-setting criteria among their concession conditions?

Do contracts or concession agreements adequately define the roles, rights and obligations of all parties, clarify the allocation of risks, limit the permissible circumstances for contract variations or renegotiation, and communicate clearly the procedures for resolving disputes?

Are arrangements put in place to allow effective reporting and monitoring of compliance with contract and/or concession conditions, and are the arrangements fully transparent?  

Lessons from Overseas

Such preferences lead to a set of criteria for judging the PRC’s toll road management performance:

- Does the network development and project planning process produce appropriate priorities for candidate projects and well-considered project proposals that will be economically and financially viable and timed appropriately?

- Do the institutional and contractual arrangements for corporatization and privatization establish appropriate separation between the functions of owner and operator, allowing effective enforcement and monitoring of contract compliance?

- Are alternative options for project financing, development, management, or operation compared adequately, generating confidence in the best value-for-money solution, whether provided by the public or private sector?

- Are all potential risks to the project identified and allocated to whichever party—owner, financier, manager, or operator—is best able to control them?

- Do the arrangements for selecting project financiers, developers, managers, or operators (and, at a lower level, suppliers of services on a fee-for-service basis) provide for effective competition between competent suppliers?

- Do the criteria for selecting the preferred service supplier, developer, manager, or operator ensure the selection of the best value-for-money?

- Are the owner’s policies on setting and amending toll rates sufficiently clear to allow confident financial projections? Is there room for alternative approaches whereby operators set toll rates or toll-setting criteria among their concession conditions?

- Do contracts or concession agreements adequately define the roles, rights and obligations of all parties, clarify the allocation of risks, limit the permissible circumstances for contract variations or renegotiation, and communicate clearly the procedures for resolving disputes?

- Are arrangements put in place to allow effective reporting and monitoring of compliance with contract and/or concession conditions, and are the arrangements fully transparent?
Box 5: Best Practices

- Separate the functions of owner and operator.
- Establish a policy on unsolicited proposals.
- Promote competition between providers and set clear criteria for selecting the preferred bid.
- Understand and agree on the allocation of all risks.
- Have concession agreements formalize all rights and responsibilities and include arrangements for monitoring compliance.
- View private finance and management as an option, not a precondition, for successful project implementation.
- Test whether alternative financing/management options offer better value-for-money.

Source: Authors.
Corporatizing and privatizing toll roads differs from the traditional way of implementing and managing highway projects. Tolls suppress demand and reduce the project’s economic benefits. Since toll rates directly affect the investor’s revenue stream, their predictability impacts perceived risk and financing costs. Responsibility for project management and operation is passed to others even while ultimate responsibility for network delivery and performance remains with the government; the method of accomplishing this transfer determines whether potential efficiency gains are realized. Toll roads have considerable risks for the investor, and risk allocation and management affect the operator’s financial performance and the cost of finance. The effect of these and other variables have important implications for the design of the corporatization process.

Off-Budget Capital Financing

Privatizing toll roads involves changing the public sector’s role from supplying infrastructure directly to “buying” infrastructure investment, management, and operating services: the private sector develops and manages the project, and the public sector pays for these functions by assigning rights to toll revenues for the period of the concession. Critics of privatization claim that, by this process, governments conceal debt (i.e., transfer it to “off the balance sheet” by shifting it from the capital budget into a stream of future payment commitments from toll revenues); consequently, the public sector’s debt obligations are not reflected in its balance sheet. While some countries require these transactions to be recorded explicitly as liabilities, the People’s Republic of China (PRC) does not; as a result, it is difficult to assess the degree of indebtedness imposed by toll road concession agreements.

Value-for-Money

Corporatization and privatization must give better value-for-money than the traditional public sector alternative. Private management and finance is usually more expensive and it takes longer to arrange. Efficiency or quality benefits are needed to justify the higher cost. Value-for-money is likely only if the project is large enough to justify the additional transaction, management, and legal costs by optimizing risk allocation and adding value or lowering costs—and if competent private enterprises are willing to bid and capable of delivering or managing the project. Such assessment is difficult and involves comparing the additional costs and delays of project preparation, competitive bidding, evaluation, approval, corporatization, financing, etc.; the higher tolls needed to cover these (which have the effect of lowering economic benefits); and the benefits of management efficiency, project quality, schedule adherence, increased productivity, and securing additional (even if more expensive) capital. In the PRC, these benefits remain unproven—there is not enough of a sample from which to judge the efficiency gains resulting from private sector participation. Moreover, any comparison should identify and quantify all risks associated with the traditional approach and the corporatization/privatization alternative.

Is privatization concealing public debt and shifting unsustainable financing obligations off the government’s balance sheet?

Does privatization offer value-for-money by providing efficiency or quality benefits to compensate for the higher costs of private sector involvement?

54 Private investors price project risks into their lending rate, while the same risks are usually not recognized in the rates at which provincial governments borrow from domestic banks. In practice, however, for many PRC toll road projects, the private sector’s contribution is also borrowed from domestic banks, and the differential in borrowing costs mainly reflects the banks’ assessment of corporate, not project loan security.
Better Asset Management

The improved asset management characteristic of corporatization can also enhance value-for-money. While efficient public sector managers arguably may accomplish this goal, corporatization encourages the operator to consider the trade-offs among alternative options over the life of the concession and choose the most cost-effective maintenance, operating, and staffing strategy (e.g., adopting a preventive maintenance strategy rather than delaying until rehabilitation becomes more expensive).

Incentive and Competition

Countries with a well-developed and competitive private sector and a public sector unaccustomed to productivity pressure generally can realize the expected efficiency and quality benefits from private sector participation. It is questionable whether this is true also of the PRC, where private sector management skills for major highway projects are less well-developed and recent moves toward commercialization and decentralization have increased the efficiency and accountability of the public sector itself (e.g., as in Sichuan). It is also questionable whether competitive outsourcing of individual tasks, including construction, maintenance, and some aspects of toll road operation, might achieve the same level of efficiency and quality as the public sector.

Most other countries recognize that the benefits of private participation are best realized under competitive conditions; very few fail to use some kind of competitive bidding for concessions or outsourced services. Without the pressure of competition, there is little incentive to operate efficiently; a noncompetitive concession or outsourcing agreement would have to be unusually strict in requiring best-practice performance standards, something that is difficult to assess without comparing the performance of competing providers.

Concession Design and Selection Criteria

Concession design is crucial, especially regarding incentives given to the concessionaire to fulfill its obligations and not seek early renegotiation of terms. While renegotiation may be necessary to meet changed circumstances, it is often abused by concessionaires to obtain additional benefits. Renegotiation favors the incumbent operator and, at least in other countries, often leads to increased tolls, reduced investment obligations, and/or lower government fees or taxes.

Concession design should promote long-term compliance. A review of almost 1,000 concessions in Latin America found that renegotiation is more likely if the award is based on the lowest tariff (toll) rather than the highest transfer fee; if contracts contain investment requirements rather than performance indicators; if price caps are used rather than rate-of-return limits; and if the regulatory framework is imposed by contract rather than by law. Renegotiation should occur only when justified. The concession’s design and selection criteria should contain incentives that minimize the need for renegotiation and clearly specify permissible renegotiation conditions.

Concession Agreements

The PRC standard concession agreement includes the following key provisions (see also Appendix 5):

Does corporatization or privatization result in better asset management over the period of the concession?

Does the corporatization and privatization process adequately capture the benefits of cost-, quality-, and performance-based competition?

An effective means of achieving the benefits of competition may involve unbundling road investment and management: breaking the various functions normally included in a project concession into separate contracts through competitive bidding for financing, construction, maintenance, toll collection, cleaning etc., thus attracting real competition among alternative suppliers of these services.
• It grants the concessionaire the right to implement and operate the project for a specified period, including all related investigation, study, design, engineering, procurement, financing, construction, operation and maintenance (O&M) activities, and the right to levy tolls.

• It grants the concessionaire unencumbered access to the site—to be provided by the Provincial Communications Department (PCD)—for the purposes of the project.

• It sets out the PCD’s rights and obligations, including the right of ownership, supervision, inspection, and retention after the concession period ends. It also states the PCD’s obligation to refrain from interfering in the concessionaire’s activities, help secure permits and approvals, coordinate with local governments, maintain access to and from connecting roads, and provide highway public administration and transport security services.

• It describes the concessionaire’s rights and obligations, including decision-making autonomy, and the obligation to complete the project as specified, keep the roadway open to traffic and fulfill all conditions associated with licenses, permits, technical specifications and standards, environmental, health and safety regulations, and protection of archaeological and historical artifacts, and to provide reports on traffic, project condition, and other relevant information.

• It entitles the concessionaire to levy, collect, retain, and adjust tolls, but only in accordance with the provincial toll structure, the cost-recovery principle, and in addition, subject to provincial government approval.

• It holds the concessionaire responsible for arranging expressway operation, maintenance, and repair by PCD-approved contractors and subject to independent inspection.

• It requires the concessionaire to take all necessary safety and security precautions, adopt an emergency response plan, and maintain adequate insurance for general liability, workers’ compensation, and third-party liability.

• It necessitates reports from the concessionaire on daily traffic volumes, maintenance and repair activities, and other information required by the PCD.

• It requires the concessionaire to obtain all necessary project financing, provide the PCD with financial statements, and agree on an independent auditor, and also allows the concessionaire to create security over its rights and interests in the project.

• It requires the concessionaire to relinquish project assets at the end of the concession period.

• It describes conditions for termination and resolution of disputes, the latter involving arbitration under the PRC Arbitration Law.

Best practices in other countries include the following important additional features:

• a risk allocation matrix that identifies all potential risks and assigns them to one or another party on the basis of their capacity to control them (Appendix 4);

• a clearer, more predictable policy on toll setting, including structure, initial level, formulas for future adjustment, and adjustment frequency;

• the conditions for permissible renegotiation of terms, and procedures for initiating renegotiations, which often include a fee to discourage unnecessary contract variations;

• the performance standards for the concessionaire, including construction standards, condition of assets, and procedures for monitoring compliance; and

• information to be made available to the public in the interests of transparency.

Do the selection criteria and the design of the concession agreement contain incentives for long-term compliance and discourage renegotiation?
Performance Monitoring

Except for listed companies, it is difficult for concerned citizens to review the toll road concession agreement or determine whether the concessionaire has met its terms and conditions. Currently, the PRC does not offer transparent concession agreements that include performance measures, traffic statistics, financial performance, or the results of inspections of road and bridge conditions. Greater openness would yield several benefits, including concessionaire compliance, reduced corruption, and strengthened accountability. However, there is little incentive for transparency when the PCD represents both owner and operator.

