

India: Public Private Partnerships in Highways Sector

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India's transport program is one of the most rapidly expanding programs among the developing countries. During 1990-2006, about 120 transport projects with investment of US \$ 12.8 billion have been awarded on PPP basis. Of these more than three-fourths of the projects (91 in number) are in roads sector. The trend since 2000 has been encouraging with investment commitments in transport projects with private participation reaching 11.3 billion during the period 2000-06, of which nearly 10 billion has been realized during the last three years. This is a significant ten-fold increase in investments compared to mere US \$ 1.4 billion during the 1990s. Highways constitute more than half of the PPP transactions in infrastructure concluded in India during 1990-2006.

Table 1: Investments commitments to infrastructure projects with private participation in India 1990-2006

Period	Energy US \$ Billion (% share)	Telecom US \$ billion (% share)	Transport US\$ b (% share)	Total US \$ b
1990-1995	3.0 billion (76.7%)	0.8 billion (20.0%)	0.1 billion (3.3%)	3.9 billion
1996-2000	8.4 billion (48.9%)	7.5 billion (43.1%)	1.4 billion (8.0%)	17.3 billion
2001-06	9.2 billion (19.3%)	27.2 billion (57%)	11.3 billion (23.7%)	47.7 billion
2004-06	7.6 billion (22.1%)	17.2 billion (49.8%)	9.7 billion (28.1%)	34.6 billion

India has one of the largest road networks in the world, of 33.14 lakh km, including national highways (NHs), state highways (SHs), major district roads (MDRs), and rural roads (RRs) that include other district roads and village roads. NHs with a length of 66,590 km comprises only 2.0% of the road network but carry 40% of the road-based traffic. SHs with a length of about 137,000 km and MDRs with a length of 300,000 km together constitute the secondary system of road transportation which contributes significantly to the development of the rural economy and industrial growth of the country. The secondary system also carries about 40% of the total road traffic, although it constitutes about 13% of the total road length. RRs, once adequately developed and maintained, hold the potential to provide rural connectivity vital for generating higher agricultural incomes and productive employment opportunities besides promoting access to economic and social services.

Impetus for private sector participation in the highways in India in the late nineties came from rapidly deteriorating quality and fiscal constraints of the governments to support road development and maintenance. An ambitious National Highway Development Program (NHDP) aiming four-laning of 14,000 kilometers of national corridors was launched by the Government of India (GOI) in 1998. Over the years the NHDP program has expanded significantly, and it is today India's largest ever infrastructure development program. The various phases of NHDP are presented in annex 1.

The approaches for private participation for road development in India have evolved overtime, as is evident from the Figure 1 below. From "cash contracts" or EPC Contracts the PPP models have evolved with private sector now taking on commercial risks. Two predominant PPP models are:

- (i) **Build-own-transfer (BOT)- annuity model** - The Annuity Scheme of NHAI provides an incentive to private sector development and operations of select roads where the operator receives a fixed semi annual annuity payment is made to the concessionaire for infrastructure development and subsequent maintenance. The projects are awarded on the basis of competitive bidding process with least annuity payment as the bidding criteria. This model

has no traffic and revenue risk for the operator, though NHAI has the right to toll the stretches at a later date. Annuity scheme offers advantage as a means of “borrowing” from private sector for road development through bundling of constructions and long term O&M responsibilities.

