



Rating Methodology for Toll Road Companies*

Background

It is well known that the extent and the quality of road network is an important index of infrastructure development in a country and is a key factor in driving long-term economic growth. Indonesia's road network that handles 82% of people and 70% of goods out of the total transportation within the country (World Bank brief on Transport in Indonesia), clearly is an important contributor to the socio-economic progress.

The government too has been focusing on expanding roadways within the country. During 2005 to 2013, the length of domestic road network has grown to 508,000 km from 390,978 km (Badan Pusat Statistik/www.bps.go.id). However, these growing roadways have failed to keep up with the pace of growth in the number of vehicles on road. Traffic jams in various urban and commercial centers including Jakarta are legendary. The sharply rising number of vehicles on road has contributed to this issue. For example, during the period 2008-2013, following was the growth in kilometers of road constructed by various government agencies and the growth in various types of vehicles on road.

Table 1 – Growth of domestic roadways and number of vehicles

Year	2008	2009	2010	2011	2012	2013
% increase in roads constructed	3.8	8.8	2.3	1.0	1.9	1.2
% increase in the vehicles on the road	12.6	9.2	14.2	11.3	10.3	10.3

(Source: BPS, www.censere.com. Vehicles include passenger cars, buses, trucks and motorcycles)

This statistic only serves to stress that increasing spending on not only new roads but also the upkeep of existing roads is vital to ease the bottlenecks that may hamper further economic growth. Budget constraints in particular have made funding inadequate to achieve both maintenance and expansion therefore increasing the need to push forward with privately funded toll roads and alternative transport methods.

Indonesia's first toll road, Jagorawi, commenced its operations in 1978 from Jakarta to Bogor. Currently the country has more than 820.2 km of toll roads in operation, while another 274.4 km of projects are under various stages of tendering and development (Indonesia Toll Road Authority/Ministry of Public Works - *Badan Pengatur Jalan Tol/Kementerian Pekerjaan Umum* - www.bpjt.pu.go.id). Toll roads became open to competition from the private sector in 2004 under Law No. 38/2004 when state-owned PT Jasa Marga shifted from regulator to operator and subsequently went public in 2007. The development of toll roads is expected to continue given the significant disparity in the same, of various state funded roads. Thus the private participation in road construction and toll roads in particular continues to be an attractive investment opportunity, despite the lengthy process in terms of land acquisition, construction and payback.

Going forward, ICRA Indonesia expects private sector participation in the financing, operations and maintenance of road sector projects to increase significantly. A substantial part of these investments would be in projects where the private sector concessionaire would be expected to take on the market risks along with the construction and the operations and maintenance (O&M) risks. The considerable investments proposed by the private sector over the next few years, would to a considerable extent, be funded by debt either as term loans or from the capital market.

This ensuing paper attempts to highlight the key elements of risk in toll based road projects, and ICRA Indonesia’s approach to evaluating such risks.