The Ministry of Communications (MOC) could help by requiring routine submission of basic traffic, performance, and financial information to be made available on its website. In addition, the concession agreement could not only specify required information but also state that the information will be available for external scrutiny.

Operational and Financial Performance

Information on the operational and financial performance of toll road concessionaires is generally not available for external review. Without analysis similar to the Sichuan study, it is difficult to gauge whether toll revenues are sufficient to cover operating costs and repay loans. A recent report, however, attempted to synthesize such information by estimating capital costs, assuming O&M costs as a percentage of these, and estimating revenues from traffic data. Figure 20 illustrates the results, showing toll income coverage of (i) interest plus O&M costs and (ii) interest plus O&M costs plus return on equity. Despite coarse assumptions, the figure suggests that some provinces, mainly in the west, are less capable than others of covering their costs from toll revenues.

Figure 20: Estimated Net Toll Revenues by Province, 2004

O&M = operation and maintenance, RoE = return on equity.

Monitoring, Transparency, and Accountability

The intended arm’s-length relationship between owner and operator that characterizes corporatization is designed as a mechanism to hold the operator accountable for meeting the terms of its concession agreement. Effectiveness requires clearly defined performance standards and compliance monitoring. Efficient infrastructure management is best assured and the risk of corruption minimized by a transparent process (open prequalification, bidding, evaluation, contract or concession award, and performance monitoring), with all decisions and performance outcomes open to external scrutiny. The present practice of establishing toll road operating entities under PCD control is not necessarily conducive to such transparency: the PCD has little incentive to encourage efficient performance. Opportunities for corruption are more likely to arise.

Recognizing and Allocating Risk

The absence of a clear allocation of all risks is a common cause of dispute in other countries’ toll road concessions. Risks take many forms, many of which can be reduced by the actions of one or other party. Since transferring all risks to the private sector will increase costs, the government should allocate each risk to whichever party is best able to manage it. Private involvement should not be sought until all significant risks have been identified and the PCD has decided which to retain and which to transfer to the private sector.

Unless providers of project debt or equity are offered security of repayment, financing costs will rise to compensate for their absence. Financiers often require an equity contribution from government and/or guarantees of financial return, traffic, or cost thresholds. As a result, the financial performance of such projects must exceed that of projects built with public funds. In most cases, the owner would carry a portion of the risk. All other things being equal, the government contribution would be higher in the central/western region, where project returns are otherwise lower and risks greater.

Project Financing

Since PCDs dominate most corporatization options, they effectively assume most financing and other risks, borrowing from domestic banks and gaining little from private sector involvement. As in many other countries that invite private sector participation, these risks would diminish if project financing, as well as implementation and management, were fully and competitively outsourced. The competitive build–operate–transfer (BOT) model implemented by Sichuan and common elsewhere offers this scenario. It leaves financing decisions to the bidder, who has the incentive to choose the best from available alternatives, including revenue securitization once the project begins operation.

Another advantage of open bidding for BOT concessions is that it automatically identifies the best value-for-money option meeting defined selection criteria. As long as these criteria are set appropriately and the prequalification, bidding, evaluation, and award process is transparent, the winning bid will be the best among competing alternatives. Assessment of whether it offers better value-for-money than government funding and management should occur at an earlier stage in the process.

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54 Examples of risk categories include the risk that project land will be unavailable or access to it made subject to unexpected conditions; that project preparation or implementation suffers unexpected costs or delays; that debt or equity financiers will not provide funding as expected; that the financial structure is incapable of providing fair returns, calling into question the project’s viability; that currency exchange rates move to the disadvantage of either party; that the operator will be unable to deliver the expected services according to specifications and/or within budget; that traffic or revenues will differ from projections; that the road network in the project’s vicinity will change in a way that affects its viability; that the government will unexpectedly change its regulations or policies (e.g., on toll rates) in a way that would impact negatively on the project; and that events outside the control of either party disrupt the project (force majeure).

57 Other options include allowing reduced technical standards; allowing greater flexibility in toll setting; granting longer concession periods; and allowing a degree of cross-subsidy from more profitable routes.
By no means do all provinces follow this open, competitive BOT model. Most use a joint venture or leasing approach with the PCD closely involved in the entity controlling tolling rights. Several provinces have implemented BOT schemes without competitive bidding or transparency. Others, like Yunnan, follow or plan to follow a competitive approach.

Earlier projects had limited access to capital, accounting for the common use of domestic bank lending. However, new rules issued by the China Insurance Regulation Commission in March 2006 allow qualified insurance companies to invest in infrastructure projects through approved professional investment institutions. Currently, insurers invest mainly in bonds (CNY742 billion) and bank deposits (CNY517 billion). Infrastructure projects should be attractive due to their long-term assured cash flow. Other sources will also be possible once the PRC eases restrictions on foreign banks and modernizes its capital markets. Until now, the domestic banking sector has had a near-monopoly on infrastructure lending. At 210% of gross domestic product (GDP) (2004), banking assets are very high by international standards. With more competition from capital markets, alternative financial services would likely attract more savings (Figure 21), significantly increasing the pool of funds available for infrastructure investment.

**Forecasts and Optimism Bias**

Potential investors must forecast their cash flow, a difficult proposition even with the benefit of a feasibility study. Lacking reliable projections of future construction and O&M costs, traffic flows, and toll rates, investors would require a higher risk premium. It is important, therefore, that the basis for cost estimates are as accurate as possible, including detailed designs and realistic unit costs; that traffic and revenue forecasts are realistic and avoid the “optimism bias” common in projects to date; and that careful

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58 MOC could play a role in this, by maintaining and making available to PCDs and potential investors a database on unit costs, traffic levels, and the financial performance of toll road operations.

59 The government’s commitment to a network development strategy like the National Expressway Plan makes it improbable that provincial agencies would come up with unacceptably low forecasts of return. Optimism bias is common. A recent comparison of predicted and actual rates of return for World Bank–supported projects confirms this: the unweighted economic rate of return for 18 projects estimated on opening was more than 5% less than predicted at project appraisal.
risk and sensitivity analyses are carried out to establish the consequences of realistic variations in input assumptions.

Like other international lenders, ADB requires an assessment of risk factors and sensitivities during project preparation and evaluation. While such assessment is usually applied to key cost and demand assumptions affecting the project’s economic and financial viability, it could be made more comprehensive by, for example, using information on the frequency of risk factors from other toll road projects, and could also include value-for-money tests of alternative corporatization and financing options (section VII).

Priorities for toll road development in the PRC follow a logical process: the long-term strategic plan, 5-year program, and annual plans are prepared by consulting all levels of government and carefully reconciling strategic objectives with national, provincial, and local needs. The resulting schedule of projects likely reflects the most rational way to achieve the physical targets in the respective plans and programs. Once a project is in the planning pipeline and scheduled for implementation, however, the momentum of commitment makes it unlikely that any feasibility study would find it infeasible. The feasibility study rarely questions the presumed scope of the project or its timing, and it does not consider the possibility of not tolling the road. Optimism bias (Figure 22) is common: most projects have re-estimated rates of return on opening that are lower than predicted at initial appraisal, usually because construction costs are higher than expected or traffic volumes lower.

**Unsolicited Proposals**

In other countries it is common for proponents, often linked to construction contractors, to submit unsolicited project proposals that may or may not conform with government plans. Lacking competing proposals, concession agreements, risk allocations, and guarantees can unreasonably favor the project’s sponsors. Given the role of MOC and the National Development and Reform Commission (NDRC)...

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**Figure 22: The Tendency Toward Optimism Bias**

![Graph showing predicted vs. estimated economic internal rate of return (EIRR) for selected World Bank, ADB, and projects funded from domestic funds.]

ADB = Asian Development Bank, EIRR = economic internal rate of return, pa = per annum.

Source: Authors.

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66 The government’s commitment to a network development strategy like the National Expressway Plan makes it improbable that provincial agencies would come up with unacceptably low forecasts of return. Optimism bias is common. A recent comparison of predicted and actual rates of return for World Bank-supported projects confirms this: the unweighted economic rate of return for 18 projects estimated on opening was more than 5% less than predicted at project appraisal.
Does the project preparation process include provisions to ensure accurate predictions of traffic, costs, and revenues, and also guard against optimism bias?

Does the project preparation, corporatization, and privatization process discourage more economical standards or construction in stages?

in approving major projects and the PCDs’ control over (and interest in) project preparation and concessioning, this is unlikely in the PRC in the short term, but it might arise in the future. Many countries permit or encourage unsolicited proposals but subject them to the same tests of risk and viability as other planned projects, usually at the expense of the proponent, and sometimes invite competing proposals. To compensate for the effort expended by the original sponsor, they adopt approaches like the “Swiss challenge,” allowing proposals by competing bidders but giving the original proponent the right to respond with a revised bid. This approach aims to retain the value of competition in maximizing quality and efficiency.

Timing and Technical Standards

An advantage of private financing is that it brings forward projects that might otherwise have to wait for government budgets. In some cases private financing can also result in a cheaper solution, by allowing the project to be built all at once rather than over stages as funds become available. This approach may be useful where traffic growth is rapid, congestion already exists, and there is an urgent need for additional capacity. However, many toll road projects in the PRC are in lower-traffic corridors and might benefit instead from construction in stages in line with traffic growth, with two lanes initially and more lanes added later when traffic levels justify the additional capacity.60

This situation often arises where technical standards are predetermined and the project’s timing is set by the fixed schedule of a planning pipeline—as in the PRC, where standards are set by MOC and the implementation schedule is predetermined largely by the sequence of projects in the ADB Country Program, for example. This same momentum of commitment also risks contributing to optimism bias, as PCDs, and possibly also project preparatory technical assistance (PPTAs), strive to deem their chosen projects viable. The risks of inappropriate timing would decrease if MOC allowed standards that reflect incremental traffic growth and the feasibility study included an analysis of economically optimum standards and timing.

Approval, Agreement, and Dispute Resolution

The project selection and approval process and management and operating arrangements should be capable of demonstrating that the chosen solution offers the best value-for-money. In the PRC, the process often does not do this. If the PCD is both owner and operator, it is less likely to perceive the need for testing alternative management or operating variations. As a result, concession agreements likely would reduce the burden of accountability or conceal how risks are assigned and disputes are resolved. A better process would involve open competitive bidding for the right to operate the toll road as an independent agency, a transparent evaluation process, and a comprehensive concession agreement based on a standard model (section VII).

