New Model of Indian Road PPP Projects

Asia-Pacific Forum on Public-Private Partnerships for Transport Infrastructure Development

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Agenda

A Glimpse of road network of India

Evolution of PPP model in road/ highway projects in India

Need for new PPP structures

Emerging trends in PPP model for road projects

New PPP models under consideration
A Glimpse of road network of India

- The road network of India consists of National Highways (NH), State Highways (SH), Other Public Works Departments (OPWD) Roads, Rural Roads, Urban Roads and Project Roads.

- Total length of India’s road network - 48,65,394 km.

- National Highways and Expressways carry 40% of the total road traffic but constitutes only 1.9% of total length.

- Together, road sector contribute 4.7% to India’s GDP.

Road density in India is high compared to other countries:

- India: 125
- Brazil: 19
- China: 39
- Germany: 180
- Russia: 5
- US: 66

(km of road per 100 sq. km of land area)
Programs, policy initiatives and funding initiatives development of road sector

NH & SH

Introduction of VGF

New Land Acquisition Law

1) National Highway Rules, 1997 (tolling of National Highways)
2) Amendment to Indian Toll Act
3) Amendment of National Highway Act, 1956

1) Golden Quadrilateral Highway Network
2) TNRDC incorporated

1) 100% FDI approved
2) Income tax benefits on NHAI bonds
3) NHDP Phase-I
4) Creation of Central Road Fund

NHDP: National Highway Development Project; VGF: Viability Gap Funding; MCA: Model Concession Agreement; TNRDC: Tamil Nadu Road Development Corporation

A Glimpse of road network of India
# Key stakeholders of Roads & Highways sector in India

<table>
<thead>
<tr>
<th>Type</th>
<th>Stakeholders</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government (Centre)</td>
<td>➤ Ministry of Roads, Transport &amp; Highways</td>
<td>➤ Overall policy framework, integration and plans approval</td>
</tr>
<tr>
<td></td>
<td>➤ National Highways Authority of India (NHAI)</td>
<td>➤ Development and maintenance of NHs</td>
</tr>
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<td></td>
<td>➤ Planning Commission/ NITI Aayog</td>
<td></td>
</tr>
<tr>
<td>Government (State / ULBs)</td>
<td>➤ State Roads &amp; Buildings Department</td>
<td>➤ Framing state level policies</td>
</tr>
<tr>
<td></td>
<td>➤ State Highways Development Bodies</td>
<td>➤ Developing and executing projects</td>
</tr>
<tr>
<td></td>
<td>➤ Public Works Department (PWD)</td>
<td></td>
</tr>
<tr>
<td>Financial Institutions</td>
<td>➤ Public &amp; Private Sector Banks</td>
<td>➤ Provide financing for roads sector projects</td>
</tr>
<tr>
<td></td>
<td>➤ Private equity</td>
<td></td>
</tr>
<tr>
<td>Developers</td>
<td>➤ Private Developers</td>
<td>➤ Developing and executing projects</td>
</tr>
<tr>
<td></td>
<td>➤ Public Sector Enterprises e.g. NHAI, TNRSP*, APRDC*, KRDCL*, etc.</td>
<td></td>
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</tbody>
</table>

*TNRSP – Tamil Nadu Road Sector Projects; APRDC – Andhra Pradesh Road Development Corporation; KRDCL – Karnataka Road Development Corporation Limited
Introduction and use of PPP model in road/highway projects in India

- PPP model started in mid 1990s. Initial model - BOT (Toll)
  - Rau Pitampura (11.5 km) state highway of Madhya Pradesh - First PPP project in road awarded in 1993

- Next steps: Development of MCA, Standard Toll Policy, framework for SPV formation
  - MCA first used in 2002 (for project cost > INR 100 Cr. (USD 16.67 million))
  - BOT (Annuity) model for NH projects in 2002-03 – NHAI awarded 8 projects
  - BOT mode (Toll and Annuity) is the dominant mode of PPP contracting - Till FY12, more than 20,000 km of NHs have been awarded in BOT (Toll & Annuity)

- As on 31 March 2013, 241 road projects (including national highways) is complete and another 348 is under implementation