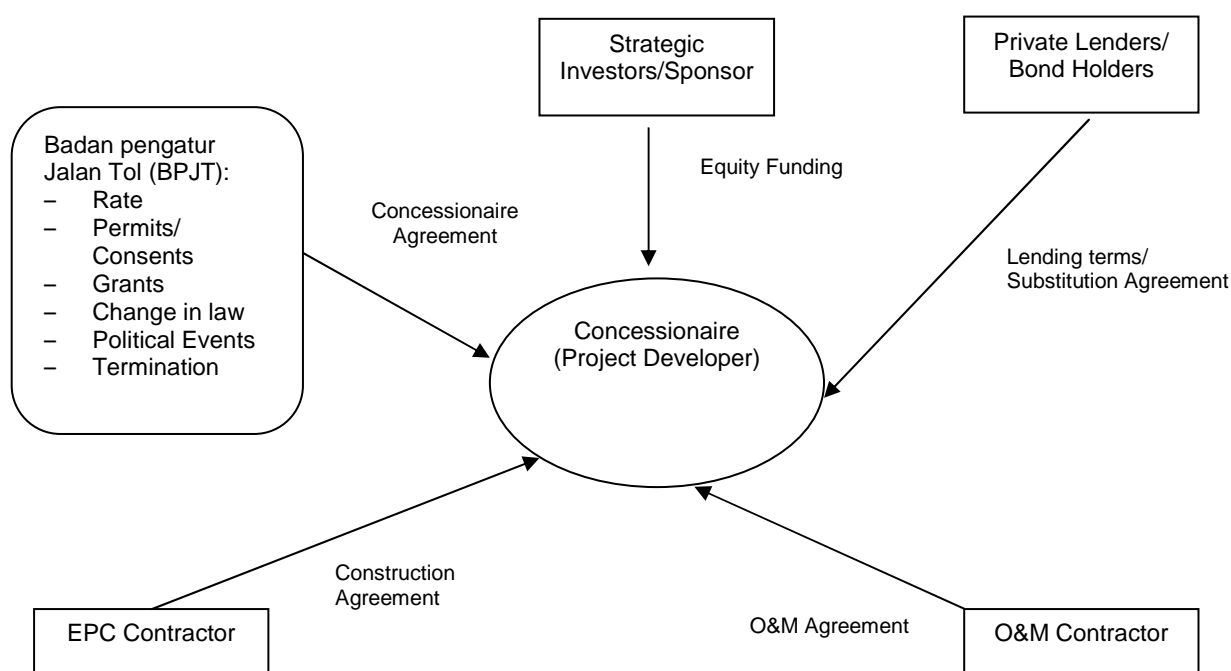
Risk Analysis Framework for Tolled Road Projects

From a credit perspective, many of the challenges involved in developing and financing road projects are similar to those faced by other infrastructure projects (please refer to ICRA Indonesia’s project finance rating methodology on www.icraindonesia.com). The issues, which assume special importance in the case of toll road projects, however include risks associated with acquisition of long segments of the right-of-way, cost and time overruns in project implementation due to, among others, unforeseen weather conditions and more importantly, the market risks arising out of difficulties in forecasting traffic volumes and their sensitivity to toll rates. ICRA Indonesia however recognises that such projects undergo significant change in their risk profile as they move from the pre-completion to the post-completion stage. While permitting risks and risks associated with timely completion of the project dominate the pre-completion period, the primary risk in the post completion period pertains to the ability of the stretch to attract necessary amount of traffic, and also for commuters to pay the requisite amount of tolls.

Currently, every project that is feasible on economic as well as financial grounds is offered to private entity while other projects where financial feasibility may not be fully achieved would be executed by the government and may be operated by private entities.

The typical contractual structure for a toll road project can be diagrammatically represented by the following figure:

Figure 1 – Contractual Structure of a toll road project (adapted from ICRA India)



As can be seen from the figure given above, the concession agreement (perjanjian pengusahaan jalan tol) between Indonesia Toll Road Authority (Badan Pengatur Jalan Tol/BPJT) and the concessionaire defines the framework within which such projects operate.

Such projects are usually implemented within special purpose companies. The concession period for such projects is of medium to long term (even up to 40-45 years), and is usually a function of the expected toll collections along the stretch; as the toll collections impact the time required to service debt and also provide the sponsors with a reasonable return on their investment. The contractual structure broadly defines the allocation of risks. Thus, while construction, operation and market risks are absorbed by the concessionaire, the political and permitting risks are generally assumed by the project owner.