Toll Setting, Sustainable Financing, and Cost Recovery

Private investors require highly predictable toll rates and revenues. PCDs, however, are rarely willing or able to commit to a schedule of toll increases during the concession period. Most concession agreements require tolls set in accordance with provincial toll policies and subject to the approval of provincial pricing authorities. Vague agreements raise the risk premium for financiers (how can they predict their revenues if toll-setting policies might change?) and probably contribute to the tendency of PCDs to remain directly involved in managing and operating commercial toll

60 The Australian Bureau of Transport and Communications Economics, in its Benefits of Private Sector Involvement in Road Provision: A Look at the Evidence (Working Paper 33, June 1997), quotes studies showing that delayed project schedules would often have resulted in much higher net benefits.
roads. Lowering this risk premium would entail having investors/developers bid either on the basis of initial and future toll levels or on their requirement for a government contribution to project equity, with initial and future toll levels set by prior agreement.

In one sense, tolls are a necessary evil: they facilitate project financing but lower economic benefits—hence, the government’s view that they should not be the primary financing method. The volume of traffic attracted to a new toll road from parallel roads is always less than it would be if the new road lacked tolls. It would be better if expressways could be financed some other way.

The most rational and sustainable way to finance expressways would use a combination of land and general taxes, specific road-user taxes and direct tolls that recover from users and other beneficiaries revenues equivalent to the benefits they derive (e.g., increased property and business values, as well as transport cost savings) or the marginal social costs of pavement deterioration, congestion, noise, and air pollution that they impose. Depending on the combination of other sources, tolls could be set to recover the balance of road-related social costs from users, not all project financing and operating costs. The more funding derives from sources other than tolls, the less reliance is placed on tolls and the greater the economic benefits of the toll road network. By reintroducing the possibility of a fuel tax, the 11th Five-Year Plan raises the prospect of a better balance between general taxation and user tolls, although its proposed fuel tax (a tax on vehicle use) should be combined with a tax on vehicle ownership (such as a restructured annual vehicle registration fee) to charge users for costs that vary with vehicle type rather than fuel use.

Since surveys show that tolls represent 20–40% of truck operating costs, drivers are concerned about toll level—and also about the frequent delays caused by the patchwork of independent toll road sections, each requiring a separate toll. Government could address high toll costs by shifting the balance between tolls and other sources of finance, adopting economically optimal technical standards, and ensuring that toll roads are implemented only where or when sufficient traffic justifies them. Pooling several toll roads within a single operating company in a corridor or region, and allowing toll collection only at entry and exit points, would also help reduce the number of collection points. Shadow tolls (repaying lenders on the basis of usage without recovering the costs directly from users) could have similar impact since they would not suppress economic benefits, but rather require that funds for construction and O&M come from general tax revenues.

**Economic versus Financial Objectives**

This highlights a related issue: the tension between economic and financial objectives. Figure 23 illustrates how toll levels affect the proportion of traffic diverting to a new toll road from an alternative route and the resulting revenues, based on the diversion model commonly used by MOC and ADB PPTAs to forecast toll road traffic. It assumes a 50-kilometer (km) toll road that saves 20 km in distance and 0.9 hrs in time, with corridor traffic of 10,000 vehicles/day. Note that the proportion of diverting traffic falls as the toll rate rises, attracting fewer shorter-distance journeys to the toll road. With realistic assumptions about traffic mix, revenue is maximized at a toll of about CNY1.0 per vehicle-km; this would be the logical objective

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61 The present system of nontoll user taxation, based largely on the Highway Maintenance Fee, strongly favors heavy vehicles and, combined with vehicle weight and dimensions limits, distorts road use and vehicle replacement decisions.

62 For example, the damage to road pavements by heavy vehicles varies according to laden axle weight, usually measured in terms of Equivalent Standard Axles. A fuel tax alone is not capable of recovering such costs without unfairly discriminating against users of light vehicles.


People’s Republic of China: Toll Roads Corporatization Strategy—Toward Better Governance

Tolls suppress demand and project benefits. They should be viewed as part of a more general strategy for recovering road-related costs from users and other beneficiaries.

Project versus Corridor or Group Approach

The PRC’s approach to corporatization and privatization includes several different models, based mainly on single projects or groups of projects. A securitized revenue stream from completed toll road projects provides PCDs with options to spread and thereby lower risk, raising further debt.

Figure 23: Illustration of the Effect of Tolls on Traffic Diversion and Revenue

CNY = yuan, km = kilometer.
Source: Authors.
against this revenue stream, and entering into design–build–finance–operate (DBFO) agreements, including agreements based on shadow tolls, or long-term performance-based O&M contracts. Using an enterprise- or corridor-based approach to spread traffic and other risks across a wider network would facilitate cross-subsidization between links, achieve economies of scale and more uniform service standards, and reduce the number of collection points.

Box 6: One-Project vs Several-Projects

Compared to the one-company/one-project model, a one-company/several-projects model offers greater prospects for spreading risk and attracting private capital through securitization.

Source: Authors.
A Strategy for Better Governance

Summary Assessment

The People’s Republic of China (PRC) has been very successful in rapidly developing an extensive network of tolled high-grade highways and expressways. Nevertheless, this review has identified several areas of concern (Table 5).

Using the right contract-based relationship between toll road owner and operator, corporatization potentially enhances efficiency and accountability. Privatization can help bring forward needed investments, delay repayment, release funds for other uses, and make users pay more of their road-related costs. Involving private funding and management can potentially bring greater efficiency, make decisions more expeditious, and encourage a lifecycle approach to asset management. Risks can be identified, unbundled, and allocated to the party best able to manage them. Because the key drivers of investor return—traffic and toll levels, construction and operation and maintenance (O&M) costs, institutional arrangements, and government’s willingness to invest—differ among projects, each option should be assessed on its own merits and compared with the alternative, traditional form of project implementation, the public sector comparator.

Of course, not all models are suitable for the PRC and its socialist market economy, but this review identifies five common success factors based on the overseas experience:

- separation of owner and service provider functions, establishing a contract-based relationship and making the service provider accountable against specified criteria;
- using competition to promote efficiency, quality, and economy for outsourced tasks as well as full project financing, delivery, and operation;
- including in the preparation process a comparison of value-for-money for all realistic technical, management, and financing options, including public-sector financing and management;
- concession agreements or contracts that clearly delineate roles, obligations, and measurable performance targets, identify and allocate all risks, and limit permissible renegotiation; and
- making the entire process of project planning and procurement fully transparent, so that external parties can scrutinize performance and ensure compliance.

Separation of Functions

The key decision facing Provincial Communications Departments (PCDs) involves determining the best way of assigning responsibility for the development, management, and operation of expressways, including toll collection. PCDs could carry out the tasks themselves, outsource them individually (e.g., construction, maintenance, operation, toll collection, performance monitoring, etc.) or outsource them as an integrated package, in a contract-based corporatization framework; they could also outsource them as a privatized (operational toll road) package with financing.

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### Table 5: Summary Assessment of Toll Road Corporatization in China

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<th>Question</th>
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<tr>
<td>Does the network development and project planning process result in an appropriate set of initial priorities for candidate projects and well-considered project proposals that are likely to be economically and financially viable and to be timed appropriately?</td>
<td>Yes, up to a point, but once a project has entered the planning pipeline it gathers momentum and there is little questioning of technical standards and timing. By the time the feasibility study is completed there is strong institutional commitment to proceed with the project as planned.</td>
</tr>
<tr>
<td>Do the institutional and contractual arrangements for corporatization and privatization establish an appropriate separation between the functions of owner and operator, allowing effective contract enforcement and compliance monitoring?</td>
<td>No, except under the BOT option. When PCDs control most toll road entities, even when projects are in the operational (commercial) category, the distinction between owner and operator blurs, making it difficult to hold the operator accountable for performance, lowering pressure to improve performance, reducing transparency, raising the risk of corruption, and giving no assurance of best value-for-money.</td>
</tr>
<tr>
<td>Are alternative options for project financing, development, management, or operation compared adequately, ensuring confidence that the solution offering best value-for-money is chosen, whether provided by the public or private sector?</td>
<td>No. There is little evidence that analyses of alternative management and financing options are carried out. For projects funded by international lending agencies, a limited comparison reviews the public/private financing split, but seldom considers differences in transaction costs, delays, and management efficiency. For other projects, PCD involvement in the operating entity discourages objective assessment of alternatives.</td>
</tr>
<tr>
<td>Are all potential risks to the project identified and allocated to whichever party (owner, financier, manager/operator) is best able to control them?</td>
<td>No. Projects funded by international lending agencies undergo limited risk assessment, but a full risk allocation matrix is not usually prepared and is not a routine feature of concession agreements.</td>
</tr>
<tr>
<td>Do the arrangements for selecting project developers, managers or operators (and, at a lower level, suppliers of services on a fee-for-service basis) provide for effective competition between competent suppliers?</td>
<td>In most cases, there is little competition for the award of concessions, and therefore no means of determining which privatization option is best. Decisions on the selection of investor, developer, and/or operator likely are made with little transparency by provincial agencies, and the chosen concessionaire usually involves the PCD.</td>
</tr>
<tr>
<td>Do the selection criteria for preferred service supplier, developer, manager or operator ensure the choice of the best alternative (i.e., the greatest value-for-money)?</td>
<td>No. Concessions likely are not awarded on the basis of criteria that maximize efficiency incentives. With operators unable to control toll rates, the only possible options are the government equity contribution or the length of the concession period.</td>
</tr>
</tbody>
</table>

Continued on next page
Available data on the PRC’s experience does not determine the best circumstances for each option, although the complexity of each—and hence scale of project suited to it—clearly increases from the first to the last. Most arrangements that assign rights and responsibilities to PCD-controlled entities, including those involving subsequent share listings, have not captured the potential advantages of corporatization. While corporatization establishes a separate system of management, accounts, and reporting, a PCD-controlled toll road entity will not face the same performance pressures as a fully independent contractor. Among the current modalities, only the build–operate–transfer (BOT) option achieves this.

Decree 417 requires assignment of rights according to the principle of separating governmental functions from those of the toll road operator. Except for BOT projects, the present arrangements do not follow this principle fully; there is no assurance that the benefits of management autonomy, competition, incentive, and accountability under contract will be realized. Therefore, this report recommends the following:

- Enterprises or entities in which the PCD has an interest should not qualify as concessionaires for operational/commercial toll roads.66
- Where possible, development, management, operation, and tolling rights for government loan-repaying toll roads should be awarded on the basis of competitive bidding to independent service providers, with entities controlled by the PCD precluded from involvement.

