

Chapter VII

Conclusions and Recommendations

Public Private Partnerships in highways sector became very popular in early 1990's in East Asia; Central and Eastern Europe; and Latin America. The governments faced growing fiscal deficits and the public became increasingly disenchanted with services provided by public agencies and their inefficiencies. PPP was seen as a panacea to deliver quality infrastructure most efficiently and effectively in such a situation. A large number of PPP projects were initiated with great fanfare and enthusiasm in several developed and developing countries.

However, by the end of the decade many countries faced serious problems in these projects. There were two main problems with most of these projects; firstly in most cases traffic was over estimated, due to which projects were not found viable, the concessions had to be frequently renegotiated, in some cases the projects were re-nationalised. The second major problem related to unwillingness of road users to payment of toll. As most of these countries had reasonably good alternate roads, people started preferring free roads to toll roads, leading to faster degradation of un-tolled roads. The governments in these countries faced double jeopardy, a brand new facility lying unused, while older existing facilities were being over loaded.

At the same time some of the countries like South Korea, Philippines, UK and Brazil achieved good results with PPP projects particularly BOT (Toll) model. A large number of studies carried out in early part of 21st century identified the key elements for the success of PPP projects in roads sector. These are the political will and commitment; a robust legislative framework enabling PPP contracts; explicit support from the government to bridge the viability gap in projects that are commercially not viable but are considered essential and concession agreements based on a fair allocation of risks and rewards between various stakeholders. Here, it is important to recognize that a well-balanced concession agreement may be necessary, but not sufficient for the success of PPPs and, hence, the need for a robust and credible mechanism for dispute resolution.

National Highway Authority of India (NHAI) was a late starter in introducing PPP in highways; however it benefited from the early experiences of other countries. PPP projects in NHAI had a small beginning, way back in March 1998 with ROB Kishangarh on Delhi Mumbai NH-8. The movement picked up speed from late 2001 when a significant number of projects were awarded. NHAI has completed 2249.22 Km of four/six lane highways and some bridges/ROBs [1611.90 Km under BOT (Toll) and 637.22 Km under BOT (Annuity)] costing more than Rs 16000 cr under NHDP. The achievement of India has also been applauded by multilateral funding agencies like World Bank and Asian Development Bank, which were actively involved in funding NHAI in initial phases.

Like other developing countries, India was also suffering from high fiscal deficit and hard budgetary constraint imposed by Fiscal Responsibility and Budget Management Act in early part of 21st century. Government did not want to cut social sector spending, but additional funding was required to increase the infrastructure stock to meet the requirements of higher economic growth. At the same time growing middle class was getting impatient with poor performance of public utilities and service providers. Government decided to go in for PPP to attract the private investment in infrastructure to meet the public funding deficit and also to increase the operational and managerial efficiency of service providers to meet the growing aspirations of public.

To maximise the leverage of limited resources available at its disposal, BOT mode was chosen as the preferred mode of delivery of projects based on international experience. It was decided in the meeting chaired by Prime minister on 15th march 2005 that all future programmes/projects would be awarded only on BOT basis. The relevant extracts of the decisions of the said meeting are reproduced below:

“As regards the issue of EPC vs. BOT, it was agreed that for ensuring provision of better road services, i.e. higher quality of construction and maintenance of roads and completion of projects without cost and time overrun, contracts based on BOT model are inherently superior to the traditional EPC contracts. Accordingly, it was decided that for NHDP Phase-III and onwards, all contracts for provision of road services would be awarded only on BOT

basis (either based on Toll or Annuity or a suitable Toll/Annuity hybrid), with EPC⁷¹ awards being made in specified exceptional cases only.”

As BOT (Toll) minimises the cash outgo from the government for commercially viable projects, enabling it to undertake more projects simultaneously, the preference was for BOT (Toll) in the first place; only if a project did not find bidders in this mode, it was to be taken up under BOT(Annuity). In BOT (Toll), in some cases Viability Gap Funding (VGF) is required to make the project commercially viable. Over a period of time government has put in place a robust institutional architecture to facilitate PPP projects; these include Public Private Partnership Appraisal Committee (PPPAC); India Infrastructure Finance Company Limited (IIFCL); Viability Gap Funding (VGF) Scheme; Empowered Institution; and Model documents like Model Concession Agreement (MCA), Request For Qualification (RFQ), Request For Proposal (RFP) etc...

The initial response to the new PPP framework was very encouraging with 12 projects being awarded on negative grant and five projects on revenue share basis. However, the programme suffered a serious setback during global financial crisis when NHAI could not attract a single bid for several BOT (Toll) projects. Based on feedback from NHAI and industry, government has taken prompt action on Chaturvedi committee report and things have now started to look up.

This study was carried out to fill up a gap seen in literature about comparison of different modes of delivery of highway projects on the parameters of on time completion; cost effectiveness (Unit Cost); and Contractual Disputes/Renegotiations in NHAI projects. The findings of the study are at variance with global experience particularly with regard to EPC contracts.

It has been observed world-wide that life cycle costs (construction cost plus operations and maintenance cost) of EPC/IRCC⁷² contracts are cheaper by 15 to 20 per cent compared to BOT (Toll) or BOT (Annuity) projects due to lower cost of capital for government agencies. This has been one of the main reasons for most of the rich nations

⁷¹ EPC refers to Engineering Procurement and Construction

⁷² IRCC refers to Item Rate Construction Contract

(except France) opting for public funding of highways rather than private funding. In NHAI projects, poorly drafted contracts and poor contract management ensures that EPC costs are higher than BOT (Toll) or BOT (Annuity). This point is proven by large number of contractual disputes involving more than Rs 8000 cr. Government has correctly stopped IRCC in all future NHDP contracts, EPC has been allowed in a very limited way for low traffic situations.