Some of the salient features of a typical concession agreement (CA) are:

- The CA entitles the concessionaire to design, engineer, finance, construct, operate and maintain the project facility during the concession period as well as to levy and collect toll fees from vehicles for using the project highway or any part thereof
- A CA includes at least:
 - a. Scope of the concession
 - b. Concession period
 - c. Tariff & adjustment mechanism
 - d. Rights & obligation including risk allocation
 - e. Force majeure
- The CA is executed between the concessionaire and the government as represented by the minister.
- As mentioned above, the CA usually stipulates that the tolls would be levied at rates notified by a government agency and also defines the escalation in toll rates. The traffic risks are to be largely borne by the concessionaire and the toll road shall be subject to regular supervision during the concession period. The concession agreement usually allocates the risks associated with securing various regulatory approvals, and acquisition of land to the project owner.
- Force majeure clauses are an integral part of any concession agreement with the types of such force majeure and the consequent sharing of such risks among the government and the concessionaire being clearly defined.

Moreover, ICRA Indonesia also examines the scenarios under which suspension of the rights of the concessionaire or termination of the agreement can take place (events of default). Besides the adequacy of the termination benefits receivable by the concessionaire in relation to its debt servicing obligations in the event of a termination, the ability and track record of the concerned government agencies to meet their obligations is also assessed. The contractual structure usually provides for a substitution agreement, which entitles the lenders to replace the concessionaire in the event of a default and also use the termination proceeds for repaying the outstanding project debt.

Apart from a detailed study of the contractual structure, ICRA Indonesia also assesses these projects on the following parameters:

- Sponsor Risks
- Completion Risks
- Market Risks
- Operating Risk
- Funding and Financial Risks
- Structure Risks

Sponsor Risks

The financial strength of the sponsor is an important key credit determinant, given that apart from contributing equity capital and subordinated debt, the sponsor is also directly or indirectly responsible for ensuring financial closure of these projects. Further, during the completion stage, most of these projects generally involve recourse to the sponsor for debt servicing.

Completion Risks

A key component of the completion risk is the permitting risk which refers to a project's ability to attain all statutory clearances prior to the commencement of construction activity. Typically, for a road project, this would include right-of-way/land acquisition, rehabilitation and resettlement of the displaced communities, clearances from the Ministry of Environment (Kementerian Lingkungan Hidup), Environment Impact Management Agency (Badan Pengendalian Dampak Lingkungan) and other possible clearances such as for shifting all utilities that lie on the way. As has been discussed earlier, the project owner usually assumes the permitting risk and also undertakes to indemnify the project company against losses arising out of any disputes with respect to delays in the acquisition of land. The permitting risks are usually low where the project involves an upgrade of an existing operating stretch; however such risks usually manifest themselves where projects involve bypasses or construction of entirely new stretches, where considerable amount of land needs to be acquired.

Apart from the permitting risks, ICRA Indonesia also evaluates the vulnerability of the project to cost and time overruns, and the arrangements made for funding these over-runs. This assumes significance given that in such build-operate-transfer (BOT), design-build-operate-maintenance (DBOM), build-own-operate-transfer (BOOT), rehabilitate-operate-transfer (ROT) or build-own-operate (BOO) projects, cost escalations need to be funded by the project company, which could affect the project's leverage and also the returns to the investors. Road construction projects are often confronted with challenges related to the mobilisation of labour and the required construction equipment. Further, factors such as difficult terrain, use of inappropriate technology, inadequacy of construction equipment, weather and labour problems also contribute to construction delays and cost escalations. These risks are partially mitigated through strong fixed price, date certain of EPC contracts with strong counterparties and with adequate liquidated damage provisions for non-performance. In such cases, however, ICRA Indonesia also attempts to assess the financial and operational capabilities of the EPC contractor and its ability to meet its contractual commitments.

Another issue, which is evaluated, is the quality of the construction and the robustness of the design. Project owners usually lay down the design and quality parameters in the concession agreement. These parameters would need to be adhered to by the concessionaire, and certified by the designated authority/independent engineer before the stretch can be opened to traffic. ICRA Indonesia believes that the adequacy of design to withstand growing traffic volumes and the quality of the drainage system vis-à-vis the road's susceptibility to flooding would determine the future O&M requirements and also the frequency at which periodic maintenance would need to be carried out. To assess the vulnerability of the project to this risk, ICRA Indonesia may consult independent experts in this field.