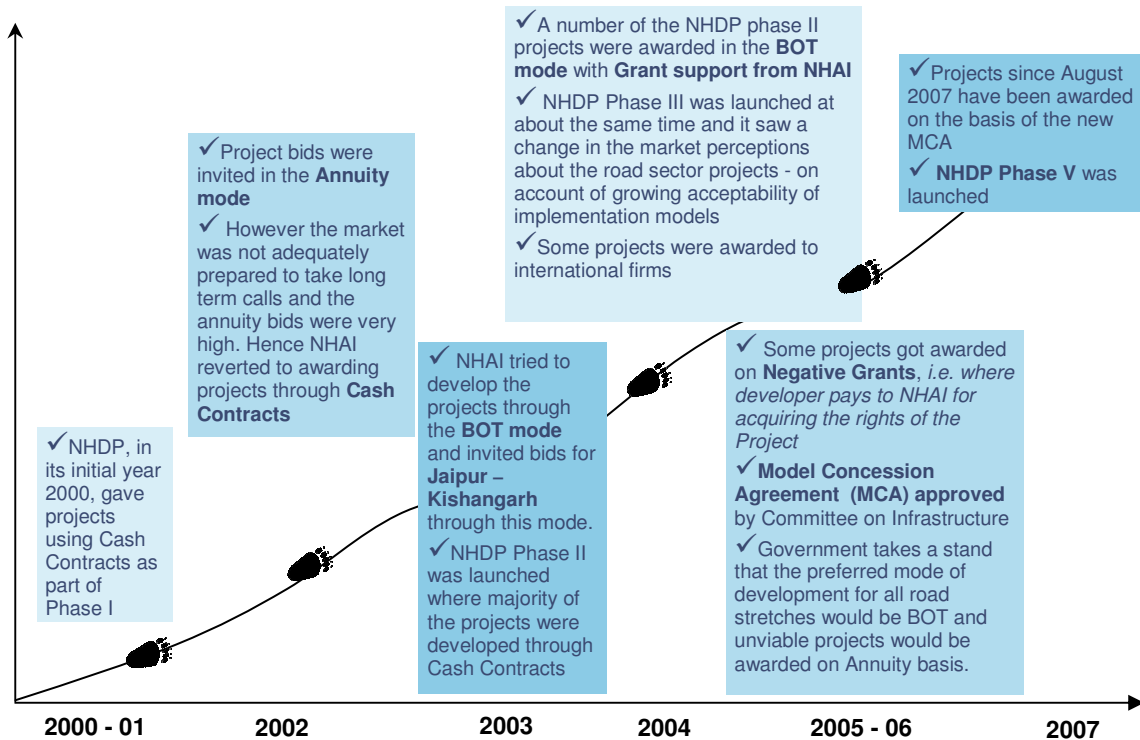
- (ii) **Build-Operate-Transfer (BOT) toll model** - This framework model entails awarding the project to the private sector, which is responsible for construction, operations and maintenance for a concession tenor. The recovery of investments is ensured through levy of tolls by the concessionaire on the users of the project. The traffic risks are therefore borne by the concessionaire. The BOT projects are awarded through competitive bidding process and bidding criteria is one-time grant / viability gap funding required from the government to improve the overall commercial viability of the project¹.

Initial response from the private sector was lukewarm. The inclination was towards low risk annuity projects offering a guaranteed rate of return. Over time, though, interest in the high risk (high return) BOT-toll projects is picking up. Overall, 47 BOT- toll projects have been awarded as against 22 BOT-annuity projects for national highways. This may be attributed to viable business opportunities presented by national highways program (national highways carry 45 percent of total traffic while constituting only 2 percent of the overall road network) as well as Government of India’s efforts for providing consistent and sustainable framework for PPPs. Key reform initiatives that have facilitated private participation under National Highway Development Program include: (i) clear mandate to a dedicated institution - National Highway Authority of India- to design and implement the program, (ii) legislative amendments to allow private participation in highways development, operation, toll collection and retention, and (iii) policy guidelines specifying contract structures and government support to facilitate private participation.

In 2004, there was a new impetus from the Government of India to develop infrastructure projects under public-private partnership. To streamline and standardize the process for project evaluation and award PPP Appraisal Committee (PPP-AC) has been set up at the Planning Commission. Several policy initiatives and incentives are available (Box1) to scale up domestic private finance and foreign direct investments in roads. Government’s policy lays out the preferred option to develop projects on BOT-toll basis. Recognizing the need to improve project viability Government of India has launched a special “Viability Gap Scheme” to provide one time grant assistance upto 40 percent of the capital costs for infrastructure projects developed by private sector.

¹ In few highways projects the government has received negative grant as an outcome of the bidding process.

Figure 1: Evolution of Implementation Structure²



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Standardized Modal Concession Agreement (MCA) is recommended by GOI for consistency and transparency in award and implementation of PPP projects. MCA attempts to achieve a more balanced risk allocation among public and private sector. Some important issues included in MCA include time bound land availability, partial tariff risk sharing, indexing of user fees, concession fee linked to tariff, and equitable dispute resolution. Some of the recent modifications pertain to:

- Model: Viability Gap Funding divided into 20% capital (during construction) and 20% in installments during first few quarters after construction. Negative Grants replaced by Revenue Share for better risk management in the sector. The MCA is based on the DBFO concept, whereby

² Adapted from PwC: Reform in Transportation Experiences in India, SAFIR Workshop – September 2008

NHAI would now only conduct preliminary design before bidding and leave the detailed design responsibility to the concessionaire.