The analysis reveals that for NHAI projects life cycle cost per km of highway in IRCC/EPC comes to Rs 5.56 cr, higher than PPP modes. The average delay for all completed projects is 14 months, nearly a year more than BOT (Annuity) projects.

An important reason for large number of contractual disputes in IRCC/EPC is that the contractors try to cut corners, as they want to complete the work, while meeting minimum possible standards. The contractor would like to quickly finish the work and move on to next project. The approach of the same agency on PPP projects would be very different as here they would like to use material and equipment for minimising the lifecycle cost and downtime to ensure least possible maintenance over the project life. The government agency on the other hand has to spend higher amount for maintaining highways under IRCC/EPC compared to the concessionaire in PPP mode.

In NHAI's case BOT (Annuity) mode is found out to be the best on the parameters of cost effectiveness and Timely completion of projects. Thirty percent projects were completed on or before time with over all average delay of just 2.7 months. The average cost per Km comes at Rs 5.29 cr is less by 0.16 cr compared to BOT (Toll) and by 0.27 cr compared to IRCC/EPC contracts. There are just four contractual disputes for annuity contracts.

BOT (Toll) mode comes out slightly behind BOT (Annuity) in project completion and cost effectiveness. Here also thirty per cent of the projects were completed on time or before time, but the average delay for all the thirty projects at 4.3 months was slightly higher than BOT (Annuity) but lower than IRCC/EPC. The great advantage of BOT (Toll) projects come from complete absence of contractual disputes, which must be

unique in all countries. The fact that this model enables NHAI to undertake much bigger expansion of highways with same levels of fund availability compared to BOT (Annuity) and EPC, the balance swings in favour of BOT (Toll) model.

The contract sizes for projects have been increasing with every subsequent phase as domestic capacity to undertake large projects grows with time. Nature of contractors has also changed with more and more infrastructure companies who handle all facets of project life cycle coming to fore rather than pure construction companies.

Both NHDP-II and NHDP-III projects under BOT (Toll) mode started at the same time but cost per km for NHDP-II is 20 per cent higher, thereby implying over engineered projects under NHDP-II. In other modes also cost per km under NHDP-II is very much on the higher side, however since no projects have been undertaken in these modes in NHDP-III, direct comparison has not been possible.

Recommendations

1. Planning Commission had done a great job in drafting an excellent MCA for BOT (Toll) which is a very complex document. It expertise is now required to draft a similar standard document for EPC contracts. EPC's are doing quite well in private sector at least on timely completion parameter. The experience of NHAI in this respect is however not so pleasant.
2. To reduce the cost of projects further, cost of capital for concessionaire needs to be reduced. Entry of long term pension and insurance funds is ideal for infrastructure financing, as it would avoid asset liability mismatch for banks. Another problem for small banks is the limits on sectoral lending; as soon as bids for large number of PPP projects are invited, many small banks would hit the sectoral cap and cannot finance more projects even though these projects may be financially viable as per their appraisal. Financial closure would become a major constraint in such a scenario.
3. Large size PPP projects may be awarded through a Special Purpose Vehicle (SPV) route, wherein a project SPV first acquires land, permissions for shifting of utilities and

environmental as well as other statutory clearances and approvals necessary for undertaking the project. The SPV — along with the project — is then bid out through a transparent process. This route is already being adopted for Ultra Mega Power Projects.

4. For speedier dispute resolution the DRB recommendations should be invariably accepted in small (category A) cases, except where the reviewing authority has strong justification to appeal against such recommendations.
5. The time limit for referring the DRB recommendation to Arbitration may be raised from 28 to 60 days, to enable NHAI to take a considered decision.
6. In cases where there is variation of more than 10 per cent in estimation of inputs action should be taken against consultants as per agreement.
7. For Bill of Quantity (BOQ) items, a uniform rate need to be prescribed irrespective of amount of variation to bring a certainty in valuation, presently a ceiling of 25 per cent operates for variations.
8. There is a need to replicate the best practices achieved under the NHDP and successful PPP programs in selected states, this help the states to better manage their own road services, but also play an active role in the implementation of the National Highway PPPs in some of the remaining phases of the NHDP.
9. After the completion of NHDP, India would have the highest ratio of tolled highways to total highway among all the countries in the world. Public needs to be educated about benefits of the highways, otherwise in the long run resistance to tolls may take the shape of political movement also, which may jeopardize long term highway development program.
10. There is a need to study the projected traffic *vis-à-vis* actual traffic for BOT (Toll) roads. It was not possible to undertake the same as some of the data could not be obtained from Project Implementation Units (PIU) of NHAI which are scattered throughout the country.

Award of projects on negative grant and revenue share gives a feeling that unlike west traffic is being under estimated by NHAI.

In the end one can not help but compare our performance with China which completed its 35,000 km National Trunk Highway System 13 years ahead of the original plan. It now plans to build a whopping 85,000 km of expressways over the next three decades. In comparison, our own Phase I and II of the NHDP, with a target of 13,000 km, are well behind their revised completion dates of December 2009. Despite this apparent sluggishness on India's part, the potential in the road Sector remains phenomenal, and within reach. There seems to be increased effort from the Government to eradicate some of the more serious ills plaguing the system.

APPENDICES I-IX