- In 2009, NHAI introduced PPP model for maintenance of NHs - OMT (Operate Maintain Transfer) model
### Characteristics of traditional PPP models

<table>
<thead>
<tr>
<th>BOT (Toll) mode of PPP contracting</th>
<th>BOT (Annuity) mode of PPP contracting</th>
<th>OMT mode of PPP contracting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road alignment, location of structures, LA, environment clearance - authority</td>
<td>Road alignment, location of structures, LA, environment clearance - authority</td>
<td>Concessionaire is handed over developed road for O&amp;M</td>
</tr>
<tr>
<td>Structural design, finance, construction, O&amp;M - concessionaire</td>
<td>Structural design, finance, construction, O&amp;M - concessionaire</td>
<td>No capacity augmentation</td>
</tr>
<tr>
<td>Tolling - concessionaire on the basis of GoI toll policy</td>
<td>Tolling, if any, is done by the authority separately</td>
<td>Tolling is done by the concessionaire as per GoI toll policy</td>
</tr>
<tr>
<td>Concession period depending on road capacity, subject to maximum 30 years</td>
<td>Concessionaire is paid fixed semi-annual annuity</td>
<td>Concessionaire pays annual concession fee to authority</td>
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<tr>
<td></td>
<td>Concession period is generally 20/17 years</td>
<td>Concession period is 4-9 years</td>
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## Other non PPP contracting modes for road projects

<table>
<thead>
<tr>
<th>Bill of Quantity/ Item Rate Contracts</th>
<th>Engineering Procurement Construction</th>
<th>Operation and maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design, engineering and quantity estimation - authority</td>
<td>Items and output specification - authority</td>
<td>Contractor need to maintain road as per standard</td>
</tr>
<tr>
<td>Contractors need to quote rates against each item</td>
<td>Design engineering and quantity estimation - developers</td>
<td>Payment is routine maintenance and incidental items</td>
</tr>
<tr>
<td>Payment to contractors is based on quantum of work</td>
<td>Contractors quote lump sum amount</td>
<td>Contract period generally one year</td>
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-设计、工程和数量估算 - 业主
- 合同商需要对每一项报价
- 合同商按工作量支付
- 如有收费，单独由业主进行
- 设计工程和数量估算 - 开发商
- 合同商报价固定金额
- 合同商按工作量支付
- 如有收费，单独由业主进行
- 合同商需要按标准维护道路
- 支付为常规维护和偶然项目
- 合同期一般为一年
- 如有收费，单独由业主进行
### Challenges in traditional PPP contracting

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Problems</th>
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<tr>
<td>Declining participation of private sector</td>
<td>- Crowding out of reputed developers</td>
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<td>- Aggressive bidding due to irrational exuberance</td>
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<td>Default in Financial Close</td>
<td>- Weakening lenders base</td>
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<td>- Stringent norms of lenders for disbursement of funds</td>
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<td>Delay in Financial Close</td>
<td>- Delay during Development Period</td>
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<td>- Delay in fulfilment of Conditions Precedent</td>
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<td>Delay &amp; default during Construction</td>
<td>- Non availability of Right of Way (RoW)</td>
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<td>- Non availability approvals for ROB, environmental clearance</td>
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<td>Arbitrations and litigations</td>
<td>- Default in granting ROW by the authority</td>
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<td>- Change of Scope, issuance of COD</td>
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Symptoms

- Declining participation of private sector
- Default in Financial Close
- Delay in Financial Close
- Delay & default during Construction
- Arbitrations and litigations

Problems

- Crowding out of reputed developers
- Aggressive bidding due to irrational exuberance
- Weakening lenders base
- Stringent norms of lenders for disbursement of funds
- Delay during Development Period
- Delay in fulfilment of Conditions Precedent
- Non availability of Right of Way (RoW)
- Non availability approvals for ROB, environmental clearance
- Default in granting ROW by the authority
- Change of Scope, issuance of COD
Inefficient transfer of commercial risk

Transfer of commercial risk to private sector has its own set of challenges in a country such as India, where demographic changes are high and there exist issues related to toll leakage, cash management, etc.