Commercial and Traffic Risks

Post completion of construction activity, the debt investors in toll road projects are primarily exposed to the risks associated with the ability of the road-stretch to attract the necessary amount of traffic, and to collect tolls as per the prescribed rates. ICRA Indonesia believes that the traffic risks associated with such facilities are primarily dependent on the following factors:

- The economic utility of the stretch. In this context ICRA Indonesia believes that projects which serve a captive demand, for instance stretches connected to ports or city bypasses which relieve congestion levels carry relatively lower levels of traffic risks.
- The availability of alternate freeways and other competing modes of transport, to which traffic diversion could take place.

- The economic and demographic conditions within the catchment area of the road.
- The composition of traffic along the stretch and the sensitivity of various user segments towards payment of tolls.
- The economic value provided by the road in relation to the tolls levied.

Measuring the market risks associated with such projects can be quite challenging, given the absence of reliable and sufficiently long historical traffic data in many parts of the country, which can be used for forecasting future traffic levels. ICRA Indonesia therefore relies on independently conducted traffic studies to assess the future revenue potential of the stretch. The results of such traffic studies are however suitably sensitised to assess the cash flow protection available to debt investors in case of a shortfall in traffic levels. Worldwide instances of toll roads facing considerable shortfall in toll collections vis-à-vis expectations necessitates such an approach.

Another issue which complicates the analysis is estimating the sensitivity of future traffic flows to the toll rates, given that commuters have thus far had free access to the specific road/area before the toll road got constructed. To assess these risks, ICRA Indonesia attempts to assess the vulnerability of the traffic estimates by evaluating the economic value provided by the road vis-à-vis the toll rates and the sustainability of the time/value savings over a period of time under different assumptions of freight rates and fuel prices. On an overall basis, ICRA Indonesia believes that traffic projections for improvements to existing roads have moderate predictability, while for new roads predicting traffic levels can be quite difficult, since subjective judgements need to be made about the ability of the stretch to generate new traffic by drawing away traffic from existing alternatives.

Further, another issue which is evaluated while assessing the project's vulnerability to market risks, is the project's access to alternate sources of revenue -- primarily in the form of land development rights along the corridor under management.

Operating Risks

Operating risk is the risk that the project will not conform to the required performance parameters over the period of the concession agreement. Typically, the performance parameters specified in the concession agreement are driving quality of the carriageway, safety standards, adherence to maintenance schedule, and "availability" standards as mentioned in the concession agreement. Non-compliance with the performance parameters can be an 'event of default' and may impinge on the developer's ability to collect tolls. Furthermore, in the event of poor maintenance, attractiveness of the road may diminish making commuters shift to the alternate freeway (if any). Thus the concessionaire's ability to fairly assess operating expenses and lay down proper schedule for maintenance programme is important to protect future revenue streams for debt servicing.

Operations and maintenance expenses for road projects are primarily of two types:

- Periodic maintenance, which involves the relaying of the asphalt-concrete (top layer) – is defined in the contract, starting from once every 3 years.
- Routine maintenance, which involves repairing of cracks, replacement of safety girders along the highway, clearance of debris following accidents, ensuring of functionality of sign posts, maintenance of a security set-up, and such other activities.

Given that the complexity of the O&M work is also quite low, ICRA Indonesia does not envisage the O&M contractors, who in most cases have requisite experience in the road construction and maintenance business, to have much difficulty in maintaining these stretches.

