

New Model of Indian Road PPP Projects

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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

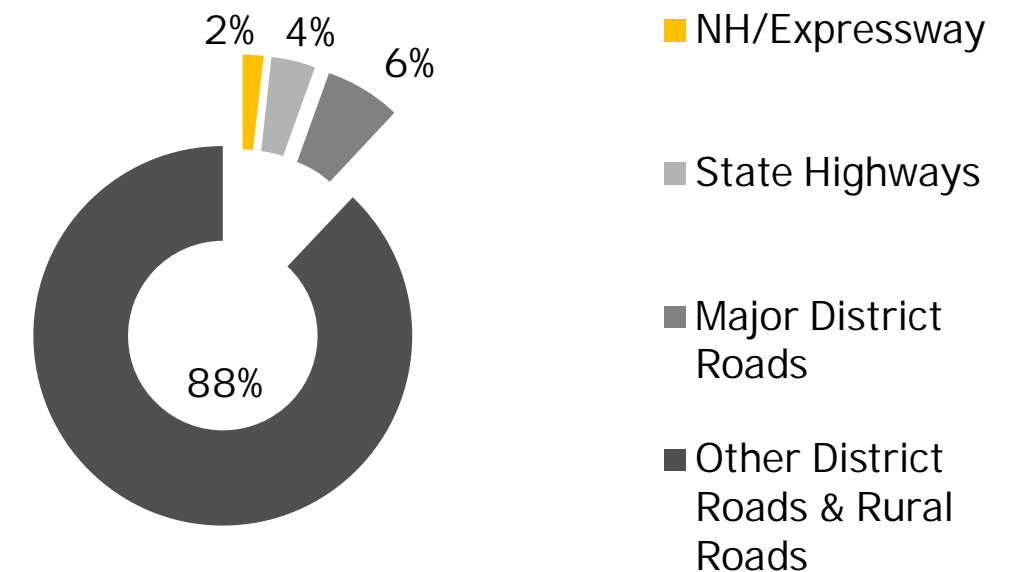
Emerging trends in PPP model for road projects