66 It would be preferable to preclude all enterprises/entities in which the provincial/municipal government has a stake, but this might be unrealistic, particularly in central/western regions.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are the owner’s policies on setting and amending toll rates sufficiently clear to allow confident financial projections? Is there room for alternative approaches whereby operators set toll rates or toll-setting criteria as part of their concession conditions?</td>
<td>Potential concessionaires cannot forecast future toll rates with any certainty. This raises the risk premium and probably explains why investors seek some certainty by forming joint ventures with the PCD or other provincial government entities. PCDs would not abdicate their responsibilities if the concession agreement stipulated more explicit rules for amending tolls during the concession period.</td>
</tr>
<tr>
<td>Do contracts or concession agreements adequately define the roles, rights, and obligations of all parties, clarify the allocation of risks, limit permissible contract variations or renegotiation, and clearly delineate procedures for dispute resolution?</td>
<td>Not in sufficient detail. Concession agreements do not adequately assign all possible risks or limit the circumstances for renegotiation. Performance standards and procedures for monitoring compliance and operator accountability are not specified in detail.</td>
</tr>
<tr>
<td>Do arrangements allow effective and transparent reporting and monitoring of compliance with contract and/or concession conditions?</td>
<td>With the exception of statutory reporting required for listed stocks, little information is available to external reviewers, making it difficult to assess the costs and benefits of privatization and the technical and financial performance of concessionaires.</td>
</tr>
</tbody>
</table>

BOT = build–operate–transfer, PCD = Provincial Communications Department.

Source: Authors.
Where this is not possible, tolling rights for government loan-repaying toll roads should not be allowed to be assigned to entities controlled by the PCD unless (i) the entity is formally established as a legal enterprise with independent management, accounts, and decision-making autonomy, and (ii) the concession agreement follows a model included in guidelines proposed to be issued by the Ministry of Communications (MOC).

This report also recommends basing selection of the approach in each case on the value-for-money test included as part of the feasibility study/PPTA.

Establishing a mandated separation of owner and service supplier functions likely will take some time; PCDs might resist, and qualified independent service suppliers may not exist or not yet be capable of assuming PCD responsibilities in some provinces. Therefore, this report recommends that the value-for-money test proposed as part of the feasibility study/project preparatory technical assistance (PPTA) should examine alternative management options and should recommend, after considering current provincial circumstances, the most realistic strategy for establishing the required arm’s-length relationship.

**Competition**

If there is one key lesson from the international experience, it is that selection of toll road financiers, developers, operators, and/or other outsourced service providers should be based on competitive bidding. Combined with other features of the contract-based owner/supplier relationship (targets, incentives, penalties, and requirements for performance monitoring and transparency), competition is most effective in pressuring the service supplier to improve efficiency, quality, and performance. It requires effective procedures for registration and prequalification and short-listing of eligible bidders; a bid conference to explain bid documents and the bidding and selection process; selection based on clear and unequivocal evaluation criteria; and a transparent evaluation process, with results open to scrutiny.

This report recommends that MOC should develop and issue guidelines to govern this process, and that the feasibility study/PPTA should develop appropriate documentation during project preparation in each case. The MOC guidelines, openly available to interested parties, should include basic principles and model documents and procedures, including (i) a suggested standard-format project description and investment prospectus; (ii) a standard form for presenting the feasibility study results; (iii) a requirement for public advertisement and a draft invitation letter; (iv) a standard description of the process of registration, evaluation, selection, and contract award; (v) presentation of the results of value-for-money and risk analyses; (vi) bid submission formats; (vii) model contract(s) and concession agreement(s); (viii) requirements for details of government contributions, guarantees, and toll-setting policies; (ix) the project acceptance and certification process; (x) suggested performance measures and monitoring arrangements; (xi) suggested incentives, penalties, and bases for payment; and (xii) recommended bid evaluation criteria.

This report also recommends that, in setting bid evaluation and award criteria for operational projects, the PCD should

- allow the bidder as much flexibility as possible (e.g., proposing innovative forms of financing, bundling with other projects, etc.) to discover the best value-for-money outcome;
- clarify all input assumptions (unless these are components of the bid criteria), including toll levels and toll-setting procedures, performance targets, penalties and incentives, and government contributions and/or guarantees;
• adopt simple and easily evaluated criteria (such as the lowest subsidy or revenue share for a given toll) that ease justification of the award decision and do not require frequent amendment to cope with unforeseen circumstances during the concession/contract period;

• specify outcomes and performance targets that can form the basis for comparison of bids (e.g., maintenance standards and timetables for incremental capacity increases);

• limit opportunities for renegotiation by specifying permissible conditions for renegotiation and stating that risks are otherwise assigned by the risk allocation matrix or contingency table included in the agreement;

• insist on open and transparent competition exposed to independent scrutiny (e.g., verifying bid evaluations by an independent panel); and

• make all relevant information available to all bidders.

The PCD should avoid requiring a low level of initial financial commitment by the concessionaire. Locking the concessionaire in with a significant initial investment and raising the potential cost of default will encourage effort and reduce the risk of failure. The PCD should also avoid selection criteria that will almost certainly change over time, such as toll levels that are constantly subject to cost, social or policy pressure, or operational standards not set by the concession agreement.

**Comparison of Technical and Management Options**

This report also recommends altering the scope of the feasibility study/PPTA to increase the likelihood that the chosen technical and management option offers best value-for-money. Such changes relate to the following:

• an evaluation of alternative options for the scope, timing, and scheduling of the project to ensure selection of an economically optimum combination;

• an evaluation of alternative corporatization and privatization modalities;

• alterations to the design and coverage of the draft concession agreement;

• the inclusion of risk allocation, or a contingency table, in the concession agreement; and

• an analysis of tolling options, and the inclusion of more specific commitments to tolling policy in the draft concession agreement.

**Technical and Timing Options**

Figure 23 suggests that many toll road projects either cost more than expected at appraisal or carry less traffic than forecast. While extra costs may result from unexpected price inflation, lower-than-expected returns may suggest that the project was implemented prematurely. The economic cost of optimism bias can be high, particularly if more rewarding public investment opportunities are available (e.g., in health or education). Therefore, this report recommends strengthening the evaluation of technical and timing options in the feasibility study/PPTA to include analyses of:

• alternative technical options offering the prospect of lower costs, such as lower design speeds, narrower lane widths, fewer lanes, narrower rights-of-way, and lower pavement and bridge design loads; and

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67 The range of options should, of course, be limited to those that are realistic, given the circumstances of the project.

68 Ideally, this type of economic analysis of technical standards should be carried out by MOC and presented as guidelines to the PCDs. The current design standards have not been based on a comparison of the economic costs and benefits of alternatives over the life of a project.
alternative staged schedules for project development, particularly delaying additional lanes needed to cope with increased traffic during the life of the project.

The analysis of these options should consider all the consequences, including differences in the levels of cost-recovery tolls; the rate of pavement deterioration under forecast traffic loads, and hence requirements for maintenance; the rate at which traffic congestion develops, hence user costs and benefits; and the investor/developer's risk profile, cash flow, and risk premium. Although some tested options may not meet MOC's adopted standards and the differences may have little technical significance other than reducing the risk of overdesign, they might represent a pivotal difference between proceeding and not proceeding with an economically and financially viable project.

Draft descriptions of the additional tasks for the feasibility study/PPTA consultants are included in Appendix 3.

**Corporatization Modality**

This report recommends resolving the choice between in-house implementation, contracted-out fee-for-service tasks, corporatization, and privatization by analysis (i.e., comparing the costs and benefits of each method in the course of the feasibility study/PPTA). Since public sector loan and bond financing is usually less expensive than private sources and economic benefits increase when tolls are lower, the default method should be the government loan-repaying approach, managed at arm's length by an independent manager. An alternative method should be used only when there are demonstrably compelling reasons for commercialization and privatization, including greater efficiency, better ability to control risks, and access to favorable financing. Therefore, determining whether or not to assign tolling/management rights to a commercial enterprise should depend on the results of a value-for-money comparison conducted during the feasibility study/PPTA stage. The key question is not so much whether the government would benefit from access to private sector financing (the present approach), but rather whether commercialization offers sufficient advantages of quality and efficiency to overcome the additional costs. The value-for-money analysis should answer that question.

Appendix 3 outlines the tasks required for a value-for-money comparison in the feasibility study/PPTA. Based on a comparison of alternative financing and management options and the traditional public sector approach (“public sector comparator”), these tasks will highlight the trade-off between the efficiencies of private sector involvement and the additional legal and financing costs and delays involved, as well as the lower economic benefits associated with the higher tolls needed to generate an adequate return on funds. Choice of modality should be based on the results of this comparison.

**Concession Design**

The concession agreement should clearly delineate the rights and obligations of each party; the nature and duration of outsourced services; government contributions and guarantees; toll-setting policies and procedures for varying tolls; performance measures, incentives, penalties, and the basis for any revenue sharing; standards of technical and financial record-keeping and reporting; arrangements for monitoring technical and financial performance; specific conditions regarding default and/or renegotiation of terms and conditions (and also conditions expressly excluded from consideration for renegotiation); and arrangements for jurisdiction and dispute resolution.

Eliminating ambiguities and clarifying and reducing risk benefits both parties by

69 Consideration was given to the possibility of developing a standard quantitative tool like that of the UK Treasury (HM Treasury UK, Quantitative Assessment User Guide, August 2004), which uses a spreadsheet to compare value-for-money and make more explicit the justification for selecting a privatization option, but this would require more resources than are available to the present review.
reducing financing costs and gaining better value-for-money. Good concession design aims to hold concessionaires to the terms of their original appointment and reduce the need for renegotiation. It clarifies each party's rights and obligations, contains incentives and penalties to encourage performance, and provides fair and objective dispute resolution. Concession design should also identify the key factors affecting cash flow and the assumptions on which they are based, including the allocation of all risk categories.

Therefore, this report recommends that MOC prepare a model concession agreement for inclusion in PCD corporatization guidelines, incorporating the following changes from the current model (see Appendix 5):

- a contingency table that lists all possible risks and eventualities and also specifies which party should carry responsibility for actions, costs, or revenue shortfalls arising from them (Appendix 4);
- a clear, predictable policy on toll setting;
- the permissible conditions for renegotiation of terms, as well as procedures for initiating renegotiation;
- the performance standards required of the concessionaire, including construction standards and the condition of maintained assets, as well as procedures for compliance monitoring; and
- the information to be made public in the interests of transparency.

Contingency Table

Borrowing costs depend on the predictability of conditions that affect cash flow. Thus, clear identification and allocation of all potential risk factors plays an important role. Therefore, this report recommends extending the traditional economic and financial risk analyses carried out in the feasibility study/PPTA to include the tasks of identifying all possible risk factors and mitigation options, determining which party is best able to control them, and presenting the results in a contingency table, clarifying the party responsible for any actions, costs, or revenue shortfalls arising from each. A preliminary attempt at such a contingency table is made in Appendix 5. The additional tasks required during the feasibility study/PPTA are listed in Appendix 3.

This report further recommends including the contingency table as an integral part of the concession agreement and pre-bid documentation. MOC should include a model contingency table in corporatization guidelines prepared for the PCDs.

