Infrastructure Advisory

CRISIL
An S&P Global Company

Rekindling private investment in roads and highways

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FICCI

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Message from the Minister

नितिन गडकरी
NITIN GADKARI

सत्यमेव जयते

मंत्री
जल संसाधन, नदी विकास, गंगा संरक्षण,
सड़क परिवहन, राजमार्ग एवं पोत परिवहन
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River Development, Ganga Rejuvenation,
Road Transport, Highways and Shipping
Government Of India

MESSAGE

Roads and Highways Sector, in the past four years, has seen unprecedented development. The pace of constructing highways in India has witnessed a steep rise to 27 km a day with a target to achieve 40 kms a day. To further boost this target, NHAI has created a National Highways Investment Promotion Cell (NHIPC), which focuses on engaging with global institutional investors, construction companies, developers and fund-managers for building investor participation in road infrastructure projects. Additionally, introduction of innovative Public Private-Partnership models like HAM and TOT has led to mitigation of financial and development risks and has further propelled the growth of this sector.

I congratulate FICCI and CRISIL for preparing a white paper "Rekindling private investment in roads and highways" which talks about several areas on how to rejuvenate the investments flowing in from the private sector. With PPP models identified as the focus areas to meet the ambitious targets of the Bharatmala Pariyojana, I am hopeful that innovative business models will enhance the participation of private players. The Roads and Highways Summit is held at an opportune time to gain better understanding of opportunities pertaining to projects/ investments in Indian Roads and Highways Sector.

I am sure, the deliberations and exchange of views during the summit would help in accomplishing the goal of rejuvenating the Private sector investments in Indian Roads and Highways Sector.

I wish Roads and Highways Summit all the success.

(Nitin Gadkari)

Date: 1st March, 2019
Place: New Delhi

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Foreword from FICCI

Mr Krishna Prakash Maheshwari
Chairman, FICCI National Committee on Infrastructure and Chief Executive Officer
(Roads, Railway, Metro Railway, Water & Waste Water)
Adani Infra India Limited

I am pleased to share with you the **FICCI-CRISIL** report on **Rekindling private investment in Roads and Highways,** to be released at the **Roads and Highways Summit** organised by Federation of Indian Chambers of Commerce and Industry.

Under the flagship Bharatmala Pariyojana, road and highway connectivity across the country has witnessed massive growth.

Additionally, understanding and addressing the challenges through the government's public-private-partnership initiatives, such as introduction of 100% equity disinvestment, hybrid annuity model, and toll-operate-transfer model for monetisation of existing public-funded toll roads of the National Highways Authority of India, have boosted growth.

Against this background, this comprehensive report by FICCI and CRISIL highlights the significance of revitalising private sector investments in the roads and highways sector.

The report recognises that this sector is the most preferred for attracting private investment owing to well-planned and well-defined national programmes, including the PPP models' mature framework, the earmarked outlays, and the construction targets.

I hope this report will help put in perspective the large opportunities for the private sector – not just Indian players, but also leading global ones – related to roads and highways.

Foreword from CRISIL

Mr Akshay Purkayastha
Director
Transport & Logistics
CRISIL Infrastructure Advisory

In India, public spending has been the key driver of infrastructure development, which is essential for socio-economic development of any country. However, with various other sectors vying for government resources and the infrastructure sector's needs witnessing a significant increase, the government has been forced to search for alternative means to finance projects.

One such option is public-private partnership (PPP), which was introduced to attract private investment into the sector and to bring in efficiencies in construction, operation and maintenance of assets. While various models under the PPP framework were successful in attracting significant private sector investment, a number of lacunae have become evident in these models over the years.

Within infrastructure, the roads and highways sector has pioneered innovative PPP models. Over the years, the sector has seen significant private investment through PPP projects, especially under the toll-based build-operate-transfer or BOT model. However, beginning 2013, factors such as delay in construction, lower-than-estimated revenue, over-aggressive bidding, and land acquisition issues resulted in a downturn, and interest in PPP projects waned.

In order to revive the sector, the government undertook a number of initiatives such as modification in the concession structure, premium deferment, 100% equity divestment, and one-time fund infusion. Some important developments over the past couple of years include monetisation of assets through the toll-operate-transfer (TOT) model, implementation of de-risked models such as the hybrid annuity model (HAM), introduction of investment platforms such as infrastructure investment trusts (InvITs), and institutionalisation of the arbitration process. These initiatives have revived investor sentiment. However, given the enormous requirements of the sector, a lot more can be done. For instance, private investment worth Rs 1.4 lakh crore is required over fiscals 2018-2022 to meet the ambitious targets of the Bharatmala Pariyojana.

Thus, the need to revive PPP projects in the sector cannot be overstated. The government needs to take initiatives to strengthen the lending institutions, rebalance risk sharing in contracts, renegotiate contracts, set up an independent regulator, and boost the dispute resolution mechanism. Indeed, many such measures are in the works.

This knowledge paper intends to cover the trends in the private sector participation in roads and highways, explain the rationale for reviving private sector interest, and explore the measures required for this. I hope this report provides wider perspective on the current developments and aspirations of the sector.

Executive summary

At 27 km a day, the pace of constructing highways in India could be one of the fastest globally. The government intends to increase this to 40 km a day by next year. A key reason for the quick pace is the adoption of PPP models, such as HAM, for project execution.

However, maintaining and increasing this aggressive pace would require better efficiencies and higher investments from the private sector.

PPP models gained traction during the National Highways Development Project era, with BOT (both Toll and Annuity models) projects contributing the most. This trend held over fiscals 2006-2013. From fiscal 2013, interest in PPP projects declined due to a number of factors, such as over-aggressive bidding by road developers, optimistic traffic projections, slowdown in economy and build-up of non-performing assets (NPAs) in the banking sector.

To reinvigorate private sector interest, the government came up with new models such as HAM in fiscal 2016, which decreased both the development and financing risks of developers. It was also decided to award HAM, engineering-procurement-construction (EPC) and BOT (Toll) projects in 60:30:10 ratio. This put PPP projects in the roads and highways sector back on track.

The government also introduced a new model to monetise operational road assets – toll-operate-transfer (TOT). Under this model, private developers were given tolling rights on operational road projects in return for an upfront fee to the government.

The first TOT bundle was bid out at Rs 9,681 crore, ~1.5 times the initial estimated concession value (IECV) of the National Highways Authority of India (NHAI). This transaction achieved financial closure in August 2018. It opened the doors for entry of a new class of investors into the roads and highways sector – pension funds and sovereign wealth funds.

The introduction of innovative PPP models boosted private sector interest in roads and highways.

However, more investment from the private sector will be required. The NHAI has to raise Rs 1.4 lakh crore through PPPs just to meet the ambitious targets set for Bharatmala Pariyojana.

In order to attract such huge investments, the government may consider removing impediments through reforms and encourage private sector participation.

