Effective
Private Participation
in Toll Roads

By Joris Van der Ven, Senior Transport Economist, EA3IN
SUMMARY

EFFECTIVE PRIVATE PARTICIPATION IN TOLL ROADS

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Worldwide experience indicates that effective private participation in toll roads does not come about easily. Many schemes have taken too long to come to financial closure and even more have not come to closure at all.

This paper examines how the Government of Indonesia's objective of increasing private sector participation in toll roads can best be achieved, taking into account the special characteristics of toll road investments, experiences in other countries and in Indonesia, the potential volume of investment, and the institutional structure of the Indonesian highway sector.

This report, which was originally published in December 1996, is part of the Indonesia Road Sector Study.

DISCUSSION PAPERS PRESENT RESULTS OF COUNTRY ANALYSES UNDERTAKEN BY THE DEPARTMENT AS PART OF ITS NORMAL WORK PROGRAM. TO PRESENT THESE RESULTS WITH THE LEAST POSSIBLE DELAY, THE TYPESCRIPT OF THIS PAPER HAS NOT BEEN PREPARED IN ACCORDANCE WITH THE PROCEDURES APPROPRIATE FOR FORMAL PRINTED TEXTS, AND THE WORLD BANK ACCEPTS NO RESPONSIBILITY FOR ERRORS. SOME SOURCES CITED IN THIS PAPER MAY BE INFORMAL DOCUMENTS THAT ARE NOT READILY AVAILABLE. THE WORLD BANK DOES NOT GUARANTEE THE ACCURACY OF THE DATA INCLUDED IN THIS PUBLICATION AND ACCEPTS NO RESPONSIBILITY FOR ANY CONSEQUENCE OF THEIR USE.
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This paper examines how the Government of Indonesia’s (GOI) objective of increasing private sector participation in toll roads can best be achieved, taking into account the special characteristics of toll road investments, experience with private toll roads in other countries and in Indonesia, the potential volume of investment, and the institutional structure of the Indonesian highway sector.

2. Worldwide experience indicates that effective private participation in toll roads does not come about easily. Many schemes have taken too long to come to financial closure and even more have not come to closure at all. Also, among the schemes that have been implemented there has been a relatively high failure rate. The principal reasons for failure are that:

(a) high capacity toll roads have an unattractive cash flow profile;
(b) toll roads are risky ventures for sponsors and lenders, owing to a host of issues such as high development costs, toll rate setting, and traffic uncertainty; and
(c) the countries concerned often lack an effective framework for addressing these issues and appropriate procedures for inviting the private sector to participate in toll road development.

3. Until 1995 Indonesia followed a cautious pace in securing private participation in toll roads using a negotiated build-operate-transfer (BOT) concession approach. In mid 1995, a different approach was used when 19 links totalling some 700 km were offered to private investors on the basis of a selection procedure and a uniform BOT concession agreement in the form of a joint venture between Jasa Marga (the Indonesian state toll road corporation) and private investors. The new approach, however, still falls short in three key areas. First, it is not derived from an arterial road masterplan and is not well coordinated with plans for capacity expansion on parallel roads. Second, economic and financial viability for most sections have not been clearly established. Third, the concession agreement fails to deal with some critical risks faced by sponsors and lenders and by the public sector.

4. Also in 1995 GOI began to consider seriously the partial privatization of Jasa Marga. However, pursuing joint venture BOT concessions in parallel with the privatization of Jasa Marga without having dealt with the key risks faced by private BOT sponsors and lenders and by potential investors in Jasa Marga will severely complicate implementation of both approaches.

5. Given the many issues that need to be resolved to effectively implement BOT concessions and to privatize Jasa Marga, this paper recommends another approach, the competitive concessioning of roads under operation. This would include roads still to be built by Jasa Marga or with public funds to be concessioned as soon as an initial traffic volume has been confirmed. This approach would permit the same level of resource mobilization as under a BOT concession, and, because it substantially reduces risks for the private sector, it would be much easier to implement.
6. At this point the priority for GOI is to establish a strategic planning framework for toll roads and to develop an effective strategy for private participation. Establishing the planning framework involves: (a) firming up the strategic road network and defining the most appropriate alignments of the key links; (b) firming up the timetables for construction of individual links based on corridor studies; and (c) before inviting the private sector to participate, clearly establishing financial viability through much more in-depth project preparation than is currently practiced or envisioned. Preparation work needs to be taken to a stage where road alignment is selected, rights of way have been acquired, environmental clearances have been obtained, detailed traffic studies have been carried out, and sufficient geotechnical investigations have been completed to allow reliable cost estimation.

7. As to a strategy for private participation, if GOI wishes to continue implementing BOT concessions rather than developing the operating concession approach, the priorities will be to establish, in addition to the planning framework, the missing elements of an appropriate regulatory system and to resolve the issue of toll rate adjustments. If GOI also wishes to pursue the privatization of Jasa Marga as a long-term goal, in addition to the general requirements for preparation of a state enterprise for privatization, this will involve addressing the issues of monopoly power and of toll adjustments.
A. POLICIES, OBJECTIVES AND FORMS OF PRIVATE PARTICIPATION IN TOLL ROADS

OBJECTIVES AND POLICIES REGARDING TOLL ROADS

8. **Objectives and pros and cons of tolling.** One important purpose of tolling roads is to raise additional revenue for road building over and above revenues available from general taxation and/or road user charges. Other benefits attributed to tolling include improved efficiency in resource allocation through demand management through congestion pricing and the promotion of equity. The tolling of roads, however, also entails costs and other disadvantages for society, and these arise whether the road is privately or publicly owned. The question of whether roads should be tolled has been debated mainly from the economic point of view, and arguments have focused on four issues: optimum resource allocation, costs of tolling, efficiency in raising revenues, and equity.

9. Regarding resource allocation, it is generally accepted that if tolling can be implemented in a flexible manner, it is a powerful tool for improving resource allocation. Critics have argued that there is no economic justification for tolling uncongested roads since this will suppress trips which impose hardly any costs.

10. Regarding the costs of tolling, a major criticism is that other road user charges can raise the same revenue with lower collection costs. Security provisions, toll plazas, and the like can increase initial construction costs by 10 percent while the toll collection costs incurred by the toll road enterprise and the users can represent some 20 percent of revenues. However, new electronic toll collection technologies now being introduced entail much lower collection costs partly because they do not require road users to stop at toll plazas.

11. Arguments for and against tolling have also been advanced on equity grounds. In Indonesia, the ability of the more developed regions of the country to support tolls has been the main justification for tolling.

12. Most of these arguments for and against are valid regardless of whether toll roads are built and operated privately. In reviewing them, a country may conclude that on balance, given that some of the disadvantages of tolling can be alleviated or mitigated, the overriding factor is that tolling will permit private participation in the financing of roads.

13. **GOI policies regarding toll roads.** GOI initiated a policy of developing a network of high-capacity, limited-access motorways through toll revenues in the late 1970s. The first toll road was opened to traffic in 1978 and in the same year Jasa Marga was established as the sole entity for constructing and operating toll roads and given authority to raise funds by public bond issues. The key principles underlying the Government’s toll road policy have been that:

- road facilities in the more developed parts of the country can be financed through contributions from road users (justification on equity grounds);
- a free alternative road has to be available to road users; and
- toll rates shall not be higher than 70 percent of the savings road users gain from travelling on the toll road.
14. Between 1978 and 1990 some 280 km of toll roads and 3 toll bridges were opened to traffic. These facilities were concentrated in the Jakarta area in the form of urban expressways and roads radiating from Jakarta. Jasa Marga’s sources of funds for these investments consisted of bond issues on the domestic market, foreign loans arranged by GOI, and toll revenues. Between 1983, the year when the first bond issue was placed, and 1995 a total of Rp700 billion in bonds was placed. Loan financing took the form of loans from international development agencies to GOI that were on-lent to Jasa Marga. Total loan financing amounted to the equivalent of Rp800 billion. As of 1996, there had been no debt service by Jasa Marga to GOI on the subloans, which for all practical purposes appear to be treated as additional government equity. In the late 1980s GOI became interested in obtaining private participation in the further development of the toll road program, and its Regulation No 8 of 1990 on Toll Roads provided the legal basis for such participation.

GOI POLICIES REGARDING PRIVATE SECTOR PARTICIPATION IN TOLL ROADS

15. **General objectives of private participation.** In general, in seeking private participation a government aims to achieve one or more of the following objectives: additional funding, improved efficiency, and greater responsiveness to user needs. In the context of toll road provision these objectives imply: (a) that more funds will be invested in toll roads than would otherwise be the case under current policies or approaches; (b) in terms of efficiency one or more of the following would be achieved: better use of existing resources in construction and operation, more innovation, and/or more rapid implementation; and (c) that facilities and services would respond better to road users’ requirements.

16. Three main groups of stakeholders are concerned in private toll road provision: the state (in Indonesia this includes Jasa Marga) which, in addition to its own direct financial interest, has responsibility for the general public interest; the private sector (project sponsors and lenders); and road users. An evaluation of the effectiveness of private toll road provision, therefore, involves an examination of how these parties are affected and of how the costs and benefits are shared among them.

17. **GOI Policies.** GOI seeks private participation in high-growth areas where private investment is economically and financially feasible. The government’s main policy objective is to obtain additional funding. Reference is also made to faster procurement and implementation. By regulation (No. 8 of 1990), all private investment in toll roads is to be in cooperation with Jasa Marga. The suggested forms of cooperation are joint venture or joint operation, which are GOI’s selected forms of cooperation or “working together”. To implement this policy, an administrative procedure—involving the Department of Highways, Jasa Marga, and the Ministry of Finance—for discussing and negotiating agreements with private parties was established. The procedure, however, was not formulated in detail and agreements went forward on an ad hoc basis. A revised, but still not well-codified, procedure was instituted in early 1995 for the implementation of a new program of private participation in toll roads under the current Five Year Plan.