Tolling

Establishing toll levels should aim to (i) keep them as low as possible, consistent with project financing needs, to maximize the economic benefits of the project; and (ii) make their future levels as predictable as possible, to reduce the investor's risk premium. Toll levels should not be the single driving factor in uncoupling the choice of corporatization modality; if they were, the best option generally would be the government loan-repaying option, probably with specific inputs outsourced. Rather, toll levels should be influenced by the corporatization/privatization modality, the proportion of government equity, other government guarantees, and the predictability of toll increases.

This report recommends, therefore, that the analysis of the toll-setting trade-off between financial returns and economic benefits already included in the feasibility study/PPTA tasks be extended to the value-for-money analysis of corporatization/privatization options, and that the options assessed should include options involving a range of initial toll levels (Appendix 3).

The report also recommends that the concession agreement should (i) state specifically the initial level of tolls permitted on opening, (ii) prohibit changes in toll levels except at intervals of at least 5 years, and (iii) specify that these 5-year adjustments to toll levels will occur on the basis of changes
in a specified, independent construction or consumer price index. While this limits the exibility of the concessionaire to adjust tolls, it also enhances predictability and reduces opportunities for renegotiation of terms.

**Reporting and Transparency**

PCDs cannot be expected to initiate reforms designed to strengthen accountability and transparency if they are involved on both sides of the owner/operator fence. If these functions can be separated by an arm’s-length relationship achieved through the contract, then the benefits of transparency—pressure on the operator to perform in accordance with agreements—can be achieved. Achieving these benefits requires making the following information, at least, available and accessible to interested parties: project details; the basis for selection and contract award; the operator’s obligations, performance targets, incentives, and penalties; and the key results of monitoring technical and financial performance.

Therefore, this report recommends that MOC should prepare and issue to the PCDs (i) guidelines on the reports required from toll road operators (including PCD-controlled operators), concessionaires, and selected fee-for-service contractors, and (ii) the procedures for making these reports available to MOC, external reviewers, and the public, preferably on the internet.

**Summary of Conclusions and Recommendations**

**Findings and Conclusions**

Most ADB-supported projects establish an expressway-project company within the PCD to act as the implementing agency. Assigned management and tolling rights under a concession agreement, this company manages the toll-road and services project loans through toll revenues. Provincial pricing authorities approve all toll changes. Central (MOC) and provincial government grants and domestic bank loans complement the ADB loan, which is lent first to the PCD and then on-lent to the operating company. No private equity is involved in the first instance, but with loan-financed TA the company is expected to review options for private sector participation before project opening; these options might range from fee-for-service outsourcing to privatization and securitization of revenue flows. Such arrangements are used mostly for projects in central or western regions, where international donor support is increasingly focused and financial returns are expected to be low. In busier corridors, the BOT approach is gaining favor by provincial governments.

*Does the present strategy ensure value-for-money from investments in high-grade highways?*

Not as well as it could. The preparation process attempts to ensure value-for-money by comparing alternative design options for cost effectiveness; reviewing traffic forecasts and economic and financial projections (by independent consultants); and conducting risk and sensitivity analyses to test for changes in key assumptions. However, several shortcomings remain:

- Notwithstanding efforts to make the feasibility study more rigorous, the risk of optimism bias is significant, starting when the project enters the loan-preparation process; thereafter there is little likelihood that it will prove economically infeasible when MOC, ADB, and the provincial government are committed in the loan pipeline.

- This prior commitment brings risk of premature investment or sub-optimal timing, further increased by limited consideration by the feasibility study/PPTA of alternative technical standards and the possibility of deferred or staged investment. The ADB loan comes in one lump, not several. Few feasibility studies
or PPTAs include an analysis of economically optimum scheduling.

- The chosen financing mix (the combination of grants and foreign and state bank loans) does not appear to result from a detailed analysis of options, with tested impacts on toll rates and economic and financial returns; instead, it results from undocumented assumptions about the province’s willingness and capacity to borrow.

- Toll setting is subject to several conflicting influences, and the adopted levels may reflect a balance between economic and financial objectives. However, the parameters of the trade-off are unclear and, in practice, the operator’s financial ratios carry more weight than maximizing economic return. The parties agree to base future tolls on submissions by the operating company, but pricing committees, whose concerns may focus more on price ination and social impact, actually make the decisions. This unpredictability would add a risk premium to private financing costs.

- The decision about whether or not to include private sector finance and management is left until only prior to opening. This is a sensible precaution—it might even be better to carry out the analysis once the project is operational—but it precludes the possibility that private finance might be attracted in the first instance. It would be better if the feasibility study/PPTA included a preliminary analysis of options, highlighting the circumstances under which privatization would become a realistic possibility.

- PCD's direct control over the operating company makes the pursuit of lower-cost outsourcing options and other cost-saving measures less likely, not more. Even with a concession agreement, it is hard to pressure the operating company to perform efficiently, and options offering better value-for-money might be overlooked.

- The individual loan-financed project encourages the one-company/one-project model of management. This does not suggest that projects cannot be combined later, but it would be more helpful if, during project preparation, an analysis considered the possibilities of combining the proposed project with other projects being developed and/or managed by the one area- or corridor-based company and explored the possible efficiency gains, including integrated toll collection (most new toll road projects provide for information technology support) and the increased possibilities for private participation in the combined operation.

Although not critical, these shortcomings could be reduced. Feasibility study/PPTA procedures have improved and traffic and financial projections and risk/sensitivity analyses are more reliable. The approach to financing mix and private participation is cautious. Management discipline within most PCDs, and the semi-independent, cost-center status of the operating company, give some limited comfort regarding management accountability. However, decision making on these issues would be better informed if the feasibility study/PPTA carried out the recommended value-for-money comparison of alternative options for

- technical standards and staging;

- the financing mix of grants, bank loans, bonds, and private sources of capital, tracing their impact on toll levels, economic rate of return, financial performance, and the prospects of private investment; and

- corporatization and privatization, including especially a comparison between PCD operation, alternatives to the one-project/one-company approach,
outsourced fee-for-service tasks (including outsourced expressway management and operation), and BOT variants. This should include a comparison of risks, productivity/efficiency (a function of the degree of competition incorporated in the award of contracts and concessions), and delays in procurement.

Adopting the BOT approach for more heavily trafficked corridors is appropriate after determining, with procedures similar to those described above, that private sector financing and management offers the best value-for-money prospect. As the Sichuan experience has shown, the key to successful implementation lies in comprehensive documentation, open competition, simple and transparent selection criteria, and transparent arrangements for monitoring performance.

Is the present strategy effective in securing private sector participation, under the right conditions, to improve efficiency and bridge the financing gap?

No. Private investors are not flocking in; they find better short-term opportunities in other sectors. They are also deterred by lack of certainty over factors critical to risk assessment and financial performance, most notably decision-making autonomy and the role of the PCD, toll and traffic levels over the concession period, the conditions triggering renegotiation, and the allocation of responsibilities for risk factors. Too often, private involvement comes with concerns about crony capitalism. Separation of owner and operator functions and a more open, transparent process of bidding, selection, and award, based on comprehensive documentation and an upgraded concession agreement, would help attract truly independent investors; so too would an increased equity contribution from government.

Does the present strategy ensure transparency, accountability, and good governance in the development and management of the toll road network?

No, not always, notwithstanding the best efforts of PCDs. In most cases, it is not easy to determine the operational and financial performance of the toll road operators in which PCDs have a stake. The main reasons include the absence of a proper arm’s-length relationship between PCDs and operators; the lack in many cases of a transparent, competitive process for assigning operating responsibilities; and shortcomings in the concession award process and concession agreement that give potential operators little freedom to set toll rates and make it difficult for the owner to monitor compliance and performance.

Recommendations for MOC

This report recommends that MOC should draft and issue a set of basic principles and guidelines for PCDs to govern project preparation, corporatization and concessioning, model documents and formats, procedures for value-for-money and risk analyses, soliciting interest, presenting feasibility study results, prequalification, tender, bid evaluation, selection and contract award, model contract(s) and concession agreement(s), performance measures and monitoring arrangements, incentives, penalties and bases for payment, reporting requirements, and arrangements for ensuring openness and transparency.

The model concession agreement should include a contingency table listing risks and eventualities and allocating responsibility for consequent actions, costs, or revenue shortfalls; a policy on toll setting designed to enhance predictability; conditions for renegotiation of terms; performance standards
and compliance-monitoring procedures; and information to be made publicly available in the interests of transparency.

**Recommendations for Provinces and Municipalities**

These MOC tasks will require consultant assistance, and much depends on the willingness of provincial governments to adopt the recommended arm’s-length owner/operator relationship, competitive bidding, transparency, and external scrutiny. This report recommends that the proposed guidelines and procedures be developed and tested in the course of a project’s preparation by having PPTA consultants carry out the following additional tasks:

- developing and testing procedures for conducting a value-for-money comparison of the public sector comparator with alternative corporatization and privatization options, as recommended in Appendix 3;
- refining the contingency table in Appendix 4 and incorporating it in the draft concession agreement;
- refining the concession agreement to include provision for the matters identified; and
- developing draft guidelines and procedures governing the reporting and transparency matters.

**Recommendations for ADB**

This report recommends that ADB should include provisions for the above tasks in an upcoming PPTA. The additional resources required would total approximately one month’s input from a transport economist and 0.5 month from a highway engineer/contracts specialist.
### Appendix 1:

<table>
<thead>
<tr>
<th>No.</th>
<th>Loan Number</th>
<th>Loans</th>
<th>Expressway (km)</th>
<th>Local Road (km)</th>
<th>Loan Amount ($ million)</th>
<th>Date Approved</th>
<th>PCR Rating</th>
<th>PPAR Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1082-PRC</td>
<td>Shanghai Nanpu Bridge</td>
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<tr>
<td>18</td>
<td>1701-PRC</td>
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<td>176</td>
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<td>19</td>
<td>1783-PRC</td>
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### Appendix 1: ADB Loan Projects

<table>
<thead>
<tr>
<th>No.</th>
<th>Loan Number</th>
<th>Loans Expressway</th>
<th>Local Road (km)</th>
<th>Loan Amount ($ million)</th>
<th>Date Approved</th>
<th>PCR Rating</th>
<th>PPAR Rating</th>
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<tr>
<td>21</td>
<td>1838-PRC</td>
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<td>22</td>
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<td>23</td>
<td>1918-PRC</td>
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<td>160</td>
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<td>24</td>
<td>1967-PRC</td>
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<td>25</td>
<td>2004-PRC</td>
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<td>31</td>
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<td>678</td>
<td>600.0</td>
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<td>32</td>
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<td>Hunan Roads Development III Project</td>
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<td>15 Dec 2005</td>
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</table>

Total 4,455 8,366 6,372.0

— = not available, GS = generally successful, HS = highly successful, km = kilometer, No. = number, PCR = project completion report, PPAR = project performance audit report, PRC = People’s Republic of China, PS = partly successful, S = successful, U = unsuccessful.