Some of these issues are financing constraints (on account of delay in financial closure), lengthy land acquisition and clearance process (on account of cost and time overruns) and developers' stretched balance sheets (on account of aggressive bidding during pre-fiscal 2013 period).

The government has taken a number of initiatives to mitigate the challenges for private players. These include modification in the concession structure (premium deferment, 100% equity disinvestment, one-time fund infusion), institutionalisation of the arbitral process and acceleration of land acquisition (by giving more authority to the NHAI's regional offices and introduction of BhoomiRashi portal).

A few more recommendations that government may consider to attract private investment into the sector are as follows:

- Explore the option of using InvITs as a source of finance for the Bharatmala Pariyojana
- Encourage the portfolio sale of assets to strategic and financial investors. This will help asset developers to generate funds to invest in

new assets. It will create a stable cash flow for investors

- Introduce TOT bundling of HAM projects. HAM projects are now getting operational and high-traffic HAM road assets can be bundled into TOT
- Introduce innovative PPP structures such as modified HAM with tolling rights to the concessionaire, BOT (Toll), and EPC (hybrid), to reinvigorate interest of road developers
- Explore value capture financing (VCF) as a tool to monetise land around expressways, city ring roads, etc.
- Explore infrastructure debt funds (IDFs) and similar structures and encourage pension funds to start investing in under-construction projects

In order to meet the huge road development targets set by the government, private participation in the sector is required more than ever before. With reforms in the road sector continuing, private companies are expected to work along with the government and contribute majorly to the development of the sector.

Trends in private sector participation in roads and highways

Introduction

The expanding highway network has increased the connectivity across the country. The PPP mode of development has contributed considerably to this. By setting up good quality infrastructure and streamlining the operation and maintenance process, private companies have become indispensable to the sector.

The PPP model was introduced in the sector in 1990s as a means to meet the high demand for funds. Currently, various PPP models exist in the sector. However, given the challenges that companies have faced in the past, newer steps are needed to revive PPP projects in the sector.

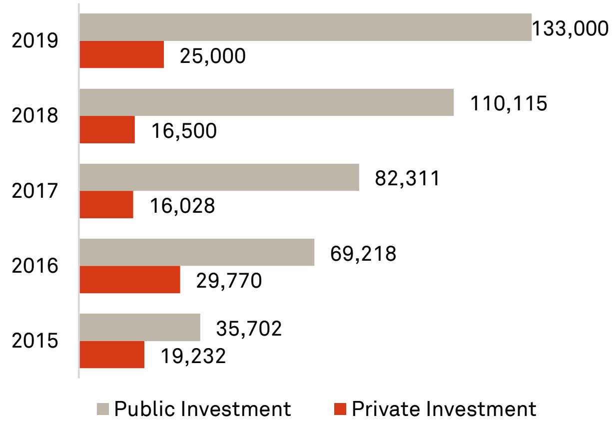
Sector trend in PPP projects

Brief history of PPPs in the roads and highways sector

The concept of PPP was introduced in the Indian infrastructure sector in the mid-1990s, with primary focus on transport and energy sectors. Started in 1998, the National Highways Development Project set a target to construct more than 50,000kms of roads, of which approximately 23,000 km was to be under the PPP model. The awards started at a slow pace as there was no robust PPP framework and the competition was also limited. However, the pace picked up after the government came out with standardised PPP contracts / framework in fiscal 2006.

The sector took a sharp downturn in fiscal 2013 due to a slowdown in the global economy, delay in land acquisition and environmental clearances, pessimistic business sentiment and build-up of NPAs in the financial sector. Lending to the infrastructure sector froze. Aggressive bidding and optimistic traffic projections by the developers only worsened the situation. Thus, in the first quarter of fiscal 2013, private players submitted bids for only 100 km of projects. As private sector participation declined, the NHAI adopted the HAM as the preferred PPP model in fiscal 2016. This model, a cross between EPC and BOT (Annuity), reallocated risks between developers and the authority and revived investments in the sector.

Figure 1: Private investment (Rs crore)[1]



Benefits of adopting PPP in the sector

The PPP model was adopted with the objective of harnessing the private sector's efficiencies in asset creation, maintenance and service delivery. It focused on a life-cycle-based approach against upfront cost and item rate EPC methodology that were followed in the sector until then. The government has been proactive in encouraging private sector participation and executing PPP engagements. Revision in the concession structure of ongoing models and formulation of a balanced PPP framework have given the required impetus to the private sector. In addition, introduction of new PPP models such as TOT is attracting new class of investors, which, in turn, is helping raise significant amount of resources for the roads and highways sector.

[1] Source: MoRTH; pib.nic.in

CRISIL InfraInvex: Roads & highways leads in infrastructure investability rating

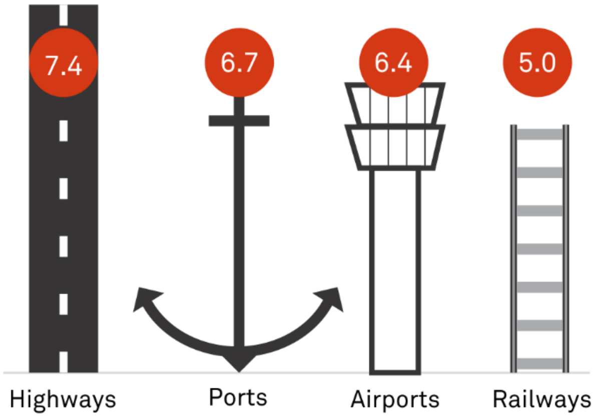
As per the Ministry of Finance data, till date, 1,539 PPP projects have been awarded in the country. Of these, the transport sector accounts for nearly 58%[2]. Within the transport sector, roads and highways are spearheading the implementation of these projects.

To compare the investability of various infrastructure sectors, CRISIL formulated an index (CRISIL InfraInvex) considering four major pillars of assessment as follows:

- Policy direction: On the basis of policy consistency and public financing support
- Institutional strength and regulatory maturity: On the basis of the entity's implementation capacity, financing models and regulatory robustness
- Financial stability: On the basis of cost recovery and demand risk
- Implementation ease: On the basis of track record and externalities

