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**Working Paper**

## Public private partnership in national highways: Indian perspective

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# Public Private Partnership in National Highways: Indian Perspective



**Discussion Paper 2013 • 11**

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# **Public Private Partnership in National Highways: Indian Perspective**

**Discussion Paper No. 2013-11**

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**April 2013**

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## 1. PUBLIC PRIVATE PARTNERSHIP IN NATIONAL HIGHWAYS: INDIAN PERSPECTIVE

### Overview of Indian Roads

India's road network of over 4.1 million km is second largest in the world consisting of expressways, national highways, state highways, major district roads and other roads. These roads carry about 65 per cent of freight and 80 per cent of passenger traffic. National highways constitute only 1.7 per cent of the road network, but carry about 40 per cent of the total road traffic. Road Transport has emerged as the dominant segment in India's transportation sector with a share of 4.7% in India's GDP in 2009-10. The number of vehicles on Indian roads has been growing at an average pace of 10.16% per annum over the last five years. Hence, development of road network assumes paramount importance in the context of a rapidly growing economy.

### Investment in Roads Sector

Investment in the roads sector during the Tenth Five Year Plan (2007-12) and the Eleventh Five Year Plan (2007-12) are shown below:

Table 1. **Investment in Roads Sector ( 10<sup>th</sup> and 11<sup>th</sup> Plan)**

	Tenth Plan (2002-07)			Eleventh Plan (2007-12)		
	In Rs* (crore)	In \$** (million)	% Share	In Rs (crore)	In \$ (million)	% Share
Centre	71,536	17,884	46.87	1,55,367	38,842	42.94
State	68,143	17,036	44.65	1,34,246	33,561	37.10
Private	12,937	3,234	8.48	72,209	18,052	19.96
<b>Total</b>	<b>1,52,616</b>	<b>38,154</b>	<b>100</b>	<b>3,61,822</b>	<b>90,456</b>	<b>100</b>

\* 2006-07 prices

\*\*An exchange rate of \$ 1= Rs 40 has been used for comparison at 2006-07 prices.

## National Highways Authority of India (NHAI)

The National Highways Authority of India (NHAI) was established as a statutory entity under the National Highways Authority Act 1988 for development, maintenance and management of National Highways. Its initial mandate was restricted to a few projects undertaken with external assistance. From 1998 onwards, the Government has been implementing the National Highways Development Programme (NHDP) comprising:

- Phase I: Augmenting the Golden Quadrilateral connecting the four largest metropolis.
- Phase II: Augmenting the North-South and East-West corridors.
- Phase III: Four-laning of high density national highways connecting state capitals and places of economic, commercial and tourist importance.
- Phase IV: Upgradation of single-lane roads to two-lane standards.
- Phase V: Six-laning of four-laned highways.
- Phase VI: Construction of 1,000 km of expressways.
- Phase VII: Construction of ring roads, by-passes, underpasses, flyovers, etc.

Table 2. **The status of the different phases of NHDP as on 30<sup>th</sup> June 2012**

	Phase I	Phase II	Phase III	Phase IV	Phase V	Phase VI	Phase VII	Total
Total length (km)	5,846	7,300	12,109	14,799	6,500	1,000	700	48,254
Already 2/4/6 Laned (km)	5,842	6,031	4,071	2	1,052	-	16	17,014
Under implementation (km)	4	691	6,198	3,316	3,028	-	25	13,262
Balance Length for Award (km)	-	420	1,840	11,481	2,420	1,000	659	17,820

Source: [www.nhai.org](http://www.nhai.org)



## Public Private Partnership in National Highways

Owing to constraints of public funding, Public Private Partnership (PPP) has come to play a major role in the development of national highways. The National Highways Act, 1956 was amended in 1995 with a view to enabling private investment in development, maintenance and operation of highways. The Government initiated several other measures in this direction such as declaration of road sector as industry to facilitate borrowing on easy terms and reduction in the custom duties on construction equipment.

### Models of PPP adopted in India

The two models of PPP adopted in India for the development of National Highways are BOT (Toll) and BOT (Annuity).

