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It is well established that the presence of high-quality infrastructure is a key to economic growth for a nation. The road system in India has historically been overshadowed by its railway system, for movement of both people and goods.

However, over the years, rising railway costs and the opening up of the Indian economy has led to road transport becoming the primary transport system. While India has one of the largest roadway networks in the world (second only to the U.S. in terms of length), the system is severely lacking and is unable to meet traffic demands. The Indian government has taken the initiative to remedy the situation through policy changes that could enable better mobilization of funds and allow private-sector participation in the development of roads. This article summarizes the current state of the practice relating to private-sector participation in major highway projects in India.

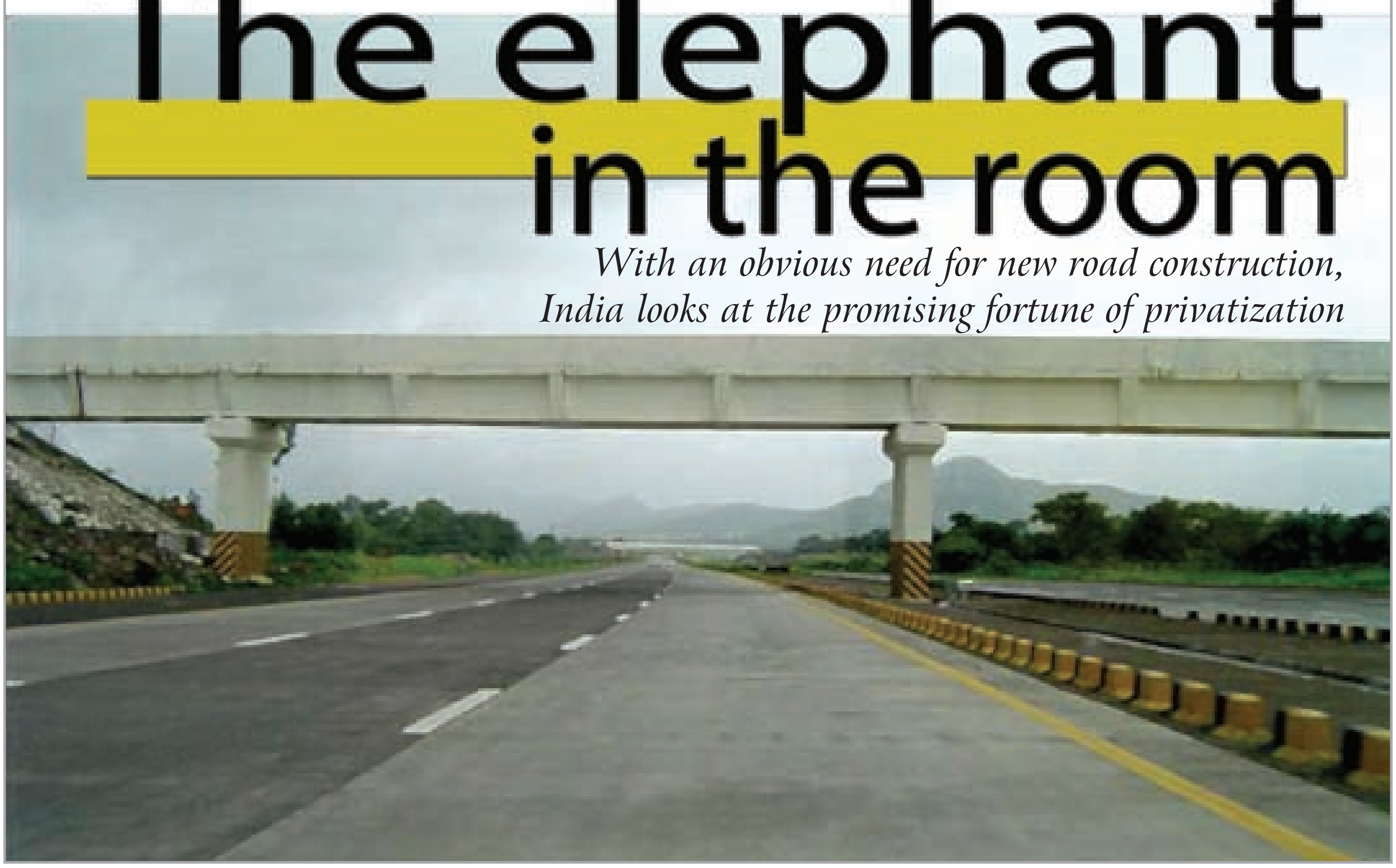
National importance

The Indian road network consists of different classes of roads: national highways, state highways, major district roads and other minor roads. The National Highway System, which is analogous to the interstate system in the U.S., is the focus here. It is the most significant network in terms of traffic volumes and totals about 66,000 km in length, but only about 8,000 km has four lanes or more. As of the late 1990s, the national highways carried more than 40% of the total traffic on the system and were in need of vast improvements.

In India, national highways are administered by the central government through the National Highways Authority of India (NHAI). The funds for the NHAI are allocated in the Indian government's annual budget from general revenue. Fuel is heavily taxed and provides an important

The elephant in the room

With an obvious need for new road construction, India looks at the promising fortune of privatization



In India, a majority of funds generated by the road transport sector is not reinvested in it.

source of general revenue for state and national governments. So a majority of funds generated by the road transport sector is not reinvested in it. For example, it was estimated that in 2002 road transport accounted for 15.5% of government revenue but only 3% of government expenditure.