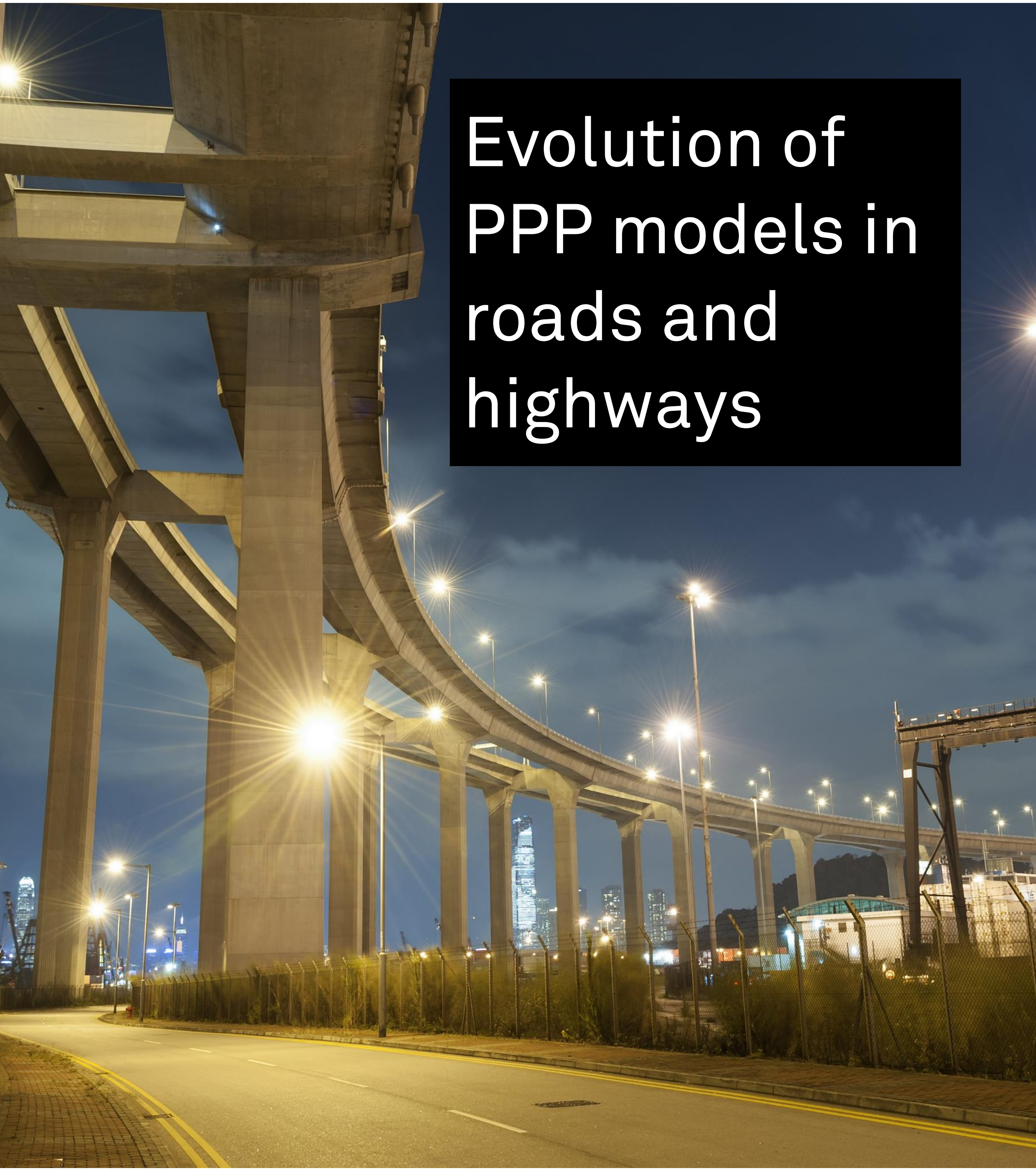
As per the index, roads and highways is the most preferable transport sector for private investment because of the well-defined national programmes, mature PPP framework, earmarked outlays, and clear project pipeline and construction targets.

Figure 2: Highways most preferable transport sector for PPP investments (CRISIL InfraInvex, max score of 10)[3]



[2] Niti.gov.in

[3] Annexure 1 shows the working of the InfraInvex score



Evolution of PPP models in roads and highways

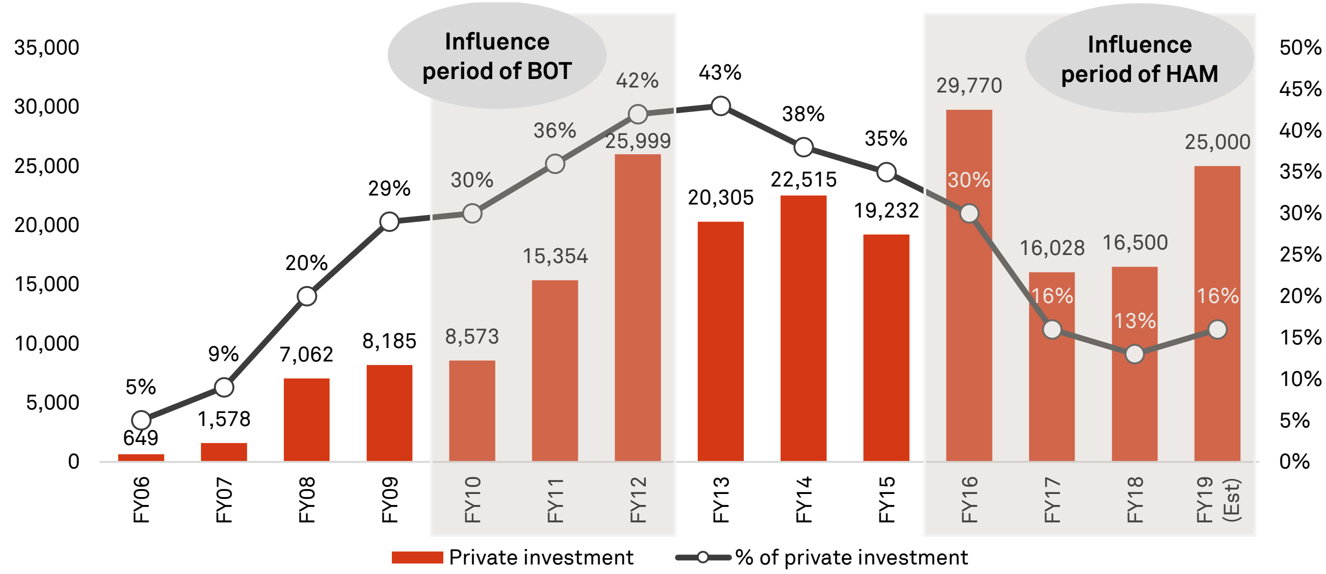
Existing PPP models

The NHAI has attracted private investment through an array of models such as BOT (Annuity) and BOT (Toll). The introduction of the HAM has also been well accepted.

The authority also successfully monetised its first brownfield assets bundle under the TOT model last year and has more bundles in the pipeline.

The innovative financing structure of new PPP models has attracted a new class of investors – sovereign wealth funds and pension funds – increasing the liquidity in the sector.