- Tolling:
 - a. Per km toll rates have been fixed by policy for each category of vehicles for the base year and legally mandated to apply across public funded and PPP projects.
 - b. Introduced concept of Additional Fee for overloaded vehicles, to address additional maintenance costs arising out of overloaded vehicles
- Traffic Risk Mitigation: If traffic after 10 years falls short of the stated Target Traffic, the concession period will be increased in proportion to the shortfall. Competing facility protection provided – specific financial compensation provided for the first time.
- Land Acquisition & Handing over: Highlights need for a transparent process for joint inspection and handing over; time limits for handing over balance land; penalties specified against NHAI for delays; Commencement date not to be delayed if delays due to handing over of land.
- Independent Engineer: Role of Independent Engineer is defined clearly and process of selection and remuneration made more transparent - likely to increase ‘independence’

Annex 1: Phases of National Highway Development Project (NHDP)

Phase	Details	Length	Completion
Phase I	This phase included Golden Quadrilateral (5846km) plus port connectivity and other roads. This was approved by Cabinet Committee on Economic Affairs (CCEA) in December 2000 at an estimated cost of Rs 30,000 crores (\$ ³ 6.5 bn)	7,498 Km	December, 2008
Phase II	This phase included North-South corridor and East-West Corridor roads. This was approved by Cabinet Committee on Economic Affairs (CCEA) in December 2003 at an estimated cost of Rs 34,339 crores (\$ 7.5 bn)	6,644 Km	December, 2009
Phase III	This phase included connecting state capitals with Phase I and II network and providing connectivity to important places. This was approved by the Government in 2005; Phase III A comprises upgradation and 4 laning of around 4,000 km of National Highways on BOT basis at an estimated cost of Rs. 22,207 crores (\$ 4.9 bn). Phase III B was approved by Government in 2007 involving upgradation and 4 laning of around 8,000 km at an estimated cost of Rs. 54,339 crore (\$ 12 bn)	12,109Km	December, 2009 for IIIA & December, 2013 for IIIB
Phase IV	This phase entails two-laning of single lane network at an estimated cost of Rs 27,800 crores – 2006 prices (\$ 6.1 bn)	20,000 Km	December, 2015
Phase V	Cabinet Committee on Economic Affairs approved this phase in 2006 involving six laning of 6,500 km of existing 4 lane highways under NHDP Phase Four-laned GQ and certain other high density stretches. The estimated cost is Rs 41,210 crores – 2006 prices (\$ 9.1 bn)	6,500 Km	December, 2012
Phase VI	Connecting key urban economic centers by constructing expressways, covering around 1000 km of national highways at an estimated cost of Rs 16,680 crores – 2006 prices (\$ 3.7 bn). This has been approved by the Cabinet.	1,000 Km	December, 2015
Phase VII	Ring roads, bypasses, grade separators and service roads at an estimated cost of Rs 16,680 crores – 2006 prices (\$ 3.7 bn)	700 Km	December, 2014

³ Exchange rate of Re 45 - 1 \$ has been assumed to give a broad sense of the magnitude.

Annexure 2: Example of an Annuity based Concession

NAME OF THE PROJECT: ANDHRA PRADESH EXPRESSWAY Ltd. 74 km KOTHAKUTTA – KURNOOL ROAD PROJECT ON NH-7

A. Contract Overview

Award Date / Year : 2006

Type of PPP structure (Concession/BOT/Franchisee etc.)

Concession to develop, construct, design, engineer, finance, procure, operate & maintain the Project Highway during the concession period

Concession Term : 20 years inclusive of a 2½-yr implementation period.

Contracting Authority: National Highways Authority of India (NHAI)

Operator : Andhra Pradesh Expressway Limited (APEL)

B. Operator Selection Process

Process – MOU/JV/ competitive bidding

A competitive process to award the concession was followed.