18. By mid-1996 some 320 km of toll roads involving private sector parties had been completed or were under construction (Table 1). Total financing for toll road schemes involving private participation over the period 1990-94 is estimated at some Rp 754 billion (US$370 million), or about 4 percent of the Rp 20,632 billion (US$10.2 billion) of GOI financing for all public roads combined over the same period (Table 2). Under Repelita VI the government is expecting a contribution of US$3.1 billion from the private sector for toll road financing (para. 119).

19. Key features of the approach followed to date are described below.

- In the 1980s, GOI formulated an outline medium/long-term toll road construction plan under which it has since actively promoted private sector investment.
• Until 1995 there was no competitive selection procedure, and private investors became involved in a particular investment through negotiation on a non-transparent basis.

• In April 1995 a program of 19 new toll roads was launched for which a three-step selection process was adopted. This consisted of a preselection of investors by a technical team based on general (largely qualitative) criteria of financial and technical capability, followed by the nomination by the same team of (a) successful investor(s), based on six general criteria, and finally a decision on the investor(s) by the Minister of Public Works.

• Toll road investments are typically implemented by a joint operation company or joint venture comprising Jasa Marga and private sponsors established for a particular road investment. The latter typically have been contractors or suppliers (e.g., cement production), and subsidiaries of major Indonesian conglomerates. Initially none of these partners had prior experience in toll roads.

• Until recently, GOI has provided the right of way, but continuation of this policy appears no longer feasible owing to budgetary constraints.

• Under the initial joint agreements, the revenues accruing to the project company are typically larger than the revenue stream created by the new investment and sometimes include revenues from

<table>
<thead>
<tr>
<th>Road Section</th>
<th>Length (km)</th>
<th>Estimated Cost (Rp. Billion)</th>
<th>Completion Year</th>
</tr>
</thead>
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<tr>
<td>Cawang-Tanjung Priok</td>
<td>15.5</td>
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<td>Tangerang-Merak</td>
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<td>1998</td>
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<td>Semarang Section C</td>
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<td>Cirebon-Palimanan</td>
<td>26.30</td>
<td>351,100</td>
<td>1998</td>
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² Construction plus interest during construction (IDC)
³ Including construction, land acquisition and IDC.
already existing ad-
joining toll road sec-
tions.

- Until 1995, the key
parameters of the
agreement (those re-
lateing to cost sharing,
the period of the con-
cession, and revenue
sharing) between the
private partners and
Jasa Marga and be-
tween the joint ven-
ture and GOI were not
determined up front in
a transparent manner
but were the outcome
of an often protracted
negotiation process.

- For the program of 19
toll roads initiated in
1995 these parameters have been more clearly detailed in a standard agreement.

- The debt/equity ratio is on the order of 75/25. Thus, when there are more than three partners each ends up
providing relatively little equity. Also, as has been the case in many other countries (e.g., Mexico and
Colombia), contractors have provided "sweat equity," which can lead to inflated construction budgets. The
loan funds have come essentially from state banks or state financial institutions.

- Toll rates are set by presidential decree based on a proposal by the Minister of Public Works.

20. Over the past year there have also been a number of public statements about the privatization of Jasa
Marga along the lines of the privatization of the telecommunications companies through public share offer-
ings. A financial advisor has reviewed the prospects for Jasa Marga's privatization and prepared recommenda-
tions. This policy option is quite different from the private sector participation approach through the negoti-
ated joint venture or joint operation BOT concessions that have been implemented until now.

FORMS OF PRIVATE SECTOR PARTICIPATION AND FINANCING IN TOLL ROADS

21. Private sector participation in toll roads can take one or more of four main forms. Each of these can, in
principle, be implemented in Indonesia:

- (a) management or service contracts to operate or maintain toll road facilities;
- (b) long-term leases or concessions to operate and maintain existing toll roads;
- (c) development and operation of new toll roads by the private sector (BOT-type concessions); and
- (d) privatization of the existing assets of the state toll road corporation through a public offering of shares
or other means of divestiture of the assets.

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<td>Harbour Road</td>
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<td>109</td>
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<tr>
<td>Total Private Toll Road Financing (US$ million)</td>
<td>150</td>
<td>88.0</td>
<td>97.6</td>
<td>126.7</td>
<td>292</td>
<td>754</td>
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<tr>
<td>Total GOI Road Expenditures (US$ million)</td>
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<td>4,147</td>
<td>4,914</td>
<td>4,726</td>
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<td>2</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
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| N D E S I A | D I S C U S S I O N | P A P E R | S E R I E S | 6 |
22. **Management or service contracts.** Such contracts are intended to secure greater efficiency and/or relieve the public sector of functions which can be performed as well or better by the private sector. This form of private participation will not provide additional funding, and implementation is relatively straightforward because the private parties take no risk. It is practiced widely in many countries. Surprisingly, in spite of the fact that there is a wealth of examples worldwide which can be used as a basis to work out a particular agreement, and that this form of private participation is provided for under Indonesian regulations, management contracts are not widely used in any sector.

23. **Leasing or concessioning of existing toll roads.** Leasing of existing assets is not widely practiced in Indonesia and not at all for toll roads. The distinguishing feature of this form of private participation is that it requires involvement by the government (or state toll road corporation) in the initial phase. The public sector mobilizes the financing for construction and bears the construction risk. The approach can be considered a concession implemented in two stages: a construction stage, the financing of which is arranged by the government; then the concessioning or leasing of the asset to the private sector. If the concession payment is made up front rather than in annual installments this technique permits the mobilization of funds which can also be used to finance other toll road investments. Because of the significant reduction in the risks for the private sector the concessioning phase is relatively easy to implement.

24. **BOT concessions.** Indonesia’s experience so far has been with BOT-type concessions, and current plans are to further develop extensively the toll road network using this approach. However, judging by the experience in most countries, this form of private participation often involves a long drawn-out process. From initial expression of interest to financial closure can take several years, mainly because in the absence of an appropriate regulatory framework and codified procedures these investments are inherently complex. Their characteristic feature is financing arranged on a project basis through the formation of a project company, with lenders depending on the project’s cash flow to repay the debt. Financing for such self-standing investments, where no guarantees are given by the sponsors to lenders, is referred to as non-recourse (or limited recourse when sponsors commit to provide some contingent financial support). Because Indonesia is currently committed to the BOT concession approach, this paper will focus mainly on the various aspects and requirements for effective private participation in toll roads using this method.

25. **Privatization of the state toll road corporation.** Privatization of the assets of Jasa Marga is an alternative that is also being considered (paras. 99-107). While the BOT approach, in which private participation is implemented by Jasa Marga, and the privatization of Jasa Marga itself are not mutually exclusive, the question is whether it is effective to pursue the two policies simultaneously.

26. **Balance sheet financing.** In regard to the objective of obtaining additional financing, private participation through concessioning of existing roads or through BOT concessions stands in stark contrast to corporate or balance sheet financing. Under balance sheet financing, lending to a toll road corporation is backed by the assets and revenue stream flowing from the existing toll road investments. This form of financing is available in principle to any financially sound toll road corporation, irrespective of whether it is state owned or private. Repayment to lenders is not limited to or dependent solely on the cash flow of a single investment. The main factors lenders look at are the soundness of the company’s finances in general, its technical and financial track
record, the potential revenues from the stock of existing roads under operation, its business plans and strategies, and the country’s general business conditions.

ROLE OF THE COUNTRY BUSINESS ENVIRONMENT

27. The country business environment—including political, economic, sectoral, and institutional aspects—plays a crucial role in determining the scope and potential for private participation and financing. The economic aspects include foreign exchange availability during construction and operation, the stability of the currency, restrictions on capital transfers, interest rate policies, inflation, and growth prospects. In the case of Indonesia, these aspects are considered relatively favorable. Other matters of concern to sponsors and lenders are the maturity of financial markets in terms of range of instruments available and the volume and extent of participation by institutional investors. These financial aspects are relatively less favorable.

28. The government’s policies and approach to private sector participation in general are also of great importance. Issues of potential concern include the appropriateness of contract law, the enforceability of contracts, dispute resolution mechanisms, stability of property rights, transparency in procurement, and taxation laws. In sum, a well-defined, functioning, and enforceable legal system is a critical factor. Private businessmen generally consider the Indonesian legal system to be less than adequate, particularly in relation to toll roads. In this connection it is worth noting that the business environment and associated risks can be quite different for local and foreign sponsors and lenders, and foreign parties perceive this to be the case in Indonesia.

29. The country business environment determines the general level of risk of a business venture and has a bearing on private sector participation in all sectors, from traditional manufacturing to the infrastructure sectors which have recently been the subject of greater investor interest. GOI needs to address these issues across all sectors of the economy. They have been covered extensively in a number of Bank documents, both general and Indonesia specific, and will not be discussed further. However, matters such as the organization of the road sector and the government’s investment, pricing, and regulatory policies in the sector, which are usually included when referring to the country environment, will be addressed insofar as they are relevant for private participation in toll roads.
B. ISSUES IN PRIVATE PROVISION OF TOLL ROADS

30. While the country business environment is crucial for determining the potential for effective private participation in toll roads, there are other important factors as well. First, compared to investments in other infrastructure sectors (e.g., power or water projects), toll road investments combine a larger number of unfavorable features, including: high initial cost, the need to acquire very extensive right of way and the long lead times involved in doing so, plus great uncertainty regarding costs and revenues. These tend to make them more difficult to finance through a BOT concession and less attractive to private sector investors. In addition, effective private participation in toll roads is conditional upon resolution of a host of issues. Some of these relate to fundamental policy questions such as who sets toll rates. Other issues, such as how to deal with construction risk, can be dealt with through sound general business practice. Without an adequate solution to these issues, private participation will either not materialize, or if it does, can result in a seriously flawed concession agreement.

31. The key issues to be resolved will be briefly reviewed in this section. Ways of dealing with those issues of particular concern to BOT toll road sponsors and lenders will be discussed in Section C, while the concerns of the public sector, i.e., the requirements which will ensure that the gains of private participation are shared by all parties and that the public interest is safeguarded, will be discussed in Section D.