Figure 3: Increase in private sector investment under PPP models (Rs crore)[4]

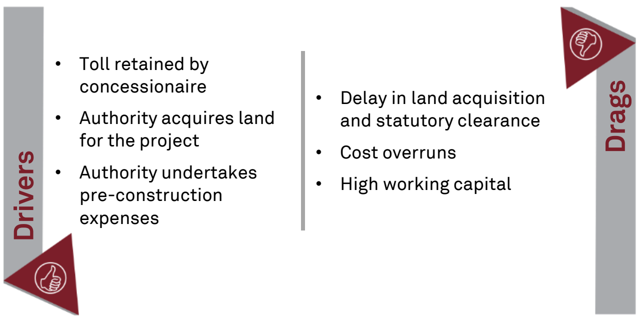


BOT (Toll)

The BOT (Toll) model initially helped in channelising private investment into the highways sector. Under this model, the developer bears the risks related to construction, revenue and traffic. The contract goes to the bidder who pays the highest premium to the NHAI. Generally, the concession period is for 30 years.

Project awarding increased 10-fold between fiscals 2009 and 2012. However, it plummeted post fiscal 2012. The execution also took a hit. Out of 7,283 km of projects awarded in fiscal 2012, at least 25 projects totalling 3,300 km were stalled.

Eventually, it caused significant financial stress for the developers as they found it difficult to complete projects due to delays in land acquisition, regulatory approvals and debt servicing. Aggressive bidding also made many projects unfeasible. Thus, awards under BOT (Toll) declined considerably from fiscal 2013.



[4] Source: MoRTH; pib.nic.in

BOT (Annuity)

To protect the concessionaire from commercial risks and to develop non-viable stretches, the BOT (Annuity) model was formulated. The developer designs, finances and constructs the road for a semi-annual annuity received from the NHAI.

Just as the BOT (Toll) model, BOT (Annuity) also saw an increase in the awards. However, the contracts declined due to low profitability; increasing operating cost; time and cost overruns with delay in transfer of right of way; and funding risk (if debt and equity are not tied up).

Drivers	Drags
• Developer's revenue not impacted by fluctuation in toll collection • Stability of cash flows	• Inflation risk leading to increase in operating cost and fall in revenue

HAM

Introduction of the HAM in 2016, involving pre-determined revenue and risk distribution between the government and private players, boosted the private sector interest. The model is a mix of the EPC (the developer is only responsible for construction in exchange for payment) and BOT (Annuity) models.

The total project cost is shared between the NHAI and the concessionaire in the ratio of 40:60 during the construction period. On behalf of the government, the authority releases 40% of the total project cost. It is disbursed in five equal instalments based on the physical progress of the project. The balance 60% is arranged by the developer through a combination of debt and equity. Here, the developer usually invests not more than 20-25% of the project cost (as against 40% or more before), and the balance is raised as debt. Once the project is operational, the authority makes semi-annual payments to the developer for 60% of the project cost, along with interest on reducing balance and operations and maintenance costs.

The bid parameter is the project life-cycle cost, defined as the net present value (NPV) of the quoted bid project cost plus NPV of the operations and maintenance cost during the period of operation. The bid is awarded to the developer quoting the lowest NPV of the project life-cycle cost. The concession period comprises project-specific construction period with a fixed operation period of 15 years.

Drivers	Drags
• Reduce requirement of debt by raising require amount through equity • Government bears the traffic risk	• Gap between construction grant from authority and disbursement of term loan from lender

Operate-maintain-transfer model

The contracts under this model have shorter concession periods ranging from four to nine years. The concessionaire is transferred a brownfield asset with no rights for capacity augmentation. The toll collection right is transferred to the concessionaire in return for a concession fee payable to the NHAI. The operation and maintenance includes periodic as well as annual maintenance works, traffic incident management and traffic flow management. The model is awarded with the aim of increasing the quality of operation and maintenance of roads.

Drivers	Drags
• Short concession period • Toll collection rights with concessionaire • No construction risk	• Traffic and revenue risk is with the concessionaire

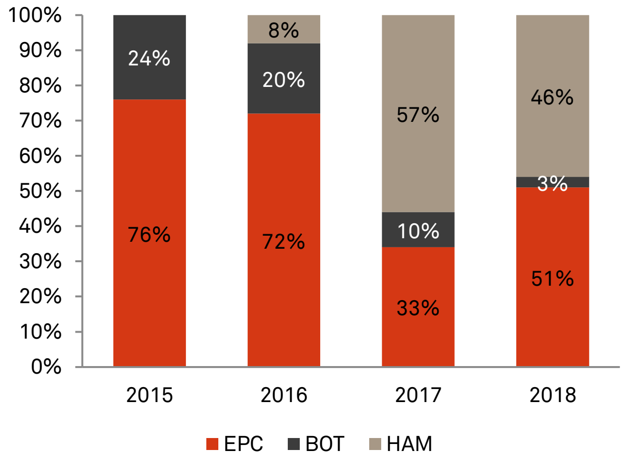
Majority of the road projects in India are currently being executed either under the EPC mode or the HAM, where the government has to fund the construction cost over the period of construction, either fully (EPC) or partially (HAM). These models, though beneficial to private players in terms of being less risky compared with the BOT (Toll) model, lays the burden of finances on the government. Therefore, the government may consider coming up with newer PPP frameworks to minimise the need for public financing.

Emerging trends in PPP projects

HAM continues to be the preferred mode

The HAM is now the preferred mode of project execution in the sector. Approximately 50% of the projects awarded in fiscal 2018 were under this model. In value terms, HAM projects increased from Rs 7,000 crore in fiscal 2016 to Rs 76,500 crore in fiscal 2018.

Figure 4: Shift in preference to HAM[5]



Asset-monetisation via TOT model

The Ministry of Road Transport and Highways (MoRTH) devised the TOT model to recycle its operational road assets, constructed under the EPC and BOT (Annuity) models.

The model securitises toll revenue from existing government-owned road assets and utilises the proceeds to finance the development of new road assets. The key parameters of the TOT model are:

- **Source of revenue:** Toll collection undertaken by the concessionaire
- **Bidding parameter:** Highest upfront concession fee payable to the NHAI
- **Concession period:** 30 years with 100% exit option after two years
- **Method of securitisation:** The NHAI calculates the IECV as upfront fee payable by the concessionaire. The IECV is the discounted value (discounted at rate equal to 3% above the bank rate for debt and normative rate for equity return) of net free cash flow expected to be generated by the project highway from the valuation date until end of concession period of 30 years
- **Target investors:** Minimal construction risk allows for investment by pension funds, sovereign wealth funds, etc.

Key clauses in concession agreement

Some of the key clauses in the TOT concession agreement are as follows:

- **Capacity augmentation** of road stretches to be undertaken if average daily traffic of passenger car units (PCUs) in any accounting year exceeds the designed capacity of 40,000 PCUs and shall continue to exceed designed capacity for three consecutive accounting years thereafter
- **Variation in toll collection** will be assessed at two target points. In case of shortfall, the concession period to be increased by 1.5% for every 1% shortfall from the target fee. In case

[5] Source: CRIS Analysis

of excess fee, the concession period to be decreased by 0.75% for every 1% excess fee collected

- **Concession period** is not to be reduced by more than five years, and is not to be increased by more than 10 years
- **Dispute resolution** is to be done through mediation, conciliation or arbitration. Mediation is to be done by an independent engineer. Conciliation and arbitration should conform to the rules of the Society for Affordable Redressal of Disputes (SAROD) and provisions of the Arbitration & Conciliation Act, 1996, as amended from time to time

Key benefits to private investors

The model minimises revenue risk since revenue streams are established. There are no construction risks such as land acquisition delays, contingencies and cost escalations. Moreover, estimation of traffic becomes easier than a greenfield project since operational history of the asset is available. Private players can perform due diligence and establish willingness to pay while bidding for the project.