Thus, apart from the operating capabilities and the financial strength of the O&M contractor, the other issues which ICRA Indonesia looks at while evaluating O&M risks in such road projects are:

- The mechanism by which the scheduled O&M expenses would be funded: O&M outflows are likely to peak every 3 years, when the periodic maintenance involving the relaying of the top surface would need to be carried out. ICRA Indonesia therefore believes that the project structure should provide for an O&M reserve that would get built up gradually, either from the toll revenues themselves or through an external liquidity support mechanism (a letter of credit/guarantee structure, etc) so that adequate funds are available for these peak outflows.
- Inflation sensitivity of the O&M estimates: The O&M estimates would be highly sensitive to inflation, and would therefore be difficult to budget over the entire life of the period. ICRA Indonesia believes that in the event that actual estimates exceed the budgeted costs, the incentive for the O&M contractor to maintain the road in accordance with the terms could diminish, thereby impacting the ride quality and hence the toll collections.

Funding and Financial Risks

As with most other infrastructure projects, road sector projects are also characterised by fairly high levels of capital intensity. The capital intensity of such projects is however dependent on a number of variables, which include the nature of the surface (asphalted/non-asphalted for example), the terrain over which the road traverses, and the number of structures (bridges, culverts, rail over bridges), which need to be constructed.

These projects are usually funded with a considerable reliance on external debt, although in some cases concessions/grants from the project owners may be provided. The financing structure is also reviewed for the exposure to interest rate and refinancing risks. A floating interest rate structure could potentially affect debt servicing, particularly during periods of rising interest rates. The capital structure is also reviewed for the repayment structure of the debt -- a rear ended maturity profile usually being considered preferable for such projects given that toll revenues usually increase over the first 8-10 years of the concession period. As discussed earlier, the concession agreements for most of these road projects usually provide debt investors with access to a termination payment from the project owner, in the event of default by the project company on its contractual commitments. While evaluating the credit risk profile of these projects, ICRA Indonesia takes a view on the ability of the project owner to make such payments and also the sufficiency of these inflows for meeting the debt service commitments of the project.

A key element of the analysis is an assessment of the sufficiency of the revenue stream for meeting operating expenses and debt service obligations. The key sensitivity scenarios that are drawn up include variability in traffic volumes and toll rates, time and cost overruns during the construction phase and variability in operations and maintenance expenses post completion. Stress or sensitivity tests are all of more important if it emerges that significant traffic and revenue growth is necessary to support the project.

Structure Risk

In many cases, toll revenues and in some cases income from development rights on land along the corridor, comprise the only sources of revenue available to the project company for servicing debt. Thus, apart from looking at the economic viability of the project, ICRA Indonesia also reviews certain structural aspects of these projects, which include the process by which these revenue streams are aggregated in collection accounts and subsequently transferred to the debt service reserve accounts after funding the O&M reserves. ICRA Indonesia also reviews the minimum coverage ratio requirements that must be met prior to payment of dividends, and creation of minimum liquidity buffers either through over collateralisation or through instruments such as letters of credit/bank guarantee, for meeting revenue shortfalls due to operating disruptions.

Conclusion

With considerable activity expected in the implementation of road projects on a public-private partnership basis, the debt issuances by such project companies are likely to increase significantly in the coming years. In ICRA Indonesia's opinion, the credit risks associated with toll road projects, with their characteristic high leveraging on the one hand and absence of contractual revenue inflows on the other are relatively high. The risks are further compounded by the limited availability of historical traffic data for several highway stretches in the country, which makes projecting traffic levels over long term periods of time extremely difficult. However, ICRA Indonesia would have a relatively more favourable opinion on projects which have been conservatively funded, have been promoted by strong sponsors, and which have access to favourable existing traffic flow characteristics. For such projects, ICRA Indonesia would also draw comfort the presence of a strong collection agent and allocation of O&M related risks to a strong O&M contractor, with requisite experience in operations and maintenance of such stretches. Further, ICRA Indonesia would also draw additional comfort from the availability of adequately over collateralised O&M and debt service reserve accounts for meeting temporary revenue shortfalls.

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*Adopted and modified from ICRA's Approach to Rating Toll Road Projects