32. **High initial costs.** A comparison of the lifetime costs of toll road investments with those of other major infrastructure investments shows that the proportion of costs incurred by the time of opening is much higher for toll roads. Toll road operating costs are small compared to investment costs. In addition, toll roads do not lend themselves well to construction in stages, and investments tend to be lumpy with considerable over-capacity in the early years. This results in long payback periods. Also, the costs of acquiring right of way are significant, particularly in urbanizing areas where they can be as high as or higher than the actual construction costs. High land acquisition costs are already beginning to be a serious problem in Indonesia.

33. **Long lead times to acquire the right of way.** Acquiring right of way and environmental clearances is becoming an increasingly lengthy process in most countries, including Indonesia. An important part of any strategy for dealing with this issue will be to establish clear rules and processes for land acquisition. Another measure is for Government to develop a sound and well-prioritized road development plan and to establish a funding mechanism to acquire land in advance.

34. **Uncertainty regarding costs and revenues.** The cost of a toll road investment consists almost entirely of civil works, with equipment (the cost of which is usually better known) representing only a small proportion of total costs. Because of the unpredictability of certain geotechnical conditions, differences between actual costs and estimates made at the time of project development tend to be greater than for other infrastructure investments.

35. Revenues are also generally less predictable than for other investments due to uncertainties about initial traffic levels and traffic growth. This uncertainty arises in part because a road caters to a limited market in a fixed location, and once the investment has been made the road services cannot be offered on other parts of the network. Also, traffic on a particular road is affected by investments in, or developments with regard to, competing roads or other modes of transport over which the road investor has little or no influence.

36. **Unattractive cash flow for toll road investments.** As a result of these cost and revenue characteristics, the cash flow of toll road investments is less attractive than for other infrastructure projects and is subject to greater uncertainty, causing investors to request guarantees. Typically, the debt coverage ratio is low and during the early years after commissioning there may be negative cash flow and no return on equity capital (Figure 1).
Compared to other projects with the same initial cost and rate of return, road investments tend to be less desirable. Thus, to attract potential investors the rate of return has to be higher than for other investments. At the same time, however, the political sensitivity of toll rates and the price elasticity of demand often impose limits on the return that can be achieved for toll road investments.

37. These problems and resultant unattractive cash flow in the early years of a toll road investment underline the need for careful development of an appropriate framework that will facilitate private financing. They also explain why sponsors try to secure public sector subsidies and contributions, or guarantees of some kind, and their aversion to competitive procedures.

38. Project development cost. The costs incurred in the course of the development phase of a toll road project are generally very high compared to actual construction costs. These costs will usually include firming up the designs and preparing final cost estimates. They can be reduced by clear and straightforward procedures governing project preparation by private parties. When projects are offered for private participation only when they are practically ready for implementation, considerable cost and loss of time can be avoided. In one Indonesian case, for example, the project development phase took about seven years. The risks during the development period are quite high, and usually only equity capital can be used to finance these costs.

39. Uncoordinated road development. Private participation in road investment creates new challenges for the development of the road network in accordance with a rational plan. This issue is particularly important in a rapidly growing economy such as Indonesia's, where a large number of investments need to be initiated in a relatively short period. Poorly planned investments could easily jeopardize the establishment of a rational strategic road network for the country. The principal causes of uncoordinated road development are: (a) the absence of a consolidated masterplan to guide all major road improvements; and (b) fragmentation in the decisionmaking responsibilities for road investment among different agencies.

40. Level and adjustment of toll rates. The level of road tolls is one of the three key factors (together with construction costs and traffic volume) that determine the financial viability of private toll road provision. Many countries, including Indonesia, have a tradition of government regulation of toll rates, and governments in these countries are reluctant to give up this prerogative. In Indonesia in early 1996, toll rates on the interurban sec-
tions were in the range of Rp70 to Rp90 per km (US$0.03 to 0.04/km), somewhat below average international levels. Toll rates were increased on existing toll roads in 1978, 1983, 1985, 1988 and 1992, yielding a cumulative five to sixfold increase. Another increase, ranging from 25 percent for passenger cars to 13 percent for heavy commercial vehicles, took place on Jakarta’s inner ring road in October 1995, according to press reports after strong lobbying by the private toll road company involved in the existing sections of the ring road and in completing that road.

41. The three key questions regarding the toll rate are: (a) What are the principles for toll rate setting? (b) Who sets the initial toll rate? (c) How are toll rates adjusted to reflect cost increases? In the case of Indonesia there is considerable uncertainty about what rates are likely to apply during the concession, and this is of great concern to private sector investors. Other countries have used various approaches to reduce the uncertainty for private investors. For example, the initial toll rate can be the result of a competitive bidding procedure where the toll rate is one of the bidding criteria. Predictability in the adjustment of toll rates is the crucial factor, and this can be achieved by, for example, agreeing on a formula which incorporates key factors such as cost movements, which affect the financial outcome, or on a target rate of return.

42. Cost overruns. Cost overruns have been a serious issue in a number of countries (Mexico in particular, and also in France during the early years of the toll road development program), but so far not in Indonesia. If the project is a properly structured private investment, the main parties affected are the private sponsors who should normally assume the risks involved through traditional instruments or approaches (e.g., turnkey or fixed-price contracts, insurance). However, if the cost overrun is so large that the financing package is no longer adequate to complete the project, both the government (or state enterprise) and the lenders are affected. In Mexico, where the project sponsors were essentially the construction companies, the burden of the cost overruns fell on the lenders (state banks) and subsequently on the government, which was forced either to restructure the banks’ toll road loans or bail out the banks.

43. Cost overruns mainly result from inadequate design work prior to entering into the concession agreement. However, other possible causes or contributing factors include: clauses in the concession agreement which allow design variations initiated by the contractor, governmental interference (e.g., to appease affected parties), or a concession agreement unduly favorable to the contractor in the sponsoring consortium. A typical example of the latter is a concession agreement which provides for almost automatic extension of the concession period when costs turn out to be higher than initially estimated. The financing package should provide for a contingency to cover cost overruns. Without this precaution, cost overruns can have a devastating impact on the project and may require that the agreement be renegotiated and a new financing plan worked out. Also, the possibility of the concessionaire going bankrupt should be guarded against, with lenders having collateral rights in the concession and the ability to transfer these rights to third parties. In a worst case scenario, the project might have to be abandoned if lenders believe that additional funding will not facilitate recovery of existing loans.

44. Construction quality. Numerous instances of inadequate quality in toll road construction have been reported, including a case in Indonesia. The parties concerned (government, sponsors, lenders, and road users) can be more or less seriously affected, depending on the relevant clauses in the concession agreement. The causes or contributing factors are similar to those under traditional contracting: insufficiently detailed final design, inadequate design or construction standards, poor supervision, and lack of experience on the part of the contractor. Clearly, such problems can be avoided and construction quality can be secured through prequalification of contractors, effective supervision, and the inclusion of appropriate incentives in the concession agreement—
for example, granting the concession holder a stake in the residual value of the investment at the end of the concession period.

45. **Adequate maintenance.** Probably, because private participation in toll roads in the form of BOT concessions is a relatively recent development, problems of inadequate maintenance do not appear to have been reported in Indonesia. This is nevertheless a serious potential issue, especially toward the end of a concession period before the concession is transferred back to the government. Inadequate maintenance will reduce the value of the asset and create higher costs for the government and road users.

46. There are different ways of dealing with this issue. One is to specify monitorable maintenance standards in the concession agreement. Certainly, performance guarantees by the concession holder should be part of any concession agreement. If a concession is to be governed by rate of return monitoring, one issue is whether the rate of return will be determined before or after maintenance has been covered, and, in the latter case, appropriate maintenance expenditure levels must be established. If maintenance is included in the base rate, there will be an incentive to overspend. Experience suggests, however, that it is more effective to have built-in incentives for appropriate maintenance than to rely on cumbersome monitoring of standards and expenditures. In a large country such as Indonesia, which is likely to build a substantial toll road network, the creation of a market for toll road concessions would be another approach. Since the quality of maintenance affects the value of the asset in the market, there is an incentive for optimal maintenance by the concession holder.

47. **Length of concession and disposal of concession.** Toll road concessions tend to be relatively long, 20 to 30 years. The length of the concession is a key element of the concession agreement and one of the few parameters over which the contracting parties have some measure of control (construction costs and traffic are to a large extent given and toll rates are often outside the control of the parties). Adjusting the length of the concession period has often been used as a device to provide a satisfactory rate of return. However, as noted above in the section on cost overruns, there is a risk in this approach. The length of the concession has also been used as a bidding criterion (e.g., in Mexico), with the result that unrealistically short periods, as low as 5-10 years, were proposed.

48. Another fundamental question that needs to be addressed is what happens at the end of the concession period. Does the concession revert back to government or will there be a continued role for the private sector in road provision, and will the concession be offered again for tender? In the latter case, a related issue concerns the availability of the option and the modalities for disposal of the concession before its expiration. For example, can the concession holder sell before the expiration of the concession or rebid at the time of the expiration? These questions have to do with the long-term institutional model for the sector (para. 114). Competitive rebidding should be the preferred option.

49. **Adequate return versus excessive profit.** As noted above, because of their special characteristics toll road investments are perceived as inherently risky, and investors expect a somewhat higher return than for investments with a shorter payback period and less uncertainty with regard to costs and revenues. However, because of this very uncertainty there is also the potential for high reward (and for profits, which can be perceived as excessive). While cash flow may be poor initially, it can become very generous in later years. A wider probability distribution for the rate of return will invariably require a higher target rate of return.

50. Investors could be vulnerable to administrative interventions affecting the return on investment if there is a public perception of excessive profits. It is, therefore advisable to address the issue in the concession agreement. Excessive profits can be avoided by well-designed sliding-scale tariff formulas that avoid the cost-plus mentality associated with rate of return approaches. Sharing of unanticipated profits over and above a given minimum rate of return with government and/or road users should also be considered. In Indonesia this is
automatic in a joint venture with Jasa Marga. Certainly, to the extent that a government would provide some measure of revenue guarantee to ensure concession holders an adequate return, it could be argued that it is entitled to share in the benefits when the outcome is favorable. Another suggested approach for dealing with this issue would be a clause which permits a buy-back by the government once a maximum return has been achieved. However, as generally recognized, approaches involving rate of return caps and rate of return monitoring take away an important incentive for efficiency. As noted above, the issue of excessive profit has also been dealt with through adjustments to the length of the concession period. This, however, is a disincentive to risk capital.