First bundle: A success

The MoRTH has identified 75 operational stretches totalling 4,500 km to be awarded under the model. These stretches are bundled on the basis of profitability and each bundle is given out for bidding to a single bidder.

The first bundle was bid out by the NHAI in fiscal 2018. It constituted nine road stretches totalling ~682 km. Six of them were in Andhra Pradesh, and three in Gujarat. The IECV estimated by the NHAI was Rs 6,258 crore.

The consortium of MAIF Investments India Pvt Ltd and Ashoka Buildcon Ltd emerged as the highest bidder, by bidding Rs 9,681 crore, ~1.5 times the IECV of the authority. Financial closure of the bundle was achieved on August 29, 2018. This shows significant private sector interest and the model has achieved its purpose.

Bids for the second bundle was issued on August 6, 2018. It had eight road stretches totalling ~586 km in Rajasthan, Gujarat, Bihar and West Bengal with 12 toll plazas. However, the bids received were less than the IECV and hence, the bundle was not awarded. It raised questions about the willingness of private investors to pay for these road assets.

Potential challenges for private players

- Variation in toll collection can be high, leading to a significant amount of losses to be absorbed before the concessionaire gets compensated
- The concessionaire might not be able to raise an enormous amount of upfront concession fee on or prior to the appointed date due to discomfort among lenders
- Risk with respect to expansion of roads from 4 lanes to 6 lanes as toll gets frozen at 75% level of existing toll during upgradation

The continuing interest in HAM projects and the emergence of TOT are good signs for the roads and highways sector. But with the launch of the Bharatmala Pariyojana, huge private sector investment will be required in the coming years. This has been discussed in the next section. The section also looks into more details at the various impediments being faced by the private sector, and how the government has been working to remove them.

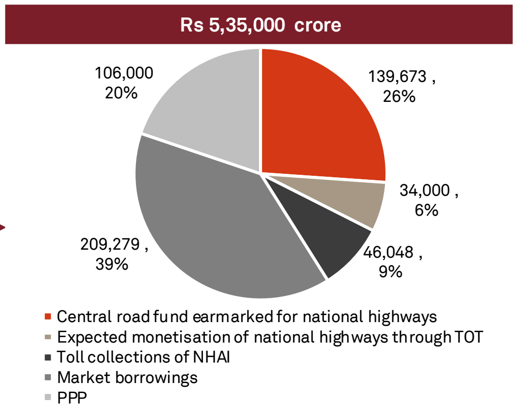
Revival of PPP in road sector

Need for revival of PPP

In 2017, the Cabinet approved the proposal to develop and upgrade 34,800 km of national highways all over the country under the Bharatmala Pariyojana. The break-up of expenditure allocation and proposed funding for the project over fiscals 2018-2022 is shown in the figure below.

Figure 5: Investment requirement under Bharatmala Pariyojana and sources of funds[6]

S. No	Bharatmala Network	Length (km)	% of total length	Amount (Rs crore)	% of total expenditure
1	Balance works from NHDP	10,000	29%	150,000	28%
2	Economic corridors	9,000	26%	120,000	22%
3	Inter corridor and feeder route	6,000	17%	80,000	15%
4	Greenfield expressways	800	2%	40,000	7%
5	Coastal roads and port connectivity	2,000	6%	20,000	4%
6	Border roads and international connectivity	2,000	6%	25,000	5%
7	National corridor efficiency improvement	5,000	14%	100,000	19%
	Total	**34,800**		**5,35,000**	



The programme requires market borrowings to the tune of Rs 209,279 crore. The NHAI has tapped into a number of institutions to raise funds. Some of the major sources of funds include:

- Raising Rs 8,500 crore from Life Insurance Corporation
- Raising Rs 10,000 crore from Employee Provident Fund Organisation (EPFO)
- Issuing rupee-denominated masala bonds of Rs 3,000 crore through the London Stock Exchange

In addition to the market borrowings, private investment required is Rs 140,000 crore. Of this, Rs 34,000 crore will be raised through monetisation of national highways through TOT and Rs 106,000 crore through PPP. The first bundle of TOT projects totalling a length of around 682 km has already been bid out.[7] The NHAI raised Rs 9,681 crore from this bundle. But the bids received for the second bundle were below the IECV of Rs 5,362 crore and hence, the bundle was not awarded. In this context, raising Rs 34,000 crore through the TOT route seems ambitious.

The NHAI has to raise Rs 140,000 crore through PPP (including monetisation of national highways through TOT), only for the Bharatmala Pariyojana. The overall private sector investment was Rs 16,500 crore in fiscal 2018. This is expected to be Rs 25,000 crore in fiscal 2019. If the current trend continues, the private sector investment for the five-year period over fiscals 2018-2022 will be just over Rs 100,000 crore. This creates an estimated gap of Rs 40,000 crore for the Bharatmala Pariyojana alone.

The underlying reasons for this mismatch needs to be analysed. For this, the government could take a close look at the impediments the private players in the sector have been facing over the years.