(a) **BOT (Toll)** Model: In the BOT (Toll) model, the Concessionaire recovers his investment by charging toll from the users of the road facility. This model reduces the fiscal burden on the government while also allocating the traffic risk to the Concessionaire. This is the model used for most of the projects and can be regarded as the default model for highway projects.

(b) **BOT (Annuity)** Model: Under a BOT annuity model, the Concessionaire is assured of a minimum return on his investment in the form of annuity payments. The Concessionaire does not bear the traffic risk and the Government bears the entire risk with respect to toll income.

Table 3. **Projects awarded under BOT (Toll) and BOT (Annuity) during Eleventh Five Year Plan**

Year	BOT (Toll)		BOT (Annuity)	
	No of Projects	Length (km)	No of Projects	Length(km)
2007-08	8	1,109	1	36
2008-09	8	643	-	-
2009-10	34	3,085	3	177
2010-11	28	3,057	20	1,577
2011-12	47	6,231	2	247
<b>Total</b>	<b>125</b>	<b>14,126</b>	<b>26</b>	<b>2,037</b>

## Model Documents

Creation of a standardised framework helps in ensuring transparency in the allocation of risks and providing clarity and predictability in the obligations of the Concessionaires while minimising the possibilities of disputes. It enables robust competitive bidding for individual projects with a reasonable commonality in approach across projects.

The adoption of standardised documents such as the Model Concession Agreement, RFQ, RFP and Manuals of Standards and Specifications have streamlined and accelerated decision making and implementation. The standardised documents are briefly described below:

1. **Model RFQ (Request for Qualification)** - A two stage bidding process has been adopted for PPP projects. In the first stage, that is the RFQ stage, the eligible and prospective bidders are pre-qualified. The second stage is RFP or the bidding stage.

The Model RFQ document lays down the norms, principles and parameters to be followed for prequalification of bidders in a fair and transparent manner with low transaction costs. The RFQ document aims at identification of experienced bidders who have the requisite technical and financial capacity for undertaking the project. The technical capacity is mainly determined on the basis of past relevant experience of the firm. The financial capacity is determined on the basis of net worth of the firm.

2. **Model RFP (Request for Proposal)** - The Model RFP document addresses the key requirements that must be observed for conducting a fair and competitive bidding process. The response sought at this stage is restricted to financial offers only, requiring the bidder to quote on the basis of a single bidding parameter. The detailed terms of the project are specified in the Concession Agreement which forms an integral part of the Bid Documents to be provided to the bidders along with the RFP document.
3. **Model Concession Agreement (MCA)** - The MCA spells out a precise policy and regulatory framework for implementing a PPP project. The MCA addresses the critical issues of a PPP framework such as mitigation and unbundling of risks; allocation of risks and rewards; symmetry of obligations between the principal parties; precision and predictability of costs and obligations; reduction of transaction costs; force majeure; and termination. The technical parameters are based mainly on output specifications, as these have a direct bearing on the level of service for users. The MCA specifies only the core requirements of design, construction, operation and maintenance of the Project Highway while leaving enough room for the Concessionaire to innovate and add value. More detail is provided in the Annex below.

The MCA allocates risks to the parties that are best suited to manage them. The commercial and technical risks relating to construction, operation and maintenance as well as the traffic risks are allocated to the Concessionaire. All direct and indirect political risks are assigned to the Authority. The MCA also stipulates a time limit of 180 days (extendable up to another 120 days on payment of a penalty) for achieving financial close failing which the bid security is to be forfeited.

A balanced and precise mechanism for determination of user fee has been specified for the entire concession period since this would be of fundamental importance in estimating the revenue streams of the project and, therefore, its viability. The MCA provides for indexation of the user fee to the extent of 40 per cent thereof linked to WPI. In the event of termination, the MCA provides for substitution of the Concessionaire by the senior lenders, failing which a compulsory buy-out by the Authority.

4. **Manual for Specifications and Standards** - The MCA requires the Concessionaire to bear the responsibility for detailed design. However, since the accountability for providing safe and reliable roads rests with the Government, the MCA mandates a Manual of Standards and Specifications that the Concessionaire must adhere to. The Manual specifies only the core requirements of design, construction, operation and maintenance of the project highway and the Concessionaire is free to bring in innovations in the design to arrive at the required output or delivery of service. The Manual, by reference, forms an integral part of the MCA and is binding on the Concessionaire.