51. **Source of funds and term of finance.** A key issue in private financing of toll roads through a BOT concession is the ability to structure a financing package which matches the cash flow generated by the project. Domestic capital markets often do not offer a range of instruments or financing options that match the cash flow needs of the project. This was the case in the late 1980s in Mexico, when only two to three-year financing was available from domestic commercial banks. In Indonesia this is less of a problem, since 10 to 15-year term loans appear to be available from state-owned banks, the traditional funding source for toll roads. Since these terms are longer than normally available in the market, however, they may not be available to foreign investors. In addition, nonbank financial institutions are not allowed to engage in project financing. Term of finance is, therefore, a basic issue for private sector participation in infrastructure in Indonesia, and unless more flexible instruments become available some form of refinancing will be necessary over the period of the concession.

52. **Premature investment and subsidies.** Many countries have embarked on premature investments—that is, investments implemented before they are financially justified—in high capacity toll road facilities. Typical examples are France, Mexico, and Malaysia. Usually a political decision to develop an extensive network rapidly without due consideration to economic and financial viability is at the origin of premature investment. Such investments have been made possible through various types of direct or indirect subsidies. In France, where the toll road network was developed by toll road corporations, financing of premature investments was achieved through cross-subsidization from mature toll road sections with high cash flows. In stand-alone BOT concessions generally, premature investment has been made possible through financial assistance in the form of cash grants, low-interest loans, nonreimbursement of loans, and various other devices, such as providing the concession holder with toll revenues from adjacent toll road sections previously financed by government.

53. Given the substantial resources absorbed by toll roads, there is no need to implement investments with direct subsidies or cross-subsidies before they are justified. Premature investment can easily be avoided if the government is committed to developing a road network according to a rational plan and strictly applies economic and financial feasibility tests before an investment decision is made. The French experience suggests that if the sector is organized on the model of the toll road corporation, it is important to prevent that corporation from accumulating excessive profits, since the political pressures to use this cash flow for premature investment will be difficult to resist. In the case of Indonesia, where the toll road corporation benefited during the early years from substantial government assistance in the form of loans or capital contributions, which have not yet been properly incorporated into the accounts of the corporation and on which the government receives little or no return, some form of cross-subsidization could easily arise.

54. **Taxes and duties.** The level of taxes, duties, and levies can have a significant impact on the financial viability of a toll road concession. In principle, the taxation regime should be no different from that applicable to other private sector activities. It should recognize the cash flow characteristics of toll road investments and, for example, allow depreciation and losses (indexed for inflation) to be carried forward. The ministry should, therefore, in consultation with other concerned government agencies, develop a clear, transparent, and stable taxation regime for toll road concessions.
55. **Value capture.** New roads can have a dramatic impact on land values. For each investment, the question arises to what extent capital gains will benefit the toll road concession holder, and if he does benefit, how this should be factored into the concession agreement. These questions are highly relevant in Indonesia, where spatial planning is still in its early stages and toll road investors can also be expected to invest in real estate. Experience with toll roads in other countries is too recent to provide much guidance and, except for the United States, not much attention has been paid to the issue.

56. In addition, toll roads provide the potential for revenue generation from services along the road (gasoline stations, mechanical repair shops, restaurants), franchising of air space (e.g., for publicity purposes) and the development of excess right of way (for hotels or other enterprises). While these revenues should be treated separately from the toll revenues, they cannot be ignored in cash flow and financial projections and should be dealt with in the concession agreement.
C. DEALING WITH THE KEY CONCERNS OF BOT TOLL ROAD SPONSORS AND LENDERS

RISKS AND EXPECTED PROJECT RETURNS

57. The central concern of project sponsors is the expected return on their equity. The return they can achieve will depend to a large extent on the return that lenders require, which in turn depends on the level of risk. Experience in the market shows that, depending on the riskiness of the project, the expected rate of return on total project cost will vary from 17 to 30 percent (in US dollar terms). This means that a US$100 million investment at the higher end of the risk scale (requiring a 30 percent return) will need to generate on the order of US$12 million more per annum than one at the lower end of the risk scale (requiring only a 17 percent return).  

58. Since higher risks mean that lenders and investors require higher rates of return, the objective of the government and the sponsor should be to reduce overall riskiness through careful risk management, allocating the various risks to those parties best placed and most able to assess and control them. It is generally recognized that effective analysis, allocation, and mitigation of risks is the defining characteristic of successful private infrastructure financing through BOT concessions. Project finance risk analysis, from the perspective of lenders, requires assessment of the key project-specific risks, and the issue for lenders is what recourse they will have if investments fail to produce the expected return. The financing of projects where lenders are repaid solely from the cash flow generated by the project is usually complex and time consuming because of the level of risk involved and the need to secure the interests of the various parties through contractual agreements. Financing normally will not become available unless and until the lenders are satisfied with the risk management arrangements.

59. The fact that certain projects have come to financial closure quickly does not invalidate this general point. Such cases merely indicate that there are inexperienced lenders. Often these have been state banks. Experience also suggests that in such cases there is a much greater likelihood of project companies going into bankruptcy. An approach which requires a large proportion of projects to be salvaged and refinanced (as was the case in Mexico) is not effective at all.

TOLL ROAD CONCESSION RISKS IN INDONESIA

60. Risks can be viewed from several perspectives. One can look at risks from the perspective of the different parties concerned: the sponsors, the lenders, the government, and the toll road users. Risks can also be grouped into categories according to type: commercial risk, that is, risks related to the sector or business activity being contemplated (e.g., toll roads); risks specific to a country (including political, economic, and financial risks); or risks of a general nature such as force majeure. Or, risks can be differentiated according to when they arise in the project cycle—development phase risk, construction phase risk, and operation phase risk.

61. This section will focus on sector-specific risks, the risks involved in BOT toll road concessions in Indonesia. Sponsors and lenders face risks in five main areas: project development costs, land acquisition, construction costs, traffic volume, and toll rate. The ways in which the public and private sector partners engaged in setting up BOT concessions can mitigate these risks are discussed below. The broader economic and business environment risks common to private sector operations in all sectors of the economy, and referred to as the...
country risks (paras. 27-29), are not within the control of these parties. As already emphasized, to secure effective private sector participation it is crucial that government foster a transparent and predictable environment. Finally, allocation of risk and risk management by the various parties in the sponsor group are a matter to be settled among them and will depend to a great extent on the specific partners in the sponsor group; these issues will not be discussed here. But it is worth noting that to the extent that a sponsor group can skillfully allocate and manage risks internally, it will be able to lower the expected rate of return and offer a more attractive proposal to the government.

62. **Project development risk.** Relative to total investment costs, the development costs of toll roads are probably the highest of all types of infrastructure projects. Costs that need to be incurred before construction can start include those for geotechnical investigations to prepare the designs and cost estimates, detailed traffic analyses and forecasts, environmental analyses to obtain clearances and permits, and land acquisition to obtain right of way. If some of these steps are not completed before a project sponsor group is selected, there is a considerable risk that the final project proposal will not be accepted by the government or by financiers. Sponsors will be prepared to face the possibility of considerable project development costs and delays only if they have the assurance of ultimately obtaining the concession and being compensated for the costs incurred. This, however, does not provide for an effective selection procedure and puts the government in a weak negotiating position. The appropriate approach for dealing with this risk is to have most project development work completed by reputable consultants, with financing from government or some other source, before moving to the selection of a concession holder. The latter phase and subsequent steps should also be well defined and predictable because even if project development work is substantially completed when a sponsor group is selected there may still be other uncertainties, such as bureaucratic hurdles in securing permits or meeting requirements or unclear concession agreement proposals. This will likely result in potential sponsors either building a premium into their bid to reflect the probability of delays, not bidding, or investing less effort in bid preparation.

63. **Land acquisition risk.** Different countries pursue different policies with regard to the question of who bears the cost of land acquisition. To ensure that toll road investments can be financially viable, in general it is preferable that government bear the cost. In Indonesia, the government provided the land for the first private toll road schemes (as provided by the Toll Road Regulation), but then discontinued this policy in 1994, creating a great deal of uncertainty. Under the program of 19 toll roads started in 1995, a new procedure was introduced whereby: (a) GOI/Jasa Marga provides the right of way; (b) the private sponsor funds the cost of the land acquisition up to a specified percentage of the proposed construction cost; and (c) Jasa Marga funds any cost overruns. This has reduced the land acquisition risk considerably, since the total potential cost of land acquisition has a clear upper limit. The only remaining risk concerns the time needed to complete the process. Since the sponsor is responsible for bearing the cost of land acquisition, funding for this will need to be part of the financing package. Consequently, the total time from financial closure to opening of the road is increased by another two years or so, bringing the total lead time to 6 or 7 years. This risk can only be properly addressed through the establishment of an effective system of advance planning and project generation which ensures that land acquisition is completed before a concession is awarded.

64. Chile has opted for an approach where the cost of land acquisition is largely borne by the concessionaire. This is possible because, owing to a straightforward and transparent process, land acquisition is completed within a relatively short period and also because unit construction costs appear to be significantly lower than in other countries. The government assists in the land acquisition process and the concessionaire pays a fixed predetermined price based on best estimates. If the actual cost turns out to be less, the government refunds the difference; if it turns out to be higher, the difference is shared in a ratio of 80 percent for the government and 20 percent for the concessionaire. If the land acquisition process is the cause of delays, the government extends the period of the concession for an equivalent time period.
65. **Construction cost risk.** Construction cost risk in toll roads is mainly that of cost overruns. These can be reduced through sound design and by ensuring that the work is done by a competent contractor. Measures taken to reduce project development risk will also contribute to reducing construction cost risk.