Bidding /selection criteria:

APEL had bid for the development of the 74 km stretch on NH-7 from Kothakutta to Kurnool in the state of Andhra Pradesh on an annuity basis. The Operator has subsequently been awarded the project on having quoted the lowest Annuity amount of payable semi- annually. A Letter of Intent (LoI) has been issued by NHAI on February 24, 2006 awarding the project to the Operator.

C. Upstream Policy Framework to support PPP

Policy :

National Highways Authority of India (NHAI), constituted by an act of Parliament, is responsible for the development, maintenance and management of National Highways (NH). NHAI has been mandated to implement the National Highways Development Programme (NHDP)

Legal Framework :

The Concession Agreement (CA) is the governing document for these projects.

Contract Monitoring

- (i) During the Construction Period, the Concessionaire shall furnish to NHAI and the Independent Consultant (IC) monthly progress reports of actual progress of the Construction
- (ii) The Concession Agreement provides that the IC shall undertake day to day supervision of the works along with the Quality control consultant of the Concessionaire to ensure whether construction is in accordance with Specifications and Standards

The scope of services of the IC is outlined as under:

- (i) Independently review, monitor and approve activities associated with the Design, Construction, Operation and Maintenance of the Project
- (ii) Report on the various physical, technical and financial aspects of the Project based on inspections, site visits and tests to NHAI
- (iii) Assist in arriving at an amicable settlement of disputes, if required
- (iv) Review matters relating to the safety and traffic management measures adopted by the Concessionaire for the Project

Dispute Resolution Framework

The parties are expected to amicably settle the disputes failing which arbitration proceedings under the Arbitration and Conciliation Act, 1996 would commence.

D. Tariffs, Subsidies and Financial Arrangements

Cost Recovery Model :

No cost recovery model since no levy is envisaged on the road users.

Tariff Structure & Setting Responsibility

There are no tariffs / tolls envisaged for the project.

Donor Support : Nil

Project Cost/Means of Finance

Project Cost : \$ 150 mn approx. financed by equity and debt

E. Responsibility and Risk Allocation among Public and Private Sector

Operator / Private partner's responsibilities and obligations

- (i) Develop, construct, design, engineer, finance, procure, operate & maintain the Project Highway during concession period
- (ii) Obtain, procure and maintain all applicable permits, rights, licenses, agreements and permissions
- (iii) Appoint, supervise, monitor and control the activities of contractors under their respective Project Agreements
- (iv) To obtain all necessary clearances/ permits from Railways in respect of construction of Railway Over Bridge (ROB)/Railway Under Bridge (RUB)
- (v) To liaise with Government of Andhra Pradesh (GoAP) for implementation of the Rehabilitation and Resettlement plan

NHAI's responsibilities

- (i) Enable access to the site free from Encumbrances
- (ii) Permit peaceful use of the site by the Concessionaire as licensee
- (iii) Assist and provide all reasonable support to the Concessionaire in obtaining applicable permits
- (iv) Assist the Concessionaire in obtaining access to all necessary infrastructure facilities and utilities
- (v) Enter into the State Support Agreement (SSA) with the Concessionaire and the GoAP
- (vi) Take all necessary steps towards accomplishment of acquisition of additional land. NHAI shall bear the cost of additional land
- (vii) Coordinate with GoAP authorities for completing the legal requirements and maintaining law and order during removal of encroachments by the Concessionaire
- (viii) Provide necessary support to the Concessionaire in obtaining necessary environmental clearances in respect of tree cutting and necessary clearances /permissions / permits for shifting of all types of utilities services, construction of ROB/RUB on railway lines, resettlement & rehabilitation

- (ix) Bear all expenses as per demand note raised by the concerned government or other concerned authorities in respect of environmental clearances, tree cutting compensatory afforestation, shifting of all types of utility services construction of ROB/RUB on railway lines and rehabilitation and resettlement

Revenue Risk: Revenue risk is significantly mitigated, since annuity payments are fixed upfront. This risk is therefore not with the Operator.

Land Acquisition Risk: The CA specifies handing over peaceful physical possession of the project Site by NHAI free from encumbrances to APEL. Land acquisition expenses would be borne by NHAI

Regulatory Risk: No independent regulator is envisaged for these projects. Regulation by contract is expected for this concession.

Construction Risk: The EPC Contract shall be a time certain contract. The contract provides for adequate liquidated damages for non-compliance.