### **Formulation, Appraisal and Approval of PPP projects**

Since PPP projects need to undergo extensive due diligence, guidelines for their appraisal and approval have been devised. These guidelines apply to all PPP projects sponsored by Central Government or its entities. Under these guidelines, an inter-ministerial PPP Appraisal committee (PPPAC) has been set up for appraisal of PPP projects. The Ministry of Finance is responsible for examining the concession agreements from the financial perspective while a PPP Appraisal unit (PPPAU) in the Planning Commission undertakes a detailed appraisal of each project.

The sponsoring Ministry identifies the projects to be taken up through PPPs and undertake preparation of feasibility studies, project agreements, etc. with the assistance of legal, financial and technical experts, as necessary. The proposal is first submitted for 'in principle' clearance of PPPAC. After the 'in principle' clearance, the Ministry invites expressions of interest in the form of Request for Qualification (RFQ) which is followed by shortlisting of pre-qualified bidders. After formulating the draft RFP, the sponsoring Ministry seeks clearance of PPPAC before inviting the financial bids. Based on the recommendations of PPPAC, the final approval for a project is granted by the competent authority. In cases where the PPP project is based on a duly approved Model Concession Agreement (MCA), 'in principle' clearance by the PPPAC is not necessary. In such cases, approval of the PPPAC is to be obtained before inviting the financial bids.

### **Viability Gap Funding (VGF)**

To bridge the viability gap of infrastructure projects undertaken through PPPs, the Government is implementing a scheme called the 'Scheme for Financial Support to Public Private Partnerships in Infrastructure'. The scheme is applicable only when the concession is awarded to a private sector company which is selected through open competitive bidding and is responsible for financing, construction, maintenance and operation of the project during the concession period. Viability Gap Funding (VGF) is the quantum of financial support provided in the form of a capital grant at the stage of project construction and is equivalent to the lowest bid for capital subsidy, but subject to a maximum of 40 per cent of the total project cost.

### **Toll Policy Framework**

Toll collection for use of the redeveloped and augmented sections of national highways was introduced in 1997 under the provisions of the National Highways Act. Subsequently, based on the experience gained, new toll policy was formulated and the National Highways fee (Determination of rates and Collection) Rules 2008 was notified on December 5, 2008.

- a) The main features are as follows:
- b) A uniform rate of user fee is charged on all sections of the NHs having two or more lanes, permanent bridges, bypass or tunnel forming part of National Highways;
- c) Discounted user charges are levied for multiple journeys in a day or on a monthly basis for residents living in the nearby areas; and
- d) Local residents are entitled to a steep discount for short journeys.

### **Conclusion**

There is a broad consensus in India that Public Private Partnership is the way forward for creation of world class highways. Since an enabling framework is a pre-requisite for attracting competitive private investment, the model documents, the appraisal process and the viability gap funding scheme have been adopted as the supporting pillars of a strong and sustainable PPP framework in the highway sector.

## 2. ANNEX: MODEL CONCESSION AGREEMENT FOR HIGHWAYS, AN OVERVIEW

### *A comprehensive framework is a pre-requisite for PPP*

The highways sector in India is witnessing significant interest from both domestic as well as foreign investors following the policy initiatives taken by the Government of India to promote Public Private Partnership (PPP) on Design, Build, Finance, Operate and Transfer (DBFOT) basis. A comprehensive policy and regulatory framework necessary for addressing the complexities of PPP, and for balancing the interests of users and investors has been adopted in the form of a Model Concession Agreement (MCA) and standard bidding documents.

The MCA addresses the issues which are typically important for investors as well as for limited recourse financing of highway projects, such as mitigation and unbundling of risks; allocation of risks and rewards; symmetry of obligations between the principal parties; precision and predictability of costs and obligations; reduction of transaction costs; force majeure; and termination. It also addresses other important concerns such as user protection, independent monitoring, dispute resolution and financial support from the Government.