Private developer do not have control over either future traffic or alignment design related to network management and reduction in transit time.

Need arises for new form of PPP contracting where commercial risk transfer is balanced with respect to exogenous factors prevalent in India.
### Global examples of few variants of PPP model for road projects

<table>
<thead>
<tr>
<th>Contracting Mode / Mode of Procurement</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Least present value of Revenue (LPVR)</td>
<td>Primarily Chile; occasionally UK and Spain</td>
</tr>
<tr>
<td>Design Build Operate Maintain (DBOM)</td>
<td>USA and Australia</td>
</tr>
<tr>
<td>Hybrid PPPs (Toll + Annuity; Grant + Annuity; Grant + Toll + Annuity)</td>
<td>Greece, India</td>
</tr>
<tr>
<td>Output &amp; Performance Based Road Contracts (OPRC)</td>
<td>UK, USA, Australia, Norway, Finland, Sweden, Netherlands, Pilot projects in India by World Bank</td>
</tr>
<tr>
<td>Competitive Dialogue</td>
<td>Europe</td>
</tr>
<tr>
<td>Negotiated Procedure</td>
<td>Europe</td>
</tr>
<tr>
<td>Swiss Challenge</td>
<td>A number of countries including India</td>
</tr>
</tbody>
</table>
New PPP models under considerations in India

Roads and Highways authorities of central and state governments of India are exploring new models of PPP contracting in order to address existing issues. New models being considered includes:

- Modified Annuity (Grant + Annuity+ Toll)
- Hybrid PPP (Interest free loan + Toll)
- BOT model where construction is financed by authority
- BOT Toll with funded EPC for structures
Modified Annuity (Grant + Annuity + Toll)

- Concessionaire to partly finance, construct, toll & manage
- Authority to pay part of construction cost as capital grant during construction and balance as annuity payment
- Separate payment for O&M as a % of project cost
- O&M is delinked to annuity payment and subject to adherence to performance standard
- Recommended for stretches where BOT Toll in its traditional form is unviable due to high project cost and the absence of commensurate revenue streams

Key Features

- Reduced funding requirement for Authority vis-à-vis EPC mode
- Reduced debt requirement and cost of borrowings for private sector (up to 50-75 bps) as compared to BOT-Annuity
- Improved quality of construction due to long-term concession tenure
- Improved operations and maintenance as the payments are performance linked

Potential Benefits

- Recommended for stretches where BOT Toll in its traditional form is unviable due to high project cost and the absence of commensurate revenue streams
Hybrid PPP (Interest free loan + Toll)

Key Features
- Concessionaire to construct, toll & manage the road
- Authority to pay part of the construction cost as interest free loan during construction
- Repayment of interest free loan after a predetermined PCU Level
- Bidding parameter is the amount of interest free loan

Potential Benefits
- Project is jointly funded by the authority and the concessionaire
- Repayment is after stabilization of cash flows
- Reduced debt requirement and cost of borrowings for private sector (up to 50-75 bps) as compared to BOT-Toll
BOT model where construction is financed by authority

Key Features
- Same as BOT (Toll) model but construction is financed by authority separately as per payment terms similar to EPC projects
- Same concessionaire undertakes construction, O&M and tolling activity
- Annual concession fee is paid by the concessionaire in lieu of tolling throughout the concession period

Potential Benefits
- Immediate availability of ROW
- Project financing risk is not with the concessionaire - financing at a lower cost
- Balanced construction risk
- Timely completion of the project - Better management of cost and time overruns
- Reduction of residual default and abandonment risk
BOT Toll with funded EPC for structures

**Key Features**
- Critical and complex project infrastructures like tunnels, bridges etc. in a BOT Toll stretch developed on EPC basis by the same developer
- Authority funds the critical and complex project infrastructures separately
- Such bundling will improve the viability of the project
- The EPC payment and the milestones for critical structures are predetermined

**Potential Benefits**
- Better availability of capital to finance the project and a better managed cost of finance
- Balanced construction risk in the complex structure
- Timely completion of the project - better management of cost and time overruns
Thank You

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