[6] Source: MoRTH; pib.nic.in
[7] pib.nic.in

Impediments faced by private players

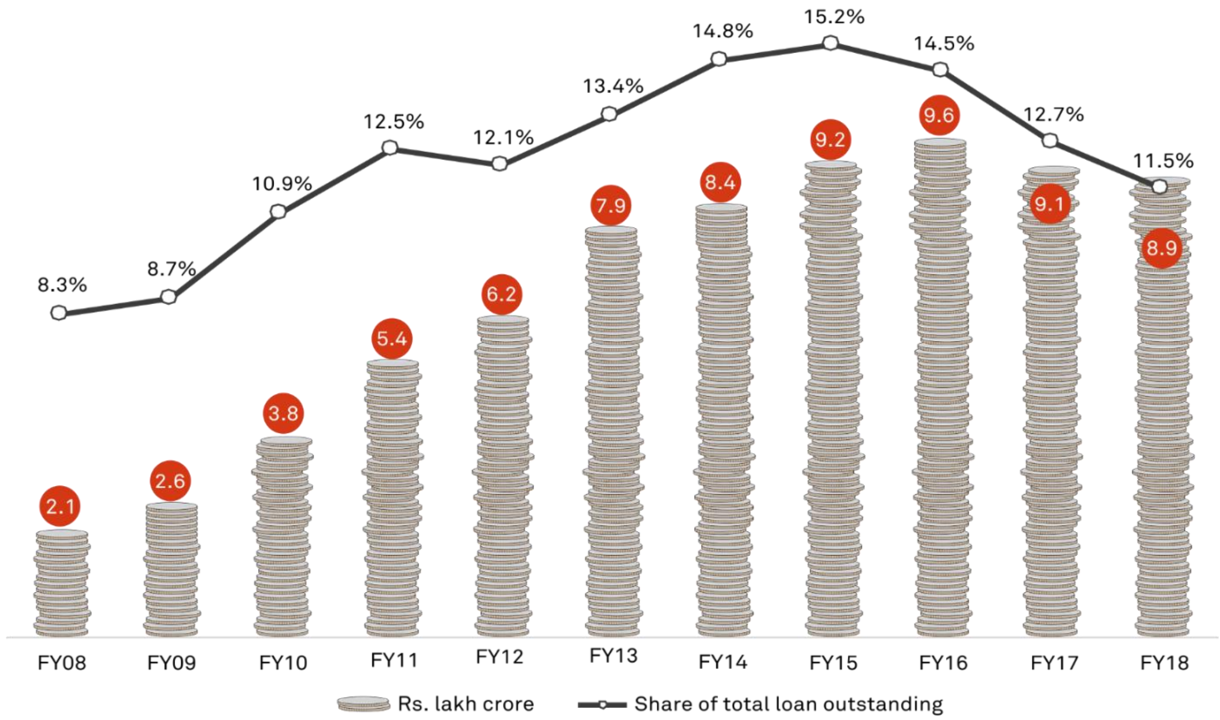
Private players have been facing a number of impediments, which have dissuaded them from taking up risky projects in the sector. Some of them have been listed below.

Financing constraints

Banks had been playing a pivotal role in supporting the infrastructure sector. But a big chunk of their NPAs is from the sector, which has been rising at an alarming rate. The stringent regulations are acting as a deterrent for banks from investing in infrastructure sub-sectors.

The share of banks' outstanding credit to infrastructure, after peaking at 15.2% in fiscal 2015, fell sharply to 11.5% in fiscal 2018. Since fiscal 2016, the outstanding credit to infrastructure has actually declined in absolute terms, reflecting both the stickiness of the stressed assets problem and deceleration in new bankable projects.

Figure 6: Fall in bank credit to infrastructure reflects persistent stress[8]



According to the Economic Survey for fiscal 2018, during fiscal 2013, total credit advances to the road sector was Rs 127,430 crore, which increased to Rs 180,277 crore as of September 2017. The share of NPAs out of total advances in the road sector increased from 1.9% in fiscal 2013 to 20.3% in September 2017.

Although the sector is relatively stable and clean now, at one point of time it had the largest number of stressed assets among all the infrastructure sectors. So banks are still wary of lending to the road sector PPP projects, especially those which are being developed by mid-sized companies with weaker balance sheets. Therefore, private players are finding it difficult to raise finances for road projects. The problem is especially acute in HAM projects, where the developer is responsible for maintenance of road for 15 years.

[8] Source: RBI

Lengthy land acquisition and clearance process

Delays in pre-construction activities (such as land acquisition, relocation of religious structures, encroachment removal, utilities shifting, cutting of trees) have been a deterrent to the interest of private sector investors. Land acquisition process and statutory clearances are often time consuming. Delays in completing these pre-construction activities within the stipulated timeline, results in cost overruns.

Land acquisition for road projects is quite a rigorous and time consuming process involving various stages like 3(a), 3A, 3B, 3C, 3D, 3E, 3F, 3G and 3H. Each stage requires to fulfil certain terms and conditions involving various stakeholders and regulatory bodies making the process cumbersome. Completion of each stage takes different time, varying from state to state, region to region. Land acquisition is viewed as one of the biggest challenges in the roads sector.

The LARR Bill (Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act) has made the process lengthier and more challenging. The associated cost has also increased substantially, almost tripling from Rs 80 lakh per hectare to Rs 2.38 crore per hectare. The clearance and approval process from multiple entities for environment, irrigation, etc., further cause a delay in project commencement.

If a project is delayed because of land acquisition issues, there is an addition of escalation factor in the project cost, thus increasing the estimated project cost for the project. The delay also results in addition of certain construction-ready projects into next year's target, creating imbalance in government's project award target list.

Stretched balance sheet of Indian developers

Indian developers' balance sheets are stretched. This is due to a number of factors, including over-aggressive bidding and pending claims to the NHAI on breach of concession agreement.

For BOT (Toll and Annuity) projects, the developers, in their enthusiasm to increase their project portfolio, bid at prices / costs that are considerably less than those assessed by independent experts and authorities. Since the current project awarding mechanism is oriented towards the L1 / H1 bid, the project ultimately gets awarded to the developer promising to deliver the lowest annuity / highest revenue to government authorities. The aggressive bidding for projects by private developers has led to a dramatic reduction in the rate of project completion and increase in NPAs.

Pending claims to the NHAI on breach of concession agreement have also stretched developers' balance sheet. High pending claims have resulted in companies refraining from participating in BOT projects due to potential losses. Existing debt burden of Rs 60,000 crore at project level does not provide room for absorbing future risks. New players are hesitant to enter the sector because of all these issues.

Other factors such as poor pre-project assessment of traffic and changing macroeconomic conditions have resulted in less-than-expected returns from projects. This is another factor that impacts developers' balance sheets.

Government initiatives to revive private sector interest

The government has identified the challenges plaguing the roads and highways sector, and has been undertaking reforms, as well as implementing new models and frameworks to accelerate private sector investment.

Prudent risk allocation for PPP models

HAM, which was introduced in 2016, has increased the appetite of the private sector as it involves pre-determined revenue and risk distribution between the government and private players. In fact, in only a short period, 50% of the projects have been awarded on HAM.

The most recent model that has attracted the attention of private players, including sovereign funds, wealth funds, private equity players, etc., is the TOT model.

TOT as an infrastructure financing mechanism in India was first recommended by the Kelkar Committee. The committee urged the government to allow monetisation of operational road assets, given the challenges in raising budgetary resources as well as the reluctance of financial institutions to fund projects in the infrastructure sector.

The model has piqued the interest of private sector players that are looking at a long investment horizon with the option of exiting in two years. Also, projects under TOT have established revenue streams as the asset is operational, thereby reducing the risk associated with traffic.

InvIT offers an important divestment platform

An InvIT fund provides an opportunity to the private sector to divest assets and deploy the freed-up capital towards other projects.

IRB Infrastructure Developers Ltd, which launched IRB InvIT Fund in May 2017, has divested seven of its road assets to the fund, thereby considerably reducing the company's leverage.

Such a mechanism is favourable to private investors as the fund is dedicated to the development of profitable assets that have operational history and offer flexible exit options.

Strong implementation of PPP reforms

The government is aware of issues faced by private players, and has proposed multiple reforms to address these.