The MCA also elaborates on the basis for commercialising highways in a planned and phased manner through optimal utilisation of resources on the one hand and adoption of international best practices on the other hand. The objective is to secure value for public money and provide efficient and cost-effective services to the users.

### **Rationale for phased development**

#### *Phased development will be affordable and cost-effective*

The four critical elements that determine the financial viability of a highway project are traffic volumes, user fee, concession period and capital costs. As the existing highways have dedicated traffic and the Government has prescribed the user fee for uniform application across India, revenue streams for a Project Highway can be assessed with a fair degree of accuracy. The concession period, on the other hand, can be extended only marginally for improving project viability as the growth of traffic would not permit very long concession periods. In any case, the present value of projected revenues, after say 20 years, is comparatively low from the Concessionaire's perspective.

As three of the four above-stated parameters are predetermined, capital cost is the variable that determines the financial viability of a project. Bidders would, therefore, seek an appropriate capital grant/subsidy from the Government in order to reduce the capital cost for arriving at an acceptable rate of return.

In the given scenario, higher the capital cost, greater would be the compulsion of project sponsors to seek larger grants from the Government. This, in turn, would restrict the ability of the Government to leverage a larger pool of extra-budgetary resources, including private investment, and would hence result in a limited programme of highway development.

In view of the foregoing, it is important to rely on cost-effective designs and to combine them with a phased investment programme to enable a more efficient and sustainable programme of highway development.

As a general principle, capacity augmentation of highways should be based on the standards recommended by the Indian Roads Congress for different bands of traffic volume. The emphasis should be on phased development rather than on providing high cost roads for catering to the projected growth in the long term.

Where traffic intensity is comparatively low, limited widening of highways could be undertaken with further widening planned after 7-12 years depending on projected traffic growth. Upgradation of designs and standards, construction of bypasses in urban and semi-urban areas and other improvements may also be planned in phases depending on traffic intensity. These issues have been subjected to in-depth examination and reflected in a Manual of Standards and Specifications that forms part of the standard documents associated with the MCA.

### **Technical parameters**

#### *Technical parameters will focus on the level of service for the users*

Unlike the normal practice of focussing on construction specifications, the technical parameters specified in the MCA are based mainly on output specifications, as these have a direct bearing on the level of service for users. Only the core requirements of design, construction, operation and maintenance of the Project Highway are to be specified, and enough room would be left for the Concessionaire to innovate and add value.

In sum, the framework focuses on the 'what' rather than the 'how' in relation to the delivery of services by the Concessionaire. This would provide the requisite flexibility to the Concessionaire in evolving and adopting cost-effective designs without compromising on the quality of service for users. Cost efficiencies would occur because the shift to output based specifications would provide the private sector with a greater opportunity to innovate and optimise designs in a way normally denied to it under conventional input based procurement specifications.

### **Concession period**

#### *Concession period to be linked to projected traffic*

The guiding principle for determining project-specific concession period is the carrying capacity of the respective highway at the end of the concession period. As such, the concession period is determined on a project-specific basis depending on the volume of present and projected traffic. Toll paying users should not be subjected to congested highways and the Concession should, therefore, cease when full capacity of the road is reached, unless further augmentation is built into the MCA.

The time required for construction (about two years) has been included in the concession period so as to incentivise early completion, implying greater toll revenues.

## **Selection of Concessionaire 0**

### *Competitive bidding on single parameter will be the norm*

Selection of the Concessionaire is based on open competitive bidding. All project parameters such as the concession period, toll rates, price indexation and technical parameters are to be clearly stated upfront, and short-listed bidders will be required to specify only the amount of grant sought by them. The bidder who seeks the lowest grant should win the contract. In exceptional cases, instead of seeking a grant, a bidder may offer to share the project revenues with the Government.

## **Grant**

### *Grants to bridge viability gap*

Based on competitive bidding, the Government may provide a capital grant of up to a maximum of 20 per cent of the project cost. This would help in bridging the viability gap of the PPP projects. Where such assistance is inadequate for making a project commercially viable, an additional grant not exceeding 20 per cent of the project costs may be provided for O&M support during the period following the commissioning of the Project Highway.