Owing to the shortage of funds for road development, as early as 1995 the government of India introduced legislation to allow private-party investment in road development, maintenance and operation. Companies could invest in highway projects at the national and state level and were allowed to regulate traffic and retain user fees. However, there was limited initial interest in this provision, with only a few projects, mostly at the state level, being implemented.

In 1998, the National Highway Development Program (NHDP) was announced. It was an ambitious project to improve all of the National Highway System and generated significant interest in finding new revenue sources for the funding of highways. It was conceived as a seven-phase project (slated to end in 2015) and involves widening 60% of the national highway network to four lanes and improving the quality of the remaining two-lane segments. In order to fund the NHDP, the government of India introduced a set of measures that included an additional charge on fuel that went into a Central Road Fund, issuing tax-exempt bonds, using grants and soft loans from agencies like the World Bank and forming concession agreements with private-sector entities to invest in projects.

For the first two phases of the NHDP, private investment accounted for only 9% of the total, though it was in itself significant, involving over 1,300 km of highways. However, the government of India stated that all further phases of the NHDP (Phases 3-7) would be funded solely through private-sector participation. Action has to be taken to improve the role of the private sector in financing of highways, and public-private partnerships are now more important than ever before.

Going private

Besides bridging the funding gap, private-sector participation in Indian highways could bring about efficiency gains, broaden the revenue base through direct tolling and reallocate project risk to the private sector. However, there are concerns raised by the reputation of the Indian government as an organization plagued by corruption and bureaucratic inefficiency. While the past two decades have seen the government take steps to improve its image and function, doubts still exist as to whether the government can provide an atmosphere of quick and efficient decision making and transparency in the process of awarding contracts. Since a project funded by the private sector is basically a partnership between the company and government, it is felt that the government needs to make an additional effort to show investors that such a partnership can be financially rewarding. Proper revenue projections, risk analyses and a certain level of risk sharing on the part of the NHAI would attract investors to finance these projects.

In order to attract private-sector participation in highway development, the NHAI also announced a set of incentives, or concessions, for private investors, which included the government's taking responsibility for right-of-way acquisition, allowing for foreign direct investment, toll collection for periods of up to 30 years and tax breaks for the private investor.

The two main models for the public-private partnerships were the build, operate, transfer (BOT)-direct tolling, and BOT-annuity models. In the direct tolling option, the private-sector firm constructs the highway using their own funds and recovers those costs through tolls collected during the concession period. In some cases, NHAI may provide a capital grant to offset the risk. In the annuity-based model, the private-sector firm pays the cost of construction as well as the operation and maintenance costs over the concession period. In this case, the toll revenue, if any, belongs to the government. In return, the private firm is paid a predetermined amount (annuity) every year over the concession period.

The BOT-direct tolling model has been the most popular, accounting for close to 80% of all projects awarded so far. In theory, direct tolling can prove to be the most profitable to the private investor, though it is a higher-risk venture than the fixed-return annuity model. In the Indian context, traffic revenue predictions pose the greatest risk. Thus, the annuity-based approach provides a risk-neutral option to the private investor and could be considered more often.

Unwilling to take a charge

Currently, private investment has funded a total of 40 projects (worth over 60 billion Rupees, or $1.4 billion) that are either completed or currently in progress. Many of these involve toll collection either by the private party or the NHAI. However, experts believe that a very small portion of India's highway network is suitable for tolling in terms of generating enough revenue for profitability. However, public funds saved from tolling these profitable facilities could be used to improve less profitable facilities as a form of cross-subsidization.

In India, there is very low ability and willingness to pay tolls, and shadow tolling has been suggested as an alternative to recovering costs directly from users. Though toll rates in India are among the lowest in the world, there have been instances where toll revenue collected is far less than projected. Some projects also faced antitolling protests from local residents and truck drivers. Another concern of special significance is the issue of inequity introduced by tolling what were once free roads. Unlike in other nations, where toll roads are being constructed as faster alternatives to existing free roads, the NHDP allows tolls to be collected on what were once free roadways, leaving the public with no viable alternative route.

Be indirect

Insufficient revenue for maintenance and construction of highway facilities in India combined with rapid traffic growth makes private investment seem a viable option. However, a majority of projects are being financed on a toll basis, which can be a problem due to low incomes, low willingness to pay and a lack of free alternative routes. Another reason for encouraging private-sector involvement in the road sector is to improve the efficiency of the planning and construction operations by transferring work to the private sector.

In the Indian situation, where many roads and highways may not be viable for toll-based financing, the annuity model for private-sector participation or shadow tolling may be more beneficial. This also is a good option since taxes on fuel are very high, and in effect the road users are already paying high prices for their travel. A strong case can be made for phasing out direct tolling schemes and replacing them with annuity-based schemes. However, this would require the government to allocate a lot more funds to highway infrastructure.

It should be recognized that practices implemented in developed nations cannot be blindly emulated and that toll-based systems are not necessarily the most preferable. India is on the right track in terms of reforms that allow more efficient implementation of highway development policy, evidenced by the increasing availability and use of different funding sources. The participation of the private sector has improved the financing capabilities and the efficiency of operation of the highway sector. However, it may be useful to re-think the policy on tolling in the long run and provide a broader set of options for funding of highways.

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