66. Even when the above precautions have been taken, there may still remain some construction cost risks. Risks within the control of the contractor should be covered through standard construction risk management instruments and contractual clauses aimed at protecting sponsors, lenders, and the government. Events outside the contractor's control could include unforeseen geotechnical conditions and *force majeure*. These can be covered by standby finance; the government should require that appropriate standby finance is included in the financing package put together by the sponsors. For difficult terrain conditions, risk sharing between the concession holder and government could be considered, as is done in Chile. Construction cost overruns or delays resulting from changes in laws, delays in granting approvals or permits or in the clearing of land, or changes in the tax regime are under the control of the government and can be avoided through careful and sound project development. If they do occur, notwithstanding government's best efforts, they constitute breach of contract by the government, and the concession agreement should provide for adequate compensation.

67. **Traffic risk.** The traffic risk has two components: base-year traffic and subsequent traffic growth and composition. The risk related to base-year traffic can be reduced through traffic studies carried out to high professional standards by reputable consultants. All the primary survey data, the assumptions, and models used by the government consultants should be shared with prospective sponsors to allow them to verify the traffic predictions and develop their own alternative predictions if they wish to do so. Careful traffic studies will also mitigate the risk related to traffic growth. The traffic risk situation in Indonesia is more favorable than in many other countries because the already extensive experience with toll roads allows assumptions regarding diversion rates and traffic growth to be based on empirical evidence.

68. Traffic growth can also be affected by the construction of new roads or other developments in the corridor. This underlines the need for government to have a clear road/transport masterplan for the area affected by the toll road project. Sponsors will want to have assurances with regard to adherence to this plan.

69. Even when the above precautions have been taken, there will always be a risk that actual traffic will fall below predicted levels. The way to deal with this is to ensure that only projects which have a margin of safety in financial viability move forward to implementation. If a traffic shortfall occurs, despite all reasonable precautions, this could be dealt with through an extension of the concession period. Traffic guarantees or minimum income guarantees should be avoided, since the private sector should bear the commercial risk.

70. **Toll rate risk.** Toll rate risk has two components, one related to the base-year toll rate and the other to the adequacy of periodic adjustments to the base-year rate. As a rule, a BOT concession should proceed only on condition that it is financially viable with the base-year toll rate and subsequent adjustments which compensate for cost increases during the concession. In practice, therefore, the real risk for sponsors and lenders is that adjustments will not be adequate. In Indonesia, however, because of the government's toll rate policy (para.13), the base-year toll rate remains uncertain until very late in the project preparation phase. Uncertainty regarding this is the principal impediment to private participation in toll road development.
71. The best approach for addressing the concerns of promoters and lenders in a way consistent with the public interest is to use the toll rate as a key bidding criterion (para. 91) and to agree on a formula which compensates for actual increases in costs (O&M and capital) arising during the concession period. Alternatively, since operating costs are only a small fraction of total costs, the formula could provide for increases at a rate between that which corresponds to compensation for actually incurred cost increases and that which corresponds to general inflation, thereby providing for faster growth in revenues and cash flow in the early years of the project.

ROLE OF GOVERNMENT IN RISK MANAGEMENT—PROJECT PREPARATION

72. **Role of government.** From the above it can be seen that government has a threefold role in securing greater private sector participation: (a) to improve the business environment for private sector participation in general ( paras. 27-29) including, inter alia, the strengthening of the insurance industry so that it will be able, for example, to provide appropriate insurance to cover force majeure incidents; (b) take measures to mitigate the five main toll road risks discussed above; and (c) establish mechanisms for dealing with the adverse effects of the government’s own actions or inaction.

73. **Risk management under BOT toll road concessions in Indonesia.** The above discussion indicates that to deal effectively with risks arising under Indonesian BOT toll road concessions, project preparation needs to be much more thorough than is currently the case. This means, at a minimum, taking preparation work to a point where the road alignment has been selected, the right of way has been acquired, environmental clearances have been obtained, sufficient geotechnical investigations have been carried out to allow reliable cost estimation, and traffic projections based on detailed origin-destination (O-D) surveys and traffic assignment studies have been prepared. The cost of this preparatory work is low compared to the risks being covered. In-depth engineering and traffic studies by GOI or its consultants should establish the financial viability of the project without a need for guarantees to cover commercial risks, and determine the length of the concession period needed to earn an adequate return. These studies should minimize the need for additional studies by the prospective concessionaire and reduce bidding costs. With regard to the toll rate risk, GOI should revise its policy. The current approach involves too much risk for private investors and discourages private investment in the sector. This also implies that the government entity responsible for project preparation will need to have sufficient qualified and competent staff and adequate funding.

74. In the case of Indonesia, the impact of the key parameters—construction cost, traffic, and toll rates—on the financial viability of toll roads is illustrated by the fact that for a typical toll road in an interurban setting, traffic in the opening year has to reach 30,000 vehicles a day to achieve an internal rate of return of 18 percent. Since this scenario assumes a debt/equity ratio of 50/50, and given that the cost of domestic borrowing would be a minimum of 16 percent, it is only barely feasible. The rate of return under alternative traffic and debt/equity assumptions is shown in Table 3. These results make it clear that private investment in a typical interregional toll road should be deferred unless rigorous studies indicate that traffic the first year will be at least 30,000 vehicles a day. If construction costs are higher, the threshold traffic level should be correspondingly increased. Unfortunately, detailed engineering and in-depth traffic studies had not been completed.

<table>
<thead>
<tr>
<th>Traffic Volume (vehicles/day)</th>
<th>Debt/Equity Ratio</th>
<th>Financial Rate of Return (%)</th>
<th>Initial Number of Years of Negative Cashflow</th>
</tr>
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<tbody>
<tr>
<td>30,000</td>
<td>50/50</td>
<td>18.1</td>
<td>-</td>
</tr>
<tr>
<td>22,500</td>
<td>50/50</td>
<td>14.9</td>
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<td>50/50</td>
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<tr>
<td>30,000</td>
<td>70/30</td>
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<td>22,500</td>
<td>70/30</td>
<td>14.0</td>
<td>3</td>
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<td>15,000</td>
<td>70/30</td>
<td>10.1</td>
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for most of the sections under the program of 19 toll roads offered to private investment in 1995, and the private sponsors now need to carry out costly additional studies to evaluate construction costs and traffic levels before being able to realistically approach lenders. This is demonstrated by the fact that traffic volume on the most highly trafficked section of the Belmera toll road (Medan to the Port of Belawan), which has been in operation since 1986, did not exceed 12,000 vehicles per day in early 1996. Traffic volume on the Padalarang-Cileunyi (Bandung area) toll road, which was opened in 1991, exceeded 30,000 vehicles per day for the first time in 1996 on the most trafficked section and 20,000 vehicles per day on the least trafficked section.

75. **Adverse impacts of government’s own actions.** As indicated above, toll road concessions are inherently risky ventures. The cash flow of a toll road investment can be negative in the early years of the concession and viability will only be confirmed after several years of operation. Also, in the majority of cases, recoupment of the investment and adequate return will only be achieved after 15 to 25 years. During the long payback period many unfavorable events related to traffic and toll rates can occur, many of them within the control of government. Risks related to adverse impacts of governmental action or lack of action will be the subject of intense discussion between the sponsor/lenders and the government. Sponsor and lender concerns include adverse impacts on project cash flow and debt service capability (and ultimately the rate of return) as a result of, for example, inadequate toll rate adjustments, investments in alternative nontolled roads, or delays in the delivery of permits or right of way. To deal with such risks to sponsors and lenders, government should guarantee compensation if it does not abide by the terms of the concession agreement. The recently introduced World Bank Partial Risk Guarantee provides for coverage of such risks faced by lenders (Box 1). While governments should pursue policies that will eventually attract infrastructure investments without such guarantees, they can, for certain risks and during a transition period, provide a more cost effective approach for attracting private financing than entering into concession agreements that are overgenerous to investors and lenders. In the case of Indonesia, which has had an open capital account for 25 years, some guarantees, such as those on foreign exchange transfers or exchange controls, are less likely to be needed.

76. **Considering alternative approaches to private participation.** In view of the high risks associated with BOT toll road investments, and the time and costs involved in establishing measures for managing and mitigating them, the question arises whether other options for private participation in toll roads are more appropriate in the Indonesian context in the near term. Section E will address this question.

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**Box 1. World Bank Partial Risk Guarantee**

Partial risk guarantees cover payment in the case of defaults resulting from the nonperformance of contractual obligations undertaken by a government or its agencies in a private sector project. Thus the Bank guarantee backs government’s obligations to the private sector parties. The guarantee can cover up to the entire amount of a financing package against specific risks. Since the World Bank’s guarantee requires a counter-guarantee from the government of the country, it provides a further demonstration of the government’s commitment to meet its obligations.

In private toll road investments, contractual obligations undertaken by a government could include:

- Maintaining an agreed upon regulatory framework, including toll rate adjustment formulas
- Compensating for delays or interruptions caused by government actions or political events
- Guaranteeing foreign exchange transfers to sponsors and lenders
- Protecting sponsors and lenders from adverse changes in foreign exchange laws, or regulations
- Refraining from building parallel free high-capacity arterial roads
D. ADDRESSING THE ISSUES OF CONCERN TO GOVERNMENT AND THE PUBLIC

ACHIEVING THE EFFICIENCIES OF PRIVATE TOLL ROAD PROVISION AND ENSURING THAT ALL PARTIES GAIN

77. As indicated above (para. 15) the potential gains from private participation in toll roads consist of the creation of additional road network capacity responsive to the needs of the economy and road users at equal or lower cost than under public sector provision. These gains will not automatically come about by creating a business environment conducive to private participation in infrastructure in general or toll roads in particular, and by reducing the risks to sponsors and lenders. Experience in a number of countries indicates that private participation in toll roads also holds serious risks for government itself as custodian of the public interest. To ensure that all parties gain or that, at least, no party is worse off, three broad issues need to be addressed: (a) road sector development planning and management; (b) establishment of mechanisms to achieve efficiency gains for the economy (the concession agreement and a competitive selection procedure); and (c) sector regulation. These issues are examined in this section in the context of the Indonesian BOT toll road concession approach. Alternative approaches to private participation which provide more effective means for dealing with some of these issues are discussed in Section E.