## **Concession fee**

### *Concession fee should be levied only if revenue streams can sustain it*

Concession fee is a fixed sum of Re. 1 per annum for the concession period. Where bidders do not seek any grant and are instead willing to make a financial offer to the Government, they will be free to quote a premium on concession fee in the form of a share in revenues from user fee. In addition, the revenue share quoted for the initial year could be increased for each subsequent year by an additional 1 per cent. The rationale for the above fee structure is that in the initial years, debt service obligations would entail substantial outflows. Over the years, however, the Concessionaire will have an increasing surplus in its hands on account of the declining debt service on the one hand and rising revenues on the other. Recognising this cash flow pattern, the concession fee to be paid by the Concessionaire will be on an ascending revenue share.

## **Risk allocation**

### *Risk allocation and mitigation is critical to private investment*

As an underlying principle, risks have been allocated to the parties that are best suited to manage them. Project risks have, therefore, been assigned to the private sector to the extent it is capable of managing them. The transfer of such risks and responsibilities to the private sector would increase the scope of innovation leading to efficiencies in costs and services.

The commercial and technical risks relating to construction, operation and maintenance are being allocated to the Concessionaire, as it is best suited to manage them. Other commercial risks, such as the rate of growth of traffic, are also being allocated to the Concessionaire. The traffic risk, however, is significantly mitigated as the Project Highway is a natural monopoly where existing traffic volumes can be measured with reasonable accuracy. On the other hand, all direct and indirect political risks are being assigned to the Authority.

It is generally recognised that economic growth will have a direct influence on the growth of traffic and that the Concessionaire cannot in any manner manage or control this element. By way of risk mitigation, the MCA provides for extension of the concession period in the event of a lower than expected growth in traffic. Conversely, the concession period shall be reduced if the traffic growth exceeds the expected level.

The MCA provides for a target tariff growth and stipulates an increase of upto 20 per cent in the concession period if the growth rate is lower than projected. For example, a shortfall of 5 per cent in the target traffic after 10 years would lead to extension of the concession period by 7.5 per cent thereof. On the other hand, an increase of 5 per cent in the target traffic would reduce the concession period by 3.75 per cent thereof.

## **Financial close**

### ***Project implementation must commence as per agreed timeframe***

The MCA stipulates a time limit of 180 days (extendable up to another 120 days on payment of a penalty) for achieving financial close, failing which the bid security shall be forfeited. By prevalent standards, this is a tight schedule, which is achievable only if all the parameters are well defined and the requisite preparatory work has been undertaken.

The MCA represents a comprehensive framework necessary for enabling financial close within the stipulated period. Adherence to such time schedules will usher in a significant reduction in costs besides ensuring timely provision of the much needed infrastructure. This approach would also address the typical problem of infrastructure projects not achieving financial close for long periods.

## **User fee**

A balanced and precise mechanism for determination of user fee has been specified for the entire concession period since this would be of fundamental importance in estimating the revenue streams of the project and, therefore, its viability. The user fee shall be based on the rates to be notified by the Government.

The MCA also provides for indexation of the user fee to the extent of 40 per cent thereof linked to WPI. Since repayment of debt would be virtually neutral to inflation, the said indexation of 40 per cent is considered adequate. A higher level of indexation is not favoured, as that would require the users to pay more for a declining (more congested) level of service when they should be receiving the benefit of a depreciated fee. A higher indexation would also add to uncertainties in the financial projections of the project.



**Local traffic**

Owing to the absence of an alternative road, highways should be open to use by local residents without any payment of tolls until free service lanes are provided. This would ensure local support for the project and avoid legal challenges or local opposition arising out of easement rights.

Frequent users should be entitled to discounted rates, in accordance with the tolling policy.

**Construction*****Safety and quality of service must be ensured***

Handing over possession of at least 80 per cent of the required land and obtaining of environmental clearances are among the conditions precedent to be satisfied by the Government before financial close.

The MCA defines the scope of the project with precision and predictability in order to enable the Concessionaire to determine its costs and obligations. Additional works may be undertaken within a specified limit, only if the entire cost thereof is borne by the Government.