Source: Asian Development Bank loan documents.
## Appendix 2: ADB Policy and Planning Technical Assistance Projects

<table>
<thead>
<tr>
<th>No.</th>
<th>TA No.</th>
<th>Technical Assistance</th>
<th>Type</th>
<th>Amount ($'000)</th>
<th>Date Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1049-PRC</td>
<td>Huangpu Bridge</td>
<td>PP</td>
<td>95</td>
<td>24 Oct 1988</td>
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<tr>
<td>2</td>
<td>1152-PRC</td>
<td>Design Review of the Nanpu Bridge</td>
<td>PP</td>
<td>100</td>
<td>26 Apr 1989</td>
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<tr>
<td>3</td>
<td>1509-PRC</td>
<td>Ningguolu Bridge</td>
<td>PP</td>
<td>100</td>
<td>18 Apr 1991</td>
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<tr>
<td>4</td>
<td>1517-PRC</td>
<td>Toll Bridge Operation and Management</td>
<td>AD</td>
<td>760</td>
<td>28 May 1991</td>
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<td>5</td>
<td>1533-PRC</td>
<td>Design Review of the Yangpu Bridge</td>
<td>AD</td>
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<td>6</td>
<td>1664-PRC</td>
<td>Shenyang–Benxi Highway</td>
<td>PP</td>
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<td>7</td>
<td>1533-PRC</td>
<td>Design Review of the Yangpu Bridge (supplementary)</td>
<td>AD</td>
<td>416</td>
<td>28 Apr 1992</td>
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<tr>
<td>8</td>
<td>1724-PRC</td>
<td>Institutional Strengthening for Highway Operation and Management Improvement</td>
<td>AD</td>
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<td>9</td>
<td>1725-PRC</td>
<td>Jilin Province Highway Network Study</td>
<td>PP</td>
<td>600</td>
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<tr>
<td>10</td>
<td>1728-PRC</td>
<td>Changsha–Xiangtan Expressway</td>
<td>PP</td>
<td>100</td>
<td>9 Jul 1992</td>
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<td>11</td>
<td>1785-PRC</td>
<td>Comprehensive Toxic and Hazardous Chemicals Transport Management Plan in the Huangpu River Basin</td>
<td>AD</td>
<td>600</td>
<td>17 Nov 1992</td>
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<tr>
<td>12</td>
<td>1940-PRC</td>
<td>A study of Efficiency Improvements in Road Transport</td>
<td>AD</td>
<td>550</td>
<td>25 Aug 1993</td>
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<tr>
<td>13</td>
<td>1972-PRC</td>
<td>Institutional and Policy Support in the Road Sector</td>
<td>AD</td>
<td>1,200</td>
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<td>14</td>
<td>1975-PRC</td>
<td>Policies for Strategic Development of Transport and Communications Infrastructure</td>
<td>AD</td>
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<td>15</td>
<td>1981-PRC</td>
<td>Heilongjiang and Yunnan Expressways</td>
<td>PP</td>
<td>320</td>
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<td>16</td>
<td>2155-PRC</td>
<td>Sichuan Expressway</td>
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<td>350</td>
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<td>Type</td>
<td>Amount ($'000)</td>
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</tr>
<tr>
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<td>------</td>
<td>----------------</td>
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<tr>
<td>17</td>
<td>2177-PRC</td>
<td>Preparation of a Road Safety Program</td>
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<td>29 Sep 1994</td>
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<td>19</td>
<td>2195-PRC</td>
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<td>2302-PRC</td>
<td>Symposium on Urban Transport</td>
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<td>22 Feb 1995</td>
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<td>22</td>
<td>2409-PRC</td>
<td>Appraisal Methodologies and Restructuring Highway Financing in Hebei Province</td>
<td>AD</td>
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<td>23</td>
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<td>24</td>
<td>2486-PRC</td>
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<td>26</td>
<td>2649-PRC</td>
<td>Facilitating the Build-Operate-Transfer Modality in the Highway Sector</td>
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<td>27</td>
<td>2663-PRC</td>
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<td>28</td>
<td>2777-PRC</td>
<td>Chengdu to Nanchong Expressway</td>
<td>PP</td>
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<td>29</td>
<td>2846-PRC</td>
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<td>30</td>
<td>2952-PRC</td>
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<td>31</td>
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<td>570</td>
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<td>32</td>
<td>3039-PRC</td>
<td>Yunnan Road Environmental and Social Analysis</td>
<td>PP</td>
<td>150</td>
<td>7 Jun 1998</td>
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<td>33</td>
<td>3086-PRC</td>
<td>Regional Road Sector Study</td>
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<td>3102-PRC</td>
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<td>36</td>
<td>3248-PRC</td>
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<td>37</td>
<td>3341-PRC</td>
<td>Capacity Building Safety, Planning, and Management</td>
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<td>38</td>
<td>3546-PRC</td>
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<td>39</td>
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<td>40</td>
<td>3642-PRC</td>
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<td>3376-PRC</td>
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<td>42</td>
<td>3900-PRC</td>
<td>Socioeconomic Assessment of Road Projects</td>
<td>AD</td>
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<td>43</td>
<td>3907-PRC</td>
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<td>46</td>
<td>4142-PRC</td>
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<td>47</td>
<td>4211-PRC</td>
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<td>49</td>
<td>4322-PRC</td>
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<td>50</td>
<td>4351-PRC</td>
<td>Policy Reform in Road Transport</td>
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<td>51</td>
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<td>52</td>
<td>4592-PRC</td>
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<td>500</td>
<td>2 Jun 2005</td>
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<td>53</td>
<td>4639-PRC</td>
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<td>PP</td>
<td>800</td>
<td>30 Aug 2005</td>
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<tr>
<td>54</td>
<td>4650-PRC</td>
<td>Evaluating Poverty Impacts of Transport Projects</td>
<td>SS</td>
<td>150</td>
<td>21 Sep 2005</td>
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<td>55</td>
<td>4671-PRC</td>
<td>Rural Road Development Strategy</td>
<td>AD</td>
<td>350</td>
<td>21 Oct 2005</td>
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</tbody>
</table>

**Total** 29,481

AD = advisory, km = kilometer, No. = number, PP = project preparatory, PRC = People’s Republic of China, SS = small scale, TA = technical assistance.

Appendix 3: Assessing Value-for-Money: Additional Feasibility Study/Project Preparatory Technical Assistance

This report recommends including the following tasks in the terms of reference of ADB-funded consultants for project preparatory technical assistance (PPTA) for an initial project preparation:

**Value-for-money of Corporatization and Privatization Options.** Consultants will identify and compare a range of realistic financing and management options for implementing and operating the project. This comparison will be designed to identify:

- the option that offers best value-for-money, taking into account differences in the cost and timing of establishment and approval;
- the capacity to borrow and repay loans;
- the cost of capital;
- differences in technical and management capabilities and use of technologies, reflected in efficiency and quality of construction, operation and maintenance (O&M), and management;
- differences in sensitivity to project risks;
- the likely effectiveness of measures to separate owner/operator functions and hold the operator fully accountable for performance;
- prospects for achieving full transparency of decision making, performance, and monitoring;
- the toll rates required to achieve an acceptable return on funds invested;
- the impact of these toll rates on the project’s economic benefits; and
- the resulting financial performance of the operator.

The comparison will include an option of project implementation and management by the Provincial Communications Department (PCD) itself, taking full advantage of opportunities to outsource tasks where appropriate. The analysis should compare at least three options: the PCD option, corporatization through an independent manager/operator appointed through competitive tender, and full privatization through build–operate–transfer (BOT) or a BOT variant. The design of all options should reflect best practices for the particular project and should use available data on performance and productivity benchmarks established from similar examples. In the case of option(s) involving the PCD, or units affiliated with the PCD, the consultants will establish conditions for ensuring effective separation of functions of toll road owner and operator such that the operator is fully accountable for performance.
Bid Evaluation and Award. Consultants will draft guidelines and model documents that ensure open bidding for all outsourced tasks, including financing, construction, management, and operation, whether separately or as a package. Guideline topics will include advertising, bid solicitation, prequalification, short-listing, bid design, selection criteria, bid evaluation, negotiation, and award of contract/concession. At each stage, the design should ensure openness and transparency and allow independent scrutiny.

Technical and Timing Options. In evaluating the technical, economic, and financial performance of the project, consultants will identify opportunities for reducing costs and expediting implementation through possible reductions in design standards (such as design speeds, pavement and bridge loads, number of lanes, lane widths, etc.) and also through staging implementation to match capacity with demand. Consultants will also evaluate the impact on transport operations and costs, safety, O&M costs, financing costs, and cost-recovery tolls, and determine an economically optimum technical design and schedule for the project.

Toll Setting. Consultants should develop toll recommendations to maximize the economic and social benefits of the project, subject to financing needs, emphasizing toll reduction and predictability. Consultants should also consider the contribution of other forms of road user taxation, and examine and compare alternative mechanisms for lowering the proportion of debt through increased government equity. To help lower the financing risk premium, consultants should explore a mechanism for keying future toll increases to changes in a defined cost-inflation index.

Contingency Table. Consultants will identify all possible contingencies and risks and draft a comprehensive contingency table that identifies the risk categories assigned to each party responsible for risk mitigation or compensation. The contingency table will be an integral part of the concession agreement.

Concession Design. Consultants will draft a concession agreement for the recommended corporatization or privatization option. The agreement will set out clearly

- the rights and obligations of all parties,
- the nature and duration of the services outsourced,
- government contributions and guarantees,
- toll-setting policies and procedures for varying tolls,
- performance measures, incentives, penalties, and the basis for any revenue sharing,
- standards of technical and financial record-keeping and reporting,
- arrangements for monitoring technical and financial performance,
- specific conditions giving rise to default and/or renegotiation of terms and conditions (and conditions expressly excluded from consideration for renegotiation), and
- arrangements for jurisdiction and dispute resolution.

The concession agreement will incorporate, together with the contingency table, a clear and predictable policy on toll setting; the conditions for permissible renegotiation of terms and the procedures for initiating renegotiation; the concessionaire’s performance standards, including construction standards and the condition of maintained assets; procedures for monitoring compliance; and the information to be made public in the interests of transparency.
Reporting and Transparency. Consultant will design procedures to ensure full transparency for:

- decisions and performance monitoring, including procedures to allow external scrutiny of project details;
- bid selection and contract award;
- operators’ obligations, performance targets, incentives and penalties;
- the agreed basis for setting and adjusting tolls;
- key results of monitoring technical and financial performance; and
- publishing the required information on a PCD or Ministry of Communications (MOC) website.