ROAD SECTOR DEVELOPMENT PLANNING AND MANAGEMENT

78. **Road masterplanning.** Existing laws and regulations governing the allocation of responsibilities in the Indonesian road sector provide the institutional framework within which private sector participation can take place. However, major limited access facilities such as toll roads need to be built in accordance with a rational road development plan, and investments should only be implemented when they are economically and financially justified. This requires first, that responsibility for masterplanning of both road in general and of toll roads be vested in one focal point. In a rapidly growing economy such as Indonesia's, where there is a need for rapid road network extension in accordance with a long-term spatial and transport masterplan, this requirement is of much greater importance than for the mature road network of a developed economy. In principle, these responsibilities are vested in the Planning Directorate of DGH. In practice, however, because the responsibilities for toll roads are assigned to the Directorate of Urban Roads of DGH, and, because of the role played in toll road development by the toll road corporation itself, toll road masterplanning is not suitably coordinated with overall road masterplanning. In particular, the country lacks a prioritized toll road development plan as part of a capacity expansion plan for the arterial network and the main road corridors.

79. A second requirement is that all toll road studies and the formulation of the investment program be carried out according to standardized technical, economic, and financial evaluation procedures and criteria which are consistent with those for other road capacity expansion investments.

80. Finally, it is essential that adequate funds be available for advance masterplanning and corridor studies so that prioritization and scheduling of investments can be performed on the basis of a sufficiently large pipeline of well-justified projects. This will also allow for advance planning and budgeting for land acquisition. Overall phasing of the program also needs to take into account institutional capabilities for dealing with the various planning and implementation activities.

81. Chile has achieved good results with a system of project and program preparation which generates a steady flow of projects formulated according to standardized evaluation procedures. An interesting feature of this system is that it also provides for private sector input in the generation of project ideas.
82. **Road pricing.** Tolling, in addition to allowing financial cost recovery for the private provision of roads, is also a very suitable means for road pricing if used in a flexible manner in terms of the level of tolls by place and time of day. However, when tolling is used primarily for financial cost recovery of private sector investments, the toll rates will not necessarily be congruent with the objectives of efficient road pricing. The implications for efficiency and management of the demand for road space are particularly important when tolling is used on strategic parts of the network and in urban areas. Hence, from the perspective of government’s road pricing policies, there is a need to clarify toll road policies in relation to long-term policy objectives in the sector and to ensure that tolling decisions do not preclude vital options regarding road pricing.

83. GOI is now firming up its long-term road user charges and road pricing policies. It is, therefore, important to ensure that decisions made with regard to the approaches and arrangements for private provision of roads will be compatible with the requirements for effective road user charges and road pricing policy. With the advent of electronic technologies, which allow much greater flexibility in the level of tolls by place and time of day, the attraction of tolling for road pricing will increase significantly in the coming years. However, the BOT concession approach does not lend itself well to modulate tolls to achieve road pricing objectives.

84. **Road network management aspects.** Compared to provision of all roads by the state or by a state agency, the private provision of part of the road network will lead to some measure of fragmentation and to some reduction in fluidity in the network, particularly from the point of view of connectivity and traffic management. Again, the BOT concession is less suited than the other forms of private participation to the management of roads as an integrated network.

A BALANCED CONCESSION AGREEMENT

85. The concession agreement should not only detail the standard elements of a contract between two parties but also address the issues likely to arise between them over the 15 to 30-year life of the concession. The agreement will have a major impact on the benefits to be derived by all those involved or affected—the government (or Jasa Marga), the private sponsor, the lenders, and the road users. The key issues to be settled under the agreement were discussed in Section B above. Thus, the concession agreement should cover such aspects as: the technical standards and specifications relating to the construction, maintenance, and operation of the facilities; the period of the agreement and modalities for changes thereto; the toll rate and adjustments thereto; the minimum equity on the part of sponsors to ensure commitment to the venture; the guarantees to be provided by sponsors to cover potential issues such as construction and maintenance quality and to ensure compliance with various other standards; the procedures for dealing with unforeseen developments during construction and operation and for change orders; the regulation (if any) of profit or return on capital; and the taxation regime and issues of value capture. Such an agreement must reflect the risk sharing arrangements worked out between the government (or Jasa Marga) and the private sponsor and lenders with respect to the key risks discussed in Section C above and deal with government actions (for example, investments in competing roads or modes, introduction of new regulations, or any other relevant action) which may have an impact on the traffic of the facility or its financial prospects. It must also address the liability regime during operation of the facility.

86. **Developing model agreements.** If a country intends to use the BOT concession as the vehicle for private sector participation in infrastructure it is desirable to develop a model agreement. Agreements comprise essentially three main parts: (a) general clauses, which are fairly standard and or similar to BOT concessions in most infrastructure sectors; (b) clauses which are specific to the sector; and (c) project-specific provisions. The
general clauses, best developed through a coordinated effort involving the various sectoral ministries, would include guarantees government requires from the private sector to cover various risks of non-performance or default. Such a model agreement has been developed in the Philippines, and it is important that a similar effort now underway in Indonesia be rapidly brought to completion. Nearly every country has formalized, by law or regulation, the general contract conditions for the procurement of major works or goods, and there are strong arguments for legal codification of the key elements of model BOT concessions. This has been done recently in many countries, including Hungary, Brazil, Colombia, and the Philippines.

87. If GOI intends to implement its toll road investment program mainly through a series of BOT-type concessions, then it would be highly desirable to develop a model toll road concession agreement which codifies, in a manner satisfactory to all parties, solutions to the various issues referred to above. This would include, in particular, the government’s policy on risk sharing with private sector toll road sponsors and approaches for covering the risks involved. Clearly, this will have to be a more comprehensive and detailed agreement than the joint operation or joint venture agreements used so far in Indonesia for private participation in toll road schemes. The advantages of standardizing the principal provisions include, inter alia: greater transparency and predictability for investors; opportunities to promote consistent interpretations across projects; a stronger bargaining position for government; reduced concern for inconsistent treatment of different investors; and lower transaction costs.

A COMPETITIVE PROCESS FOR SELECTING A CONCESSION HOLDER

88. Why competition? In the past, most governments have felt it necessary to assume a regulatory role in markets where there is potential for abuse of monopolistic power by a private sector operator and to monitor the operator’s performance. However, government regulation and monitoring are not the only ways to protect the public interest. Worldwide experience with deregulation and privatization indicates that competition is the most crucial factor in improving efficiency and ensuring that users benefit from increased private participation. Even when a sector has the characteristics of a natural monopoly (as is the case with roads), different arrangements are available to secure competition. In short, the more competition, the less need for government monitoring and regulation. Other arguments for a competitive process are that it provides an impartial and fair means of allocating projects among rival firms, reduces concerns about corruption, and lessens public resistance to private participation and/or tolls.

89. Because of the technological characteristics of road services, organizing a competitive market for such services is not a feasible option. Competition, however, is not limited to competition in the market by alternative providers. It can also take the form of competition for the right of access to the market. The toll road sector lends itself to a competitive process whereby the concession is awarded to the bidder evaluated as most efficient. Thus, in order to minimize the need for government involvement during the operation of the concession, it is important to develop a procedure for access to the market which embodies as much effective competition as possible.

90. The key elements of a competition for access to the market are similar to those of the traditional competitive process for the procurement of works or goods. As for all major and complex contracts, the process generally includes a prequalification stage at which the capabilities of candidate sponsors are assessed on a pass or fail basis. The main factors taken into consideration in evaluating the sponsor group include accomplishments in past and current line(s) of business, track record in managing large and complex civil works contracts, financial strength, experience in operating toll roads, and the capability of the group relative to the number and size of projects it has in the pipeline.
91. **Bidding criteria.** In developing a competitive procedure, the most crucial aspect will be the bidding parameter(s) used to select the winning sponsor. The elements of the concession agreement on which the bidders are expected to compete and the basis for evaluation of their bids can be put together in different ways depending, *inter alia*, on country circumstances. While it is possible to have bidders compete on the basis of several criteria, the greater the latitude they are given, the more difficult it is to compare bids and achieve an objective and transparent evaluation. For this reason it is generally recommended that there be only one criterion. Obviously, the better the various key issues are resolved in a model concession agreement (para. 86), the easier it will be to organize competition for the market on the basis of a single criterion. For toll roads the most suitable criterion is the level of the toll to be levied. This is the criterion that has been successfully adopted in Chile and which Mexico also intends to adopt in the next program for private toll road investment.

92. If the country has a rigid toll rate policy (as is still the case in Indonesia), or if the government wants to align toll rates for the various sections of the toll road system, the minimum toll rate may not be the most suitable bidding criterion. In such a situation one could take the toll rate as a given and let sponsors bid on the period of the concession or on the maximum level of the annual payments they would make to the government. However, the most appropriate approach is to change the toll rate policy to permit bidding on the basis of the toll rate alone. For special cases, for example when a section would have higher than average construction costs, bidding could be on the minimum level of subsidy.

93. In a few cases, as in Hungary, competitive bidding for toll roads has been organized on the basis of more than one criterion. However, because toll road projects entail greater risks compared to projects in other infrastructure sectors and because fewer investments have been implemented through private concessions, there are not as many examples of a competitive procedure using the minimum toll rate or a maximum annual payment/minimum subsidy as in, for example, power sector projects.

94. **Developing a standard bidding procedure.** As recommended with regard to the concession agreement, if it is the government's intention to implement the toll road program through the BOT concession approach, it is highly desirable to develop a standard bidding document and a transparent procedure for requesting and evaluating proposals. As was the case for the model concession agreement, there are strong arguments for codifying the bidding procedure and the documents by law or regulation.