Before commencing the collection of user fee, the Concessionaire will be required to subject the Project Highway to specified tests for ensuring compliance with the specifications relating to safety and quality of service for the users.

**Operation and maintenance*****Maintenance standards will be enforced strictly***

Operation and maintenance of the Project Highway is to be governed by strict standards with a view to ensuring a high level of service for the users, and any violations thereof would attract stiff penalties. In sum, operational performance would be the most important test of service delivery.

The MCA provides for an elaborate and dynamic mechanism to evaluate and upgrade safety requirements on a continuing basis. The MCA also provides for traffic regulation, police assistance, emergency medical services and rescue operations.

**Right of substitution*****Lenders will have the right of substitution***

In the highways sector, project assets may not constitute adequate security for lenders. It is project revenue streams that constitute the mainstay of their security. Lenders would, therefore, require assignment and substitution rights so that the concession can be transferred to another company in the event of failure of the Concessionaire to operate the project successfully. The MCA accordingly provides for such substitution rights.

## **Force majeure**

### *Concessionaire will be protected against political actions*

The MCA contains the requisite provisions for dealing with force majeure events. In particular, it affords protection to the Concessionaire against political actions that may have a material adverse effect on the project.

## **Termination**

### *Pre-determined termination payments should provide predictability*

In the event of termination, the MCA provides for a compulsory buy-out by the Government, as neither the Concessionaire nor the lenders can use the highway in any other manner for recovering their investments.

Termination payments have been quantified precisely. Political force majeure and defaults by the Government shall qualify for adequate compensatory payments to the Concessionaire and thus guard against any discriminatory or arbitrary action by the Government. Further, the project debt would be fully protected by the Government in the event of termination, except for two situations, namely, (a) when termination occurs as a result of default by the Concessionaire, 90 per cent of the debt will be protected, and (b) in the event of non-political force majeure such as Act of God (normally covered by insurance), 90 per cent of the debt not covered by insurance will be protected. However, if the Concessionaire fails to commission the project owing to its own default, no termination payment would be due.

## **Monitoring and supervision**

### *Independent supervision is essential*

Day-to-day interaction between the Government and the Concessionaire has been kept to the bare minimum by following a 'hands-off' approach, and the Government shall be entitled to intervene only in the event of a material default. Checks and balances have, however, been provided for ensuring full accountability of the Concessionaire.

Monitoring and supervision of construction, operation and maintenance is to be undertaken through an Independent Engineer (a qualified firm) that will be selected by the Government through a transparent process. Its independence would provide added comfort to all stakeholders, besides improving the efficiency of project operations.

The MCA provides for a transparent procedure to ensure selection of well-reputed statutory auditors, as they would play a critical role in ensuring financial discipline. As a safeguard, the MCA also provides for appointment of additional or concurrent auditors.

To provide enhanced security to the lenders and greater stability to the project operations, all financial inflows and outflows of the project are to be routed through an escrow account.

## **Support and guarantees by the Government**

### ***Support and guarantees by the Authority are essential***

By way of comfort to the lenders, loan assistance from the Government has been stipulated for supporting debt service obligations in the event of a revenue shortfall resulting from political force majeure or default by the Government.

Guarantees have also been provided to protect the Concessionaire from construction of competing roads, which can upset the revenue streams of the project. Additional tollways would be allowed, but only after a specified period and upon compensation to the Concessionaire by way of an extended concession period.

## **Miscellaneous**

### ***An effective dispute resolution mechanism is critical***

A regular traffic census and annual survey has been stipulated for keeping track of traffic growth. Sample checks by the Authority have also been provided for. As a safeguard against siphoning of revenue share by the Concessionaire, a floor level of present and projected traffic has also been stipulated.

The MCA also addresses issues relating to dispute resolution, suspension of rights, change in law, insurance, defects liability, indemnity, redressal of public grievances and disclosure of project documents.

## **Conclusion**

### ***Private participation should improve efficiencies and reduce costs***

The aforesaid contractual framework addresses the issues that are likely to arise in financing of highway projects on DBFOT basis. The regulatory and policy framework contained in the MCA is a pre-requisite for attracting private investment with improved efficiencies and reduced costs, necessary for accelerating

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