Guidelines for the Ministry of Communications (MOC). Based on the material assembled during the PPTA, consultants will draft guidelines and model documents to be issued to PCDs by MOC that will govern and assist the preparation, evaluation, design, award, and monitoring of toll road concessions using standard formats or a checklist of considerations for:

- undertaking a value-for-money comparison of alternative corporatization and privatization options;
- soliciting, evaluating, and awarding concession contracts;
- establishing the appropriate contract-based relationship between owner and operator;
- designing appropriate incentives, penalties, and performance measures for monitoring compliance with the concession agreement;
- identifying and allocating all risks;
- the model concession agreement itself;
- guidance on toll-setting policies;
- conditions triggering renegotiation; and
- arrangements for monitoring compliance and dealing with disputes.
Appendix 4: Contingency Table

This report recommends including a contingency table in the concession agreement. The table should list all anticipated risks and assign responsibility for mitigation or compensating the affected party. The list below is indicative only, intended to illustrate a possible format, and should be refined in a project requiring project preparatory technical assistance (PPTA).

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Party Responsible for Mitigation or Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Site-related risks:</strong> The risks that the project site will be unable to be used at the required time, adversely affecting the concessionaire’s costs and ability to fulfill its obligations.</td>
<td></td>
</tr>
<tr>
<td>Access to site</td>
<td>Owner</td>
</tr>
<tr>
<td>Approvals for site use</td>
<td>Owner</td>
</tr>
<tr>
<td>Inappropriate site conditions</td>
<td>Concessionaire, requiring prior due diligence</td>
</tr>
<tr>
<td>Environmental constraints affecting site access or use</td>
<td>Concessionaire, requiring prior due diligence</td>
</tr>
<tr>
<td>Historical or archaeological constraints affecting site access or use</td>
<td>Owner (or concessionaire, requiring prior due diligence)</td>
</tr>
<tr>
<td>Social impact or resettlement constraints affecting site access or use</td>
<td>Concessionaire, requiring prior due diligence</td>
</tr>
<tr>
<td><strong>2. Design, construction, and commissioning risks:</strong> The risks that the design, construction, and commissioning of the toll road or its components are flawed or have adverse impacts on cost, delays, and the concessionaire’s ability to fulfill obligations.</td>
<td></td>
</tr>
<tr>
<td>Unexpected adverse site conditions</td>
<td>Concessionaire, requiring prior due diligence</td>
</tr>
<tr>
<td>Provincial Communications Department (PCD)—imposed changes in design standards</td>
<td>Owner</td>
</tr>
<tr>
<td>Changes in design standards imposed by site conditions</td>
<td>Concessionaire, requiring prior due diligence</td>
</tr>
<tr>
<td>Additional design features required</td>
<td>Concessionaire, possibility of variation order</td>
</tr>
<tr>
<td>Work quantities higher than forecast</td>
<td>Concessionaire, requiring prior due diligence</td>
</tr>
<tr>
<td>Designs or technology found to be unsuitable</td>
<td>Concessionaire, requiring prior due diligence</td>
</tr>
<tr>
<td>Unit prices higher than anticipated</td>
<td>Concessionaire, requiring prior due diligence</td>
</tr>
<tr>
<td>Unexpected delays in project design or implementation</td>
<td>Concessionaire, requiring prior due diligence</td>
</tr>
<tr>
<td>Contractor/supplier defaults or fails to meet performance standards</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Bankruptcy of contractor or supplier</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Payment delays to contractors or suppliers</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Risk Category</td>
<td>Party Responsible for Mitigation or Compensation</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Failure of project components during or after construction</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Accidents during construction</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Environmental damage during construction</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Negative social impacts during construction</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Project fails to meet acceptable standards on completion</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>3. <strong>Sponsor, legal, and financial risks</strong>: The risks that the legal and financial conditions assumed for the project change or are altered with adverse impacts, or that the concessionaire or its financiers are unable to fulfill their contractual obligations.</td>
<td></td>
</tr>
<tr>
<td>General price inflation</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Increase/decrease in interest rates</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Increase/decrease in operating costs due to inflation</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Toll revenues insufficient to provide expected financial returns</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Concessionaire’s revenues and profits higher than expected</td>
<td>None; concessionaire benefits</td>
</tr>
<tr>
<td>Currency movements raise/lower cost of imported inputs</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Currency movements raise/lower cost of foreign debt service</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Concessionaire becomes insolvent</td>
<td>Assets revert to owner</td>
</tr>
<tr>
<td>Change in concessionaire ownership</td>
<td>Requires renegotiation/rebidding</td>
</tr>
<tr>
<td>Concessionaire assigns rights to third parties without authority</td>
<td>Contract revoked; assets revert to owner</td>
</tr>
<tr>
<td>Negotiated financing unavailable when required</td>
<td>Concessionaire, unless government contribution unavailable</td>
</tr>
<tr>
<td>Loan security is unenforceable or deficient</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>PCD claims immunity from suit</td>
<td>Contract revoked; arbitration to settle compensation</td>
</tr>
<tr>
<td>Local courts fail to enforce Concession Agreement</td>
<td>Contract becomes invalid; arbitration to settle compensation</td>
</tr>
<tr>
<td>Refinancing benefits concessionaire</td>
<td>Concessionaire benefits</td>
</tr>
<tr>
<td>4. <strong>Operating risks</strong>: The risks that the process of project operation and maintenance are affected in a way that adversely affect the concessionaire’s ability to meet its obligations.</td>
<td></td>
</tr>
<tr>
<td>Operating or maintenance costs higher than expected</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Maintenance performance fails to meet agreed standards</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Traffic safety problems; increase in accident rates</td>
<td>Concessionaire to improve safety provisions</td>
</tr>
</tbody>
</table>
### Risk Category Party Responsible for Mitigation or Compensation

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Party Responsible for Mitigation or Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of a suitable emergency response plan</td>
<td>Concessionaire risks contract revocation, on warning</td>
</tr>
<tr>
<td>Industrial action/strikes by workers</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Civil unrest</td>
<td>Concessionaire, subject to renegotiation</td>
</tr>
<tr>
<td>Failure of technology to perform as expected</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Environmental damage during operation</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Social problems caused by concessionaire’s operating arrangements</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Adverse third-party impacts caused by concessionaire’s staff</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Project facility closed to traffic</td>
<td>Concessionaire, unless at owner’s insistence</td>
</tr>
<tr>
<td>Concessionaire fails to supply required reports</td>
<td>Concessionaire risks contract revocation, on warning</td>
</tr>
</tbody>
</table>

5. **Market risks**: The risks that traffic demand and revenues differ from original expectations and adversely affect the concessionaire’s financial performance.

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Party Responsible for Mitigation or Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>General economic slowdown</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Population and demographic changes affects traffic demand and revenues</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Government-approved development projects affect traffic demand and revenues</td>
<td>Concessionaire, subject to renegotiation</td>
</tr>
<tr>
<td>Users choose alternative route/s</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Traffic volumes less/more than expected</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Traffic mix differs from expected</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Vehicle loads differ from expected</td>
<td>Concessionaire</td>
</tr>
<tr>
<td>Unexpected traffic growth results in traffic congestion</td>
<td>Concessionaire</td>
</tr>
</tbody>
</table>

6. **Network risks**: The risks that the project’s connections to the rest of the road network do not function as expected.

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Party Responsible for Mitigation or Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCD allows competing highway or other transport facility to be built</td>
<td>Owner</td>
</tr>
<tr>
<td>PCD fails to provide network access or connections</td>
<td>Owner</td>
</tr>
<tr>
<td>PCD bans selected types of vehicle from the network</td>
<td>Owner</td>
</tr>
</tbody>
</table>

7. **Legislation and policy risks**: The risks that government will change its policies or regulations in a way that have unexpected adverse consequences for the concessionaire’s financial return.

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Party Responsible for Mitigation or Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCD fails to transfer full operating authority to concessionaire</td>
<td>Owner</td>
</tr>
<tr>
<td>PCD does not have rights over key assets</td>
<td>Owner</td>
</tr>
<tr>
<td>PCD lacks authority to enter into concession agreement</td>
<td>Owner</td>
</tr>
</tbody>
</table>
## Appendix 4: Contingency Table

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Party Responsible for Mitigation or Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes in toll policy or tolls set in violation of agreement</td>
<td>Owner</td>
</tr>
<tr>
<td>Nationalization or confiscation of project assets</td>
<td>Owner</td>
</tr>
<tr>
<td>Changes in road transport or traffic policies affecting demand and revenues</td>
<td>Owner; subject to renegotiation</td>
</tr>
<tr>
<td>Changes in taxation policy affecting financial returns</td>
<td>Owner</td>
</tr>
<tr>
<td>Mandated changes in design, operational, or maintenance standards</td>
<td>Owner</td>
</tr>
<tr>
<td>Mandated changes in operating or maintenance procedures</td>
<td>Owner</td>
</tr>
<tr>
<td>Breach of agreement regarding exclusivity</td>
<td>Owner</td>
</tr>
</tbody>
</table>

8. **Asset ownership:** The risks that premature deterioration, obsolescence, or other loss occur with adverse consequences for the value of the project on handover at the end of the concession period.

| Failure to hand over project in expected condition                         | Concessionaire                                  |
| Repair/clean-up costs on handover                                         | Concessionaire                                  |
| Technical obsolescence of project assets                                   | Owner                                            |
| Loss of project asset value on premature termination                       | Owner                                            |
| Lower residual value to traffic on handover                                | Owner                                            |

9. **Force majeure:** The risks that a specified event outside the control of either party will have adverse consequences for the project that affect the ability of either party to fulfill its obligations.

| Force majeure events                                                      | Subject to arbitration                          |

Source: Authors.
Appendix 5: Concession Agreement

It is beyond the scope of this report to suggest all revisions to the standard concession agreement. However, project preparatory technical assistance (PPTA) consultants appointed to draft a revised model agreement should consider the changes listed below.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Concession</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concession granted for specified period, during which the concessionaire is authorized to implement and operate the project in accordance with the agreement.</td>
<td>No problems</td>
<td></td>
</tr>
<tr>
<td>Provincial Communications Department (PCD) grants concessionaire rights to investigate, study, design, engineer, procure, finance, construct, operate, and maintain the project, and to levy tolls.</td>
<td>No problems</td>
<td></td>
</tr>
<tr>
<td>Concessionaire accepts the concession and agrees to implement the project and fulfill all obligations under the agreement.</td>
<td>No problems</td>
<td></td>
</tr>
<tr>
<td><strong>The Project Site</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCD responsible for securing allocated land use rights for the concessionaire.</td>
<td>Unspecified consequences in the event that PCD fails to comply</td>
<td>Refer to contingency table</td>
</tr>
<tr>
<td>PCD undertakes to transfer unencumbered possession of the project site.</td>
<td>Unspecified consequences in the event that PCD fails to comply</td>
<td>Refer to contingency table</td>
</tr>
<tr>
<td>PCD confirms concessionaire’s rights to occupy and develop the project on the site.</td>
<td>Unspecified consequences in the event that PCD fails to comply</td>
<td>Refer to contingency table</td>
</tr>
<tr>
<td>Concessionaire limited to the use of the site for the purposes of the project only.</td>
<td>Unspecified consequences in the event that PCD fails to comply</td>
<td>Refer to contingency table</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>PCD guarantees concessionaire’s access and rights of way.</td>
<td>Unspecified consequences in the event that PCD fails to comply</td>
<td>Refer to contingency table</td>
</tr>
<tr>
<td>PCD undertakes to provide access to necessary utilities at market rates.</td>
<td>Unspecified consequences in the event that PCD fails to comply</td>
<td>Refer to contingency table</td>
</tr>
<tr>
<td>Concessionaire to obtain and pay for utilities.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Provincial Communications Department: General Rights and Obligations**

PCD’s rights to include the right (a) of legal ownership; (b) to supervise and inspect the Project’s construction, management, operation, and maintenance; and (c) to regain toll collection and complete ownership rights at the end of the concession period.