**SECTOR REGULATION**

95. Even when all key issues have been carefully dealt with, there will always remain some points which cannot be entirely settled in advance and will require regulatory discretion at some future time. One of these is balancing adequate return versus excessive profit during the later years of the concession. Because these concessions are for very long periods during which not every possible event can be foreseen, there will likely be a need for some adjustment or renegotiation. In addition, once a number of such concessions are in operation, their performance will need to be monitored. Clearly, the activities of developing policy, monitoring performance and adjusting agreements all imply a certain degree of regulatory involvement by the government or a regulatory body. For Indonesia, given the sectoral institutional setup and the capabilities of the various entities, two questions arise. What should be the nature and scope of this regulatory function? And, where should it be located?

96. Regarding the first question—defining the nature and scope of the regulatory function—the aim should be to minimize the need for regulation as much as possible. Considering that the issues arising in private provision of toll roads in a particular country are fairly well circumscribed, the most effective approach is to have the model concession agreement incorporate the solutions to as many potential issues as possible. While this will not totally eliminate the need for regulatory involvement, it should reduce it to a minimum.
97. Regarding the second question—where to locate the responsibilities—the objective should be to avoid having the regulatory entity be both judge and jury. Clearly, responsibilities for project design, bidding, supervision of construction, and operation, on the one hand, and regulation of the concession, on the other, should not be vested in the same entity. The guiding principles should be to: (a) ensure sufficient expertise; (b) reduce the risk of capture by regulated firms; and (c) limit the influence of short-term political considerations. It is also useful to distinguish between the short and the longer term. For the near term, given that Jasa Marga has already accumulated experience in preparing and signing agreements with private sector parties, it could continue to perform these activities on the basis of the standardized concession agreement and a competitive selection procedure, as recommended above. Thus, until a basic choice regarding the mode of private participation (para.114) has been made and a streamlined institutional setup for private participation in the sector established, the ministry should set policy and Jasa Marga should implement it. Nevertheless, as suggested above, the regulatory capabilities of the ministry need to be strengthened and an appropriate focal point for this function, preferably in the form of an autonomous unit, should be established, since the existing entities within the ministry and Jasa Marga cannot be expected to perform the regulatory function in the public interest effectively.
E. ALTERNATIVE APPROACHES TO PRIVATE PARTICIPATION

Thus far, GOI has followed the BOT concession approach in the form of a joint venture between private parties and Jasa Marga. Based on public statements, GOI also appears intent on proceeding with a partial privatization of Jasa Marga through a public share offering, as was done in the case of state enterprises in the telecommunications sector. This raises the questions of whether the privatization of Jasa Marga is an effective and feasible option in itself and whether it is compatible with the continuation of private sector participation through BOT concessions.

PARTIAL PRIVATIZATION OF JASA MARGA

This approach has several merits in relation to the privatization objectives. A first consideration is that the model of the privatized (or partially privatized) state corporation offers the advantages of corporate or balance sheet finance (para. 26) which provides the possibility of raising capital from wider and cheaper sources than normally available for nonrecourse project financing. Another attractive feature of balance sheet finance is that it provides strong external incentives for efficient management through the discipline imposed by equity and debt markets, which demand information on performance and which, through pricing of equity and debt, evaluate management performance. Finally, a positive point is also that partial privatization of the state toll road corporation would, in theory, be relatively easy to accomplish, since GOI is already familiar with most of the key steps involved from its privatization of other state corporations.

Issues for investors. Given that potential investors in a toll road corporation seek a stable long-term investment and an attractive risk/return profile, privatization of Jasa Marga in the present environment would be difficult, even if the terms offered to investors were very generous. Investors will be concerned with five main issues, all of which, given sufficient time, can be resolved through appropriate policies or actions. The first issue is GOI's toll rate policy, which is also the main concern for promoters and lenders in BOT concessions (para. 70). There will be uncertainty with regard to future returns of the corporation as long as the current policy remains in effect. If GOI does not resolve this before privatization, the prospects for and the yield of a public offering will be adversely affected.

A second issue concerns the terms of past and future BOT concession agreements. Given that past and, possibly, future, concessions are not awarded on the basis of publicly available concession agreements, lack of information on the terms, in particular as to Jasa Marga's obligations in case of an unprofitable investment, creates uncertainty and will also hurt the prospects and yield of a public offering. Clarifying the terms of past BOT concessions may be difficult, but for future concessions clarification is the responsibility of Jasa Marga/GOI.

A third issue is the transparency of Jasa Marga's annual accounts. In the past these have been published after long delays and have not been readily available in English. This makes it difficult for investment analysts and investors to assess the financial situation and the track record of the company. This difficulty can be corrected easily by timely reporting.

The fourth is that the financial relationship with government is not regularized. As long as the status of past loans and other aspects of the financial relationship between Jasa Marga and the GOI are not settled, the capital structure of the company will not be clear and analysts and investors will have difficulty assessing the
return the company can earn. Again, the prospects and yield of a public offering will be adversely affected. This issue can also be corrected relatively easily.

104. A last issue concerns government control and regulation of toll roads in general. Because of the monopoly position that the company has in toll road provision there is a perceived risk of government intervention or regulation. As long as government's policies have not been clarified and codified and a consistent track record established, there will be uncertainty for investors, which will also negatively affect the prospects and yields of a public offering.

105. **Issues from the perspective of government and the public interest.** There are also some important public interest issues that need to be addressed. The first is related to the monopoly in the provision of toll roads. While Jasa Marga is also a monopoly at present under public ownership, this is not perceived as a serious issue by the public since government is able to exercise control directly. A common approach for dealing with the monopoly problem is to unbundle the enterprise into separate entities. Given the potential size of the Indonesian toll road system, the division of Jasa Marga into, say, three companies for ultimate privatization is one option. The companies could have a strong regional focus but could compete with each other for new concessions put up for bid by the government. The scope and desirability of privatizing Jasa Marga would, therefore, hinge on the question of whether or when there would be enough well-performing toll roads to form three or more toll road corporations. The other avenue for dealing with the potential abuse of monopoly power is regulation, through either a regulatory body within the ministry or an independent regulatory agency. Either of these approaches aimed at reconciling the interests of private investors, on the one hand, and government and road users, on the other, will take considerable time to implement. But while the issue of monopoly power needs to be addressed whether the toll road corporation remains public or is privatized, the urgency is much greater in the case of privatization. The policy should be in place before privatization if a poor outcome for a public offering is to be avoided.

106. A second issue for the government is the need for a coordinated approach to road sector investment and management. As discussed in para. 78, toll roads should be developed as part of a strategic arterial roads masterplan. This is of critical importance in a developing country in which the strategic network is not yet established. Absence of clear and feasible masterplan will create uncertainty for the investor and negatively affect prospects for privatization.

107. **Conclusion.** The above points underline that before Indonesia proceeds with the privatization of Jasa Marga, the main areas of uncertainty for investors need to be reduced significantly. In the absence of a clear policy and regulatory framework relating to toll rates, terms of concessions, and relationship with government, the yield from a public offering of Jasa Marga will fall far short of its potential. Furthermore, while the BOT concession approach and privatization of Jasa Marga are not strictly mutually exclusive, pursuing the implementation of BOT toll road concessions in parallel with a public offering will certainly increase investors' uncertainties. Indeed, the privatization of a company which has a straightforward balance sheet comprising a network of well-performing toll roads is likely to be much easier than privatizing a company which has a number of BOT concessions in joint venture with private parties and is in the process of negotiating another set of concessions, particularly if these concessions are not based on a transparent and standard concession agreement. Finally, it should be noted that in a financially healthy and well-performing industry of privatized toll road companies, the BOT concession is unlikely to be a permanent or logical feature of private/public partnership, which also calls into question the appropriateness of pursuing the two options in parallel.
108. Given the many issues that arise under the BOT concession approach and the privatization of Jasa Marga and the time needed to address them satisfactorily, it is worth considering the other main option of private participation: the operating concession or the concessioning of already existing roads. This approach could cover roads yet to be built which could be concessioned as soon as an initial traffic volume has been confirmed. As indicated above (para. 23), if the concession payment is made up front rather than in annual installments, this method permits the mobilization of funds to finance the development of new toll roads in a relatively short time. It would also be attractive if Jasa Marga were facing a cash flow problem that would prevent it from proceeding with the well-justified and profitable investments in its pipeline.

109. With the operating concession, Jasa Marga would play an important role as GOI’s agent in the implementation of toll road policies. With funds obtained from the concessioning of existing roads, it would develop new—economically and financially viable—toll roads and concession them off again as soon as an initial traffic volume had been clearly established. Privatization would still remain an option for the future.

110. While the requirements for effective private participation under BOT toll road concessions outlined above (para. 77) remain applicable for the operating concession approach, implementation would be much easier because the risks for the private sector are substantially reduced while the objective of resource mobilization can be achieved equally well. It also has several other advantages. First, the full benefits of private sector efficiency can still be secured in the construction phase through the traditional competitive contracting formula. Second, some of the key risks for private parties which arise under the BOT concession approach are avoided or reduced, allowing easier implementation of a competitive selection procedure. Project development and construction cost risks would be borne by Jasa Marga, not the private sector, and traffic risk is substantially reduced, since the road would be put up for concession only when a clear sense of traffic volume has been obtained. Third, the operating concession provides greater flexibility for dealing with the toll rate issue. The road can be concessioned at a given toll rate in line with rates on similar roads. However, a satisfactory solution will still need to be found for the issue of toll rate adjustments.

111. A possible drawback of the operating concession is that private sector efficiencies are limited to operations while the project development and construction phases would continue to be managed by the GOI and Jasa Marga. However, in the case of a fast-growing strategic network to serve a rapidly developing economy, the role of government in the development phase is by necessity more important than where a mature network is already in place (para. 39).
F. CONCLUSION AND RECOMMENDATIONS

PRIORITIES

112. **Arterial road masterplanning.** While GOI has an outline plan for a network of tolled motorways, its implementation schedule has not been appropriately prioritized. It is currently implementing this plan through an investment program based on the BOT concession approach. Because the program appears to include a significant number of premature investments, it is unlikely that actual implementation will proceed on schedule. Moreover, the outline toll road plan has been developed without benefit of an arterial network masterplan. Such a masterplan, needed for guiding capacity expansion in general, is also essential for firming up the toll road masterplan. Thus, from the point of view of implementation of the toll road program, the priorities are: (a) formulating/updating the arterial road masterplan; (b) firming up alignments of the key links in the masterplan which would be tolled so that individual links or sections can be filled in as and when justified; and (c) firming up the timetable for construction of individual high-priority links in light of experience with toll road traffic growth and traffic diversion over the past five years.