In most sectors, reforms get stuck at the execution phase. However, in the roads sector, reforms to mitigate challenges faced by private players have been implemented, such as:

- **Premium deferment:** Under this policy intervention, the concessionaire is allowed to restructure the premiums committed once in the life of the concession. In this way, the government can revive projects facing financial stress
- **100% equity disinvestment:** A comprehensive exit policy framework was approved by the Cabinet Committee on Economic Affairs in 2015, whereby the concessionaire was allowed 100% equity divestment after two years of completion of construction of a BOT project, irrespective of the year of award. This was to revive BOT projects.

  Under this initiative, 80 BOT projects that were awarded before 2009, were identified. The locked-in equity in these projects was estimated at Rs 4,500 crore. It is estimated that this amount could potentially support 1,500 km of new highways on the PPP mode[9]
- **Harmonious substitution:** Substitution is allowed for existing concessionaires in BOT projects. This allows for an exit policy for project developers who face liquidity crunch and financial stress

[9] Pib.nic.in

- **One-time fund infusion:** Financial assistance is provided in the form of loan by the NHAI for languishing BOT projects
- **Rationalised compensation:** Extension of the concession period / compensatory annuities for projects languishing because of reasons not attributable to the concessionaire is provided by the authority
- **Securitisation of BOT projects:** Concessionaires can raise subordinate debt on the strength of future surplus cash flow of operational BOT projects
- **Release of 75% arbitral award:** 75% of the arbitral award is released against a bank guarantee
- **Early release of mobilisation advance:** In HAM projects, previously, mobilisation advance (10% of bid project cost) was available to the concessionaire after expiry of 60 days from the appointed date. This has been modified. Out of the 10% mobilisation advance, 5% is now available any time after the appointed date and the balance 5% is available within 60 days from the appointed date. This gives a level of comfort to the concessionaire, in terms of early receipt of the advance amount
- **Release of construction grant:** Construction grant for HAM projects was earlier released in five equal instalments on achievement of physical progress of 20%, 40%, 60%, 75% and 90%, respectively. This has been modified with the construction grant now released on the achievement of physical progress of 10%, 30%, 50%, 75% and 90%, respectively. As the concessionaire receives the grant amounts early, it helps the developer maintain the construction schedule

Institutionalisation of the arbitration process

To quicken and streamline dispute resolution, the MoRTH introduced SAROD, which was incorporated by the NHAI in 2013. The entity aims to reduce the cost of arbitration and pendency of disputes, along with expeditious dispute resolution.

Institutionalisation has provided certainty to the arbitration process, increasing private sector confidence in roads.

Substantial *land acquisition to be complete before project award*

To avoid project delays and subsequent revenue loss to the concessionaire, the central bodies bid out projects only after 80% of the land is acquired. This provides certainty of the entire land being acquired by the time the project award process is complete, ensuring timely commencement of the project.

Mobilising finance from alternate sources

The government has taken several steps to mobilise funds for developing infrastructure, including launching innovative financial vehicles such as IDFs, real estate/infrastructure business trusts and InvITs; relaxing stipulations associated with external commercial borrowings and foreign direct investments; mainstreaming of PPPs; liberalising lending norms by banks to the infrastructure sector; relaxing norms for EPFO/pension funds' investment in the infrastructure sector; and establishing the National Infrastructure Investment Fund.

Steps to accelerate land acquisition

Proactive steps have been taken to accelerate land acquisition:

- NHAI regional offices have been authorised to expeditiously approve land compensation
- The ministry, with the help of the National Informatics Centre, has developed a web portal – BhoomiRashi – to digitise and automate the entire land acquisition process.

  The portal has made the dissemination of information faster, added transparency to the process, and enabled real-time tracking of the process. The land acquisition process has been expedited significantly through this initiative
- Approved compensation amount is also transferred directly to the beneficiaries as the BhoomiRashi portal is linked to the Public Financial Management System. Earlier, this amount used to be parked with the Competent Authority for Land Acquisition, thereby delaying the process

Though there has been swift and pin-pointed action from the government to rejuvenate private sector investment in roads and highways, considering the huge investment targets via the PPP route, there is still more work to be done.

Way forward

To remove roadblocks and attract private sector investment, the government is undertaking reforms and proposing suitable policy changes. However, further reforms are required.

Some of the ways which the government could consider to enhance private investment in this sector are as follows:

Getting more buy-in for InvITs from investors

InvITs offer benefits over traditional debt and equity investments because of their tax-efficient returns and mandatory payouts.

However, the response to InvITs has been relatively subdued. While the IRB InvIT was oversubscribed 1.26 times, it is trading at a discount to the issue price owing to weak investor sentiment. A possible reason can be the high minimum trading size, which deters retail investment from coming into the instrument. Another reason can be the complicated nature of the product due to its hybrid nature, which makes it difficult to understand.

Robust management, strong governance and continuous addition of good quality assets are critical to InvIT yields that, in turn, determine investor interest. In terms of assets, BOT (Toll) assets are ideally suited for monetisation through InvITs, so it makes sense to calibrate strategies accordingly.

The Securities and Exchange Board of India (SEBI) has come up with amendments for both publicly and privately issued InvITs in March 2019 to encourage investment. Some of the major amendments are:

- Publicly issued InvITs will be in multiples of a lot, each consisting of 100 units. Value of allotment lot will be Rs 1 lakh
- Leverage limit of publicly issued InvITs has been increased from 49% to 70% of InvIT assets
- For privately placed unlisted InvITs, leverage is to be determined by the issuer after consultation with investor(s). The underlying assets can be completed, under-construction or both.

The government can use InvITs as an instrument to channelise funds for its ambitious Bharatmala Pariyojana. This can provide an alternate source of financing for the programme and reduce its dependency on budgetary allocation. It can also increase investor confidence in the instrument, given the acceptance and use of the instrument is by a government entity.

Portfolio sale of assets to strategic and financial investors

Portfolio sale of assets to strategic and financial investors can unlock capital and encourage participation from institutional investors.

Matching long-term liabilities of foreign private equity investors and sovereign wealth funds is what's needed here.

'Patient capital' investors need stable cash flows and higher risk-adjusted yields. But they are averse to taking construction risks and, thus, typically prefer a portfolio of operational assets. An example of this is the sale of six operational assets (and three under-construction assets) by Gammon Infrastructure Projects Ltd to Canadian private equity firm Brookfield Asset Management Inc three years back. And more recently, there is talk of MEP Infrastructure Developers Ltd planning to sell six road assets to an institutional investor. Essel Infraprojects Ltd is also in talks with investors to sell a part of its portfolio – six road projects. It expects to raise Rs 11,500 crore from the sale. Even the government is looking to raise funds by monetising its existing road assets with the NHAI under TOT.

Portfolio sale of assets is advantageous to the seller as well as the buyer. The seller can use the funds to invest in new assets. The buyer has a portfolio that provides stable cash flow.