PCD’s obligations to include (a) complying with all relevant laws and regulations; (b) respecting the concessionaire’s rights and refraining from interfering in its normal operations; (c) granting or helping the concessionaire to obtain all approvals, permits, and licenses; (d) coordinating the relationship between concessionaire and local governments in implementing the project, including resolving land acquisition and resettlement issues; (e) providing highway public administration and transportation security services; and (f) helping resolve interference by third parties (including other government bodies).

PCD to operate and maintain the roads and other infrastructure connecting to the project to ensure efficient and safe flow of traffic.

**Rights and Obligations of Concessionaire**

Concessionaire’s rights to include the right of (a) disposal and management of its corporate property; (b) autonomy in making operational and investment decisions and distributing profits and losses; (c) authority in construction, management, operation, and maintenance of the project; (d) making management and administrative decisions; and (e) requesting assistance in case of force majeure.
--- | --- | ---
Concessionaire’s obligations to include: (a) meeting all formalities for approvals, permits, licenses, etc; (b) selecting contractors and suppliers in accordance with laws, regulations, and guidelines; (c) taking responsibility for contractors’ acts and omissions; (d) ensuring the project meets all relevant specifications and standards; (e) ensuring project completion within the agreed budget and time period; (f) meeting all relevant environmental protection laws and regulations and guidelines; (g) complying with all relevant health and safety standards; (h) protecting archaeological and historical findings from damage; (i) following national standards for project operation and maintenance, keeping the project open to traffic, and preserving the project and its ancillary features; and (j) providing reports on the volume of traffic, the condition of the project, and other information required for record-keeping. | No problem; some unspecified consequences in the event that concessionaire fails to comply | Refer to contingency table

**Authorization**

Concessionaire is authorized to build, operate, maintain, and manage the project, and to collect tolls during the concession period. | No problem |
Authorization is exclusive and shall not be granted to other parties during the concession period. | Unspecified consequences in the event of transfer to third party | Refer to contingency table
Authorization takes effect from the date of the agreement and is for a period of [x] years. | No problem | It might be better to specify conditions under which extensions may be possible

**Tolls**

Concessionaire entitled to levy, adjust, collect, and retain tolls in accordance with the toll structure, government provisions, and terms of the agreement. | Weak; concessionaire cannot reliably forecast cash flows on basis of this | Initial toll structure and levels should be specified in the agreement
PCD to arrange provincial authority approval of the initial tolls and the formulas, and procedure for adjusting the tolls. | Formulas and procedures for future toll adjustments should be fixed in the agreement |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Concessionaire may, with the approval of the provincial government, adjust toll levels according to the provincial toll structure, cost-recovery principle, and social-price level during the concession period.</td>
<td>Weak; concessionaire cannot reliably forecast cash flows on basis of this</td>
<td>Adjustment periods should be specified in the agreement; renegotiation not permitted except under specified circumstances, with payment of fee, reimbursable if successful</td>
</tr>
</tbody>
</table>

**Operation, Maintenance, and Repair**

<p>| Concessionaire to submit to PCD an operation, maintenance, and repair manual, and to be responsible for operation and maintenance (O&amp;M) carried out by PCD-approved contractors. | Verifiable O&amp;M standards should be specified | Refer to contingency table |
| PCD to provide to concessionaire regulations on operation, maintenance, and repair of provincial toll roads. | No problem | |
| PCD and concessionaire to appoint an independent engineer to supervise O&amp;M services. | No problem | Refer to contingency table |
| Concessionaire to submit monthly O&amp;M reports to PCD. | Content of reports should be specified | Key features of reports should be made available for external scrutiny |
| Concessionaire is in material breach of O&amp;M requirements if the independent engineer determines (a) it has failed or been delayed in carrying out required maintenance; (b) the facility's condition fails to meet acceptable standards; and (c) the concessionaire persistently fails to meet acceptable safety standards. | | Refer to contingency table |
| PCD can terminate the agreement if there is material breach of O&amp;M requirements. | | |
| Concessionaire to take all necessary safety and security measures and to adopt an emergency response plan. | No problem | Refer to contingency table |
| PCD or concessionaire may close the facility in case of public safety risk or emergency. | | Refer to contingency table |</p>
<table>
<thead>
<tr>
<th>Concessionaire to report to PCD on (a) daily traffic volumes; (b) maintenance/repair activities; and (c) any other relevant information required by PCD.</th>
<th>Contents of reports should be specified</th>
<th>Key information should be made available for external review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insurance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concessionaire to insure against loss, damage, or destruction of the project, concessionaire’s general liability, workmen’s compensation, liability to third parties, etc.</td>
<td>No problem</td>
<td></td>
</tr>
<tr>
<td>Concessionaire to provide PCD with copies of insurance policies.</td>
<td>No problem</td>
<td></td>
</tr>
<tr>
<td>Insurance payments to be applied to project repair, renovation or restoration, or substitution of the project facility, or assigned to project lenders.</td>
<td>No problem</td>
<td></td>
</tr>
<tr>
<td><strong>Financial Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concessionaire to obtain all necessary project financing.</td>
<td>Financing sources and responsibilities should be specified, including government equity and loan commitments</td>
<td>Refer to contingency table</td>
</tr>
<tr>
<td>Concessionaire to provide PCD with all appropriate financial statements and related information regarding the project.</td>
<td>Contents of the reports should be specified</td>
<td>Key information should be made available for external review</td>
</tr>
<tr>
<td>Parties to promptly agree on an independent auditor, to be appointed by PCD under terms and conditions agreed by the parties.</td>
<td>No problem</td>
<td></td>
</tr>
<tr>
<td>PCD and concessionaire declare they will resist and prevent improper or unlawful payments or considerations.</td>
<td>No problem; but what if either party violates this provision?</td>
<td>Refer to contingency table</td>
</tr>
<tr>
<td>PCD and concessionaire to keep confidential all information and documents.</td>
<td>Is this necessary? It militates against transparency.</td>
<td>Better to specify all items of information that are considered nonconfidential</td>
</tr>
<tr>
<td>PCD and concessionaire may disclose information if both agree, disclosure is required by law or regulation, or disclosure is necessary to ensure compliance with the agreement.</td>
<td></td>
<td>Better to specify all items of information that are considered nonconfidential</td>
</tr>
<tr>
<td><strong>Transfer After the Concession Period</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concessionaire to hand over the project assets at the end of the concession period.</td>
<td>No problem</td>
<td></td>
</tr>
<tr>
<td>12 months before the end of the concession period, PCD and concessionaire to agree on a list of assets to be transferred.</td>
<td>No problem</td>
<td></td>
</tr>
<tr>
<td><strong>Typical Existing Provisions</strong></td>
<td><strong>Comments</strong></td>
<td><strong>Suggested Provisions</strong></td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>PCD and concessionaire to carry out joint inspection of assets to be transferred; PCD to provide a list of works needed to make good any damage; PCD entitled to have these works carried out by third party at concessionaire’s cost if concessionaire fails to do so.</td>
<td>No problem</td>
<td>Refer to contingency table</td>
</tr>
<tr>
<td>PCD to incur no charge on transfer of the concession, other than government taxes, stamp duty, registration, or other charges.</td>
<td>No problem</td>
<td>Refer to contingency table</td>
</tr>
<tr>
<td><strong>Termination</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCD may terminate the agreement if concessionaire becomes insolvent or fails to remedy defaults on material obligations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concessionaire may terminate the agreement if PCD fails to remedy defaults on material obligations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Assignment and Substituted Entity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concessionaire may not assign or transfer rights, obligations, or project assets without PCD approval.</td>
<td></td>
<td>Refer to contingency table</td>
</tr>
<tr>
<td>Concessionaire may, with PCD consent, create security over its rights and interests, including rights to project assets and revenues.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCD may substitute a third party for the concessionaire in case of default.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dispute Resolution</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parties to attempt to resolve disputes amicably.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failing the above, disputes to be submitted for arbitration under the PRC Arbitration Law.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In case of arbitration, PCD waives sovereign immunity; arbitration award to be final and binding on the parties; costs to be borne as determined by the arbitrator.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All other matters not in dispute to continue to be subject to the agreement.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Applicable Law</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreement to be governed by laws and regulations of the PRC and the province.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concessionaire entitled to more favorable taxes, investments, or other benefits arising after the agreement’s signing.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors.
Bibliography


_____. 1994. Regulations Concerning the Establishment of Toll Stations Along Highways. PRC.


Sheil, Christopher. The trouble with PPPs—An un-holy alliance. This paper was presented at the Evatt Foundation’s Breakfast Seminar on PPPs at the Southern Cross Hotel, Sydney, on 16 August 2002. Available: http://evatt.labor.net.au/publications/papers/51.html


About People's Republic of China: Toll Roads Corporatization Strategy
Towards Better Governance

This report draws on extensive review, examination, and international experience to explore five key areas that impact corporatization and privatization policy: the separation of owner and service provider functions, competition, value-for-money, contract clarity, and transparency. A strategy of corporatization and privatization will assist the People’s Republic of China finance the current $250 billion expansion of its national highway network. Corporatization and privatization will not only diversify financial resources available for toll road expansion but also improve highway efficiency and quality through commercial management.

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