113. **Private Participation.** The above review shows that: (a) private provision of roads through the BOT concession or the privatization of the toll road company also holds considerable risks for the government itself in its role as custodian of the public interest; and (b) going public with Jasa Marga while BOT concessions are still being implemented will seriously weaken the chances of obtaining an adequate yield for the public offering. The review concludes that the operating concession option is the most appropriate for both the short and long term. Experience has shown that it is not necessary to have a comprehensive legal and regulatory framework in place to undertake an isolated toll road investment with private sector participation. However, experience also indicates that the resources consumed in the preparation and negotiation of individual schemes on a deal-by-deal basis are prohibitively high. If a large toll road investment program is to be implemented with effective private participation, it will be necessary to formulate clear policies with respect to the key issues arising under private toll road provision; in other words, to establish a solid procedural and regulatory framework.

THE LONG-TERM MODEL FOR PUBLIC/PRIVATE PARTNERSHIP IN ROAD PROVISION

114. GOI's current mix of sometimes inconsistent approaches to a toll road sector which is expected to grow rapidly in the coming years is weakening the chances of achieving the objective of increased private participation. Given the stakes, three fundamental questions cannot be avoided: (a) Is private provision only a temporary expedient to overcome the government's current financing constraints (implying that the assets of the BOT companies should, therefore, revert back to the government at the end of the concession), or is private provision to be a permanent feature? (b) If significant private involvement is to remain, what will be GOI's preferred form of private participation? And (c), in light of the answer to the first two questions, what should be the institutional model for the public/private partnership in road financing?

115. Several of the requirements identified are equally important for each of the three main alternative approaches that have been discussed. These requirements are to: (a) establish the road masterplanning framework; (b) develop a project generation and evaluation procedure to establish viability and prioritize investments; and (c) develop the policies to satisfactorily address the key issues and codify these policies in model agreements. Clearly, the development of a model concession agreement and a competitive selection procedure will be significantly less complicated for the operating concession than for the BOT concession approach. This is the main reason for recommending that GOI pursue the operating concession option.
116. If GOI nevertheless opts for the BOT concession as the preferred approach, it should establish—in addition to the planning framework and a project generation procedure which brings project preparation to a much more advanced stage than is currently the practice—the missing elements of an appropriate regulatory framework. These elements include: (a) a model concession agreement; (b) a selection procedure based on a single parameter; and (c) resolution of the issue of toll rate adjustments. Furthermore, taking into account the institutional setup of the toll road sector and its current limited capabilities for dealing with complex regulatory issues, the institutional capacity for managing these processes and for exercising the regulatory function must be strengthened.

117. If GOI would opt to privatize Jasa Marga, steps should be undertaken to meet the general corporate and financial requirements for privatization of a state enterprise. In addition, a satisfactory solution to the issues of monopoly power and toll rate adjustments will need to be developed. Given the time that would be needed to address the various issues related to the privatization of Jasa Marga, these issues should be tackled forthwith, since they will eventually need to be resolved even if Jasa Marga remains a public corporation.

118. **Safeguarding essential policy options.** From the above it is clear that the establishment of an appropriate long-term institutional model for private participation in toll roads requires several key actions: (a) deciding on the preferred form of private participation for the long term; (b) establishing clear responsibilities for key road sector planning and management functions; and (c) dealing with regulatory issues related to either BOT concessions or the monopoly power of private toll road companies. However, the government may wish to complete ongoing private participation initiatives while it is reassessing the merits of these fundamental choices. In the interim, it will be important to ensure that no decisions are taken which would preclude vital options regarding private participation and road pricing in the future. One way to achieve this would be to include appropriate buy-back clauses in future concession agreements. This would give government the opportunity at some future time either to put the asset out for bids under a different set of rules or to place it under a different institutional arrangement altogether. The operating concession approach, under which concessions could be given out for shorter periods than required to fully pay back the investment, provides a convenient way for the government to keep key options open. If resource mobilization is the primary short to medium-term objective, the concessioning of existing and newly built roads is the best way to achieve that objective while safeguarding vital policy options.

**OUTLOOK FOR PRIVATE PARTICIPATION**

119. Provided that Indonesia continues on a relatively prudent pace in implementing its toll road program and does not undertake premature investments, it is expected that the share of private funding in the overall road program will not increase substantially for the near term and will fall short of the funding expected for Repelita VI. It is also expected that during the current Five Year Plan period total private sector funding for toll roads will not exceed US$2 billion. This funding would comprise: (a) urban toll road projects already committed or well justified, such as the Jakarta outer ring road, and totalling not more than some 75 km at a cost of some US$1 billion; and (b) a program of economically and financially viable interurban toll road projects on the order of some 150 km, involving funding of another US$1 billion. Over the five-year period, private funding would, therefore, amount to about two thirds of the US$3.1 billion projected under Repelita VI. However, for interurban roads the total would be less than half of that implied in the Repelita VI projection.
While it is possible to implement a massive program of toll roads with private participation (as Mexico did starting in 1989, involving several billion US dollars), this is very bad policy when the economic and financial viability of most of the investments is not clearly established. Experience shows that when viability is not demonstrated, the government or state enterprise must give guarantees of some kind and will be called to the rescue when the projects end up in financial trouble. The government can actually find itself incurring higher financial outlays than it would have had without private participation. This underlines the main point made here that it is crucial to conduct sound economic and financial viability studies before going ahead with private sector participation in a particular toll road scheme.
ENDNOTES

1 USAID, ADB, IBRD, KFW, Saudi DF, KFAED, and OECF.

2 Toll roads also affect the communities through which they are built, but in this they are no different from non-tolled high-capacity roads.

3 With the advent of electronic toll collection, the privatization of this function is likely to become an important growth business. A recent example from the United States is the contract awarded for toll collection by the Orlando-Orange County Expressway Authority, an agency of the Florida State Government.

4 This will determine the scope for designing different financing formulas for the different stages of the life of the project.


6 Government investments in low standard rural roads, which are not economically justified using traditional economic criteria, but are aimed at providing access and are part of a regional development plan, are a different matter.

7 In terms of an annual capital recovery factor over 20 years, i.e., annual payment that will repay a US$100 million loan over 20 years with compound interest on the unpaid balance.

8 The level of risk is also affected by the country business environment and it is the government’s responsibility to reduce the country risk as much as possible (paras. 27-29).

9 Balance sheet risk analysis, in contrast, is based on the assets and revenue stream of the company as a whole. For example, balance sheet risk analysis would apply to an established toll road corporation such as Jasa Marga which has existing revenue-producing assets, a financial and credit history, and a steady revenue stream. A project company whose business is a single toll road section has only the prospect of that single earnings stream to support its borrowing.


11 Risks and concerns on the part of government, the public, and the road users are discussed in the next section.

12 Government should not assume any responsibility for the analyses and estimates but should ensure that they are conducted according to high professional standards and that all data, methods, and approaches are provided to all bidders.

13 Chile is testing an interesting formula for financing a large part of the development cost for complex projects. It consists of pooling contributions from interested sponsors and having the winning bidder refund these contributions.

14 Assumptions for this typical toll road investment are as follows: construction cost of Rp. 10 billion/km (US$4.5 million); concession period of 30 years including 3 years for construction; toll rates of Rp. 100 for light vehicles, 200 for heavy vehicles, and 120 for buses; toll rates adjusted by 20 percent every 3 years; cost of loan funds 16 percent; grace period of 7 years.

15 The privately financed SR 91 Express Lanes Highway in Orange County, California, was the first toll road to be operated with variable congestion-based all-electronic tolling. Many similar schemes are under development.

16 The World Bank, World Development Report 1994 discusses the different arrangements for competition and market-based provision of infrastructure services.

17 Subject to a maximum set by the government and established on the basis of the financial feasibility study.

18 A main characteristic of the bidding procedure proposed above is that the concession period is fixed. However, the fact remains that it is not possible to predict traffic accurately over a long period of time. An interesting approach put forward recently for dealing with the inherent traffic risk while providing for a fully competitive procedure would consist of the following: (a) the toll rate is determined by the government/regulator; (b) the concession is awarded to the bidder asking for the lowest present value of income generated by the tolls; (c) the concession ends when the present value of income generated by the tolls reaches the amount asked by the winning bidder; and (d) the discount rate or its formula is
set by the government/regulator in the request for proposals. The advantages of this approach are that the length of the concession automatically adjusts to the traffic flow and that bidders will seek a lower risk premium than would otherwise be the case.

19 The objectives are understood to include a combination of raising funds, improving subsector efficiency, and supporting the development of the domestic capital market.

20 Because the risks are diversified over a greater number of activities, transaction costs are lower, and liquidity of the financial instruments is greater.

21 This assumes that Jasa Marga remains a financially sound entity given its assets and liabilities.

22 Development of the initial segment of Toronto’s Route 407 all-electronic tollway, which will open to traffic in early 1997, uses this approach. Funding and construction have been arranged by a public sector corporation and the intention is to privatize the facility in a few years through a long-term lease with third party investors who would replace the public debt with capital market financing.

23 Preserving options, however, does not come without some cost, which needs to be weighed against its benefits. The uncertainty regarding future policy direction for the sector could impact on the terms of the concession agreement and inhibit the participation of long-term capital providers.

24 An example is the 262 km Cuernavaca-Acapulco toll road in Mexico, which is generating only 13 percent of the revenues needed to service its US$1 billion debt. The (then) state bank that financed more than half the project has been forced to capitalize the interest payments it is not receiving.
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