New PPP models under consideration

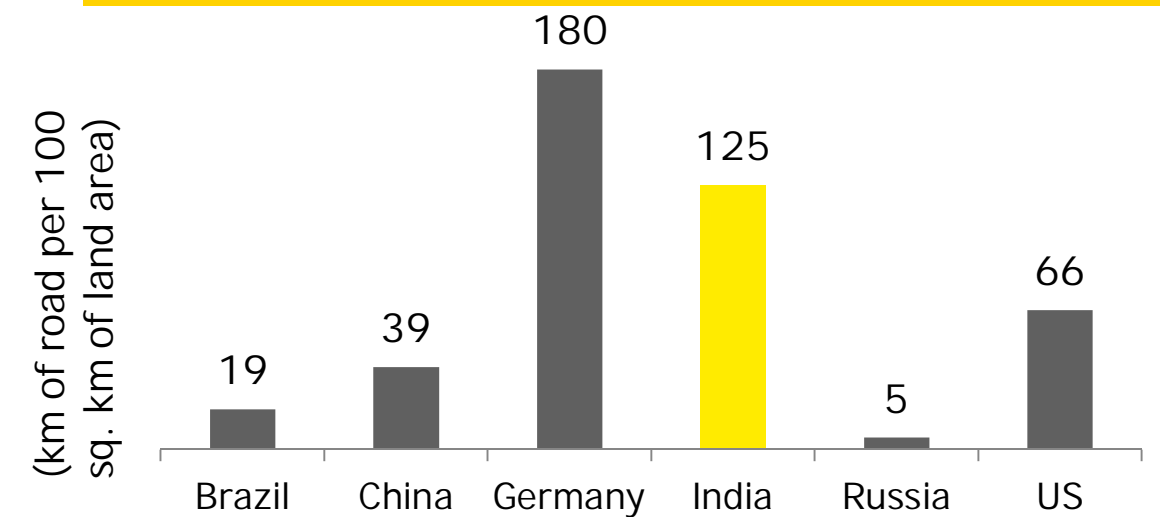
A Glimpse of road network of India

- ▶ 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

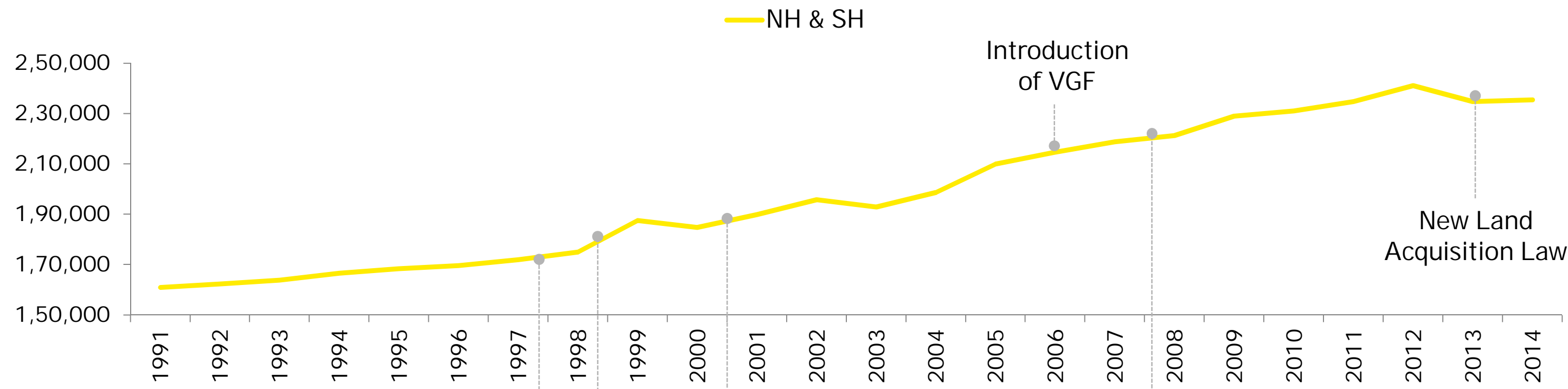
Distribution of Road network in India



Road density in India is high compared to other countries



Programs, policy initiatives and funding initiatives development of road sector



- 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

- 1) MCA amendments

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

Key stakeholders of Roads & Highways sector in India

Type	Stakeholders	Description
Government (Centre)	<ul style="list-style-type: none"> ▶ Ministry of Roads, Transport & Highways ▶ National Highways Authority of India (NHAI) ▶ Planning Commission/ NITI Aayog 	<ul style="list-style-type: none"> ▶ Overall policy framework, integration and plans approval ▶ Development and maintenance of NHs
Government (State / ULBs)	<ul style="list-style-type: none"> ▶ State Roads & Buildings Department ▶ State Highways Development Bodies ▶ Public Works Department (PWD) 	<ul style="list-style-type: none"> ▶ Framing state level policies ▶ Developing and executing projects
Financial Institutions	<ul style="list-style-type: none"> ▶ Public & Private Sector Banks ▶ Private equity 	<ul style="list-style-type: none"> ▶ Provide financing for roads sector projects
Developers	<ul style="list-style-type: none"> ▶ Private Developers ▶ Public Sector Enterprises e.g. NHAI , TNRSP* , APRDC* , KRDCL* , etc. 	<ul style="list-style-type: none"> ▶ Developing and executing projects

*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

BOT (Toll) mode of PPP contracting

- Road alignment, location of structures, LA, environment clearance - authority
- Structural design, finance, construction, O&M - concessionaire
- Tolling - concessionaire on the basis of Gol toll policy
- Concession period depending on road capacity, subject to maximum 30 years

BOT (Annuity) mode of PPP contracting

- Road alignment, location of structures, LA, environment clearance - authority
- Structural design, finance, construction, O&M - concessionaire
- Tolling, if any, is done by the authority separately
- Concessionaire is paid fixed semi-annual annuity
- Concession period is generally 20/ 17 years

OMT mode of PPP contracting

- Concessionaire is handed over developed road for O&M
- No capacity augmentation
- Tolling is done by the concessionaire as per Gol toll policy
- Concessionaire pays annual concession fee to authority
- Concession period is 4-9 years

Other non PPP contracting modes for road projects

Bill of Quantity/ Item Rate Contracts

- ▶ Design, engineering and quantity estimation - authority
- ▶ Contractors need to quote rates against each item
- ▶ Payment to contractors is based on quantum of work
- ▶ Tolling, if any, is done separately by the authority

Engineering Procurement Construction

- ▶ Items and output specification - authority
- ▶ Design engineering and quantity estimation - developers
- ▶ Contractors quote lump sum amount
- ▶ Payment to contractors is based on quantum of work
- ▶ Tolling, if any, is done separately by the authority

Operation and maintenance

- ▶ Contractor need to maintain road as per standard
- ▶ Payment is routine maintenance and incidental items
- ▶ Contract period generally one year
- ▶ Tolling, if any, is done separately by the authority

Challenges in traditional PPP contracting

Symptoms	Problems
Declining participation of private sector	<ul style="list-style-type: none"> ■ Crowding out of reputed developers ■ Aggressive bidding due to irrational exuberance
Default in Financial Close	<ul style="list-style-type: none"> ■ Weakening lenders base ■ Stringent norms of lenders for disbursement of funds
Delay in Financial Close	<ul style="list-style-type: none"> ■ Delay during Development Period ■ Delay in fulfilment of Conditions Precedent
Delay & default during Construction	<ul style="list-style-type: none"> ■ Non availability of Right of Way (RoW) ■ Non availability approvals for ROB, environmental clearance
Arbitrations and litigations	<ul style="list-style-type: none"> ■ 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

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

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)

Key Features

- 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

Potential Benefits

- 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

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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