Introducing TOT bundling of HAM projects

Till date, the government has been bidding out EPC and BOT (Annuity) projects on TOT basis. This is because for both modes, the toll revenue goes to the authority. Hence, this toll revenue can be used as cash flow, which can be securitised by the government.

Since fiscal 2016, the government has used the HAM mode while tendering PPP projects as toll revenue under HAM is also collected by the authority.

Hence, the government may consider including HAM projects when bundling TOT projects.

HAM projects have started getting operational. However, traffic on HAM road stretches need to be evaluated for the next 2-3 years to establish traffic volume as it is a key criterion for bidding out projects on the TOT mode.

A plus is that the responsibility for operation and maintenance of HAM road stretches is with the developer for 15 years. This lowers the overall expenditure for the TOT investor for HAM road stretches, thereby ensuring that the authority receives a higher upfront payment for the road asset.

Introducing innovative PPP structures

In addition to the PPP structures in the roads and highways sector currently prevalent in India, some innovative PPP structures can be explored, such as:

- **Modified HAM with tolling rights to the concessionaire:** In this structure, the authority pays a percentage of the construction cost during the construction period, and pays the remainder during the operation period. Toll revenue rights are with the concessionaire. So the concessionaire partly finances, develops, operates and maintains the road asset. The bid parameter can be highest revenue sharing percentage or highest annuity payment to be paid to the authority

Advantages:

- Lowers liability of the authority compared with an EPC project, as project payment is spread over the concession period
- Lowers financing risk for the concessionaire, as the concessionaire only has to arrange for part of the project cost
- Better quality of road asset compared with EPC as the concessionaire has to operate the road asset for the duration of the concession period
- **BOT (Toll) EPC hybrid:** In this type of structure, the concessionaire develops, finances, operates and maintains the road asset. The authority finances the development of complex infrastructure within the road asset such as tunnels and structures, and the concessionaire can act as the EPC contractor for the same. Toll revenue rights are with the concessionaire. The bid parameter can be highest revenue sharing % or highest annuity payment to be paid to the authority

Advantages:

- Better division of risks between the concessionaire and the authority in case of projects with complex structures

Table 1: PPP structures to be explored

PPP structure	Financing risk	Traffic risk	Development risk
Modified HAM with tolling rights to concessionaire	Shared by the authority and the concessionaire	Concessionaire	Concessionaire
BOT (Toll) EPC hybrid	Concessionaire, authority only for complex components	Concessionaire	Concessionaire

Exploring value capture financing

The concept of VCF refers to recovery of a share of the increase in property value by the government when the increase is because of public investment in infrastructure.

In such cases, the appreciation in land value occurs on account of investment in public infrastructure that increase the quality of housing, access to jobs, transportation or social benefits, and emergence of important commercial, cultural, institutional and residential developments in the neighbourhood.

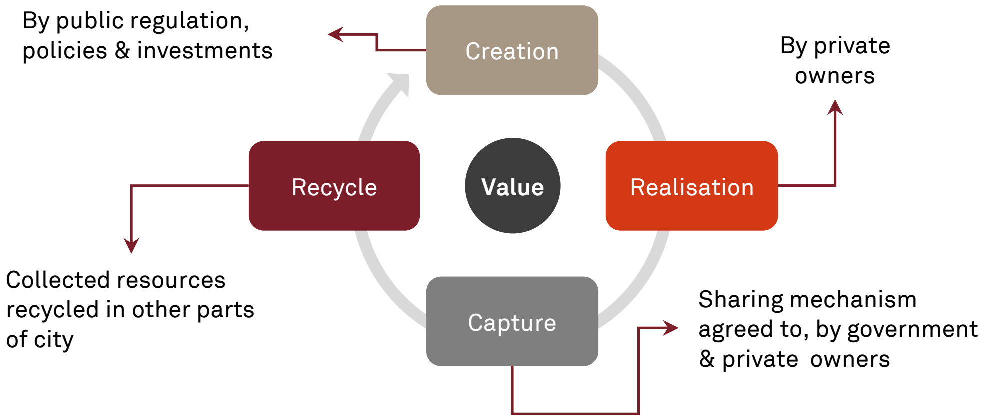
Various state and local governments have been applying VCF tools for urban projects for a long time and the Central Government has duly recognised the importance of VCF. The Ministry of Urban Development had drafted Value Capture Policy Framework in 2017 aiming to guide state governments and union territories to leverage their assets, and in particular make use of underutilised resources, such as land, to finance infrastructure projects.

VCF tools have been used to part-finance urban transport projects such as metro corridors and can also be used to finance ring roads in urban centres going forward.

VCF is based on the assumption that incremental investment in infrastructure development will have an impact on prices of properties located in the vicinity of the project, thereby providing a thrust to the real estate sector.

For states to capture land value increment on a sustained basis, it is critical to evolve a well-thought out and balanced VCF framework that is easy to enforce and benefits all stakeholders.

Figure 7: VCF framework



- **Value creation:** This component explores potential increase in asset value created by public sector intervention
- **Value realisation:** This component evaluates methods to realise the potential increase in asset value created by the public/ private sector investment
- **Value capture:** This involves surveying the increased asset values and capturing the value being generated by public/ private sector investment
- **Local value recycling:** The final component recycles the captured asset value for public good

Given the thrust on VCF as a tool to finance infrastructure projects, road authorities can look for ways and means of using VCF to fund future roads / highways projects.

Infrastructure debt funds and similar structures may also be explored

Structures such as IDFs and securitisation of infrastructure loan assets through pass-through certificates could be strengthened / explored.

IDFs could facilitate in taking out a share of the outstanding commercial bank loans. After the commercial operations date, infrastructure loan assets could be targeted for securitisation.

But to make it attractive to investors, this would require credit enhancement.

Such securitisation could address asset-liability mismatch challenges, create funds for further on-lending, and reduce the capitalisation burden on the government because of public sector banks.

Insurance companies can also be targeted as an alternative to traditional bank financing for infrastructure assets.

Although the Insurance Regulatory & Development Authority of India (IRDAI) stipulates an investment of 15% into infrastructure companies, investment is prohibited in bonds below ‘AA’ rating. However, most under-construction projects are rated ‘BBB’. Once operational, the rating gets upgraded, but yields are less.

IRDAI could look into the current investment guidelines and make the investment norms less stringent.

IRDAI can allow for investments in infrastructure projects rated below AA, after appropriate due diligence has been conducted.

The development cycle of the roads and highways sector is at its peak. And the investment requirement is at an all-time high. Appropriate measures from the government and increased interest from private players can put the sector’s growth on a sustainable trajectory.

Annexure 1

Table 2: Working of the InfraInvex Score[10]

Parameter	Evaluation criteria	Max Score	InfraInvex Score			
			Highways	Railways	Airports	Ports
Policy direction	Policy consistency	10	8	5	7	8
	Public financing support	10	8	7	6	6
Institutional maturity and strength	Entity implementation capacity	10	7	6	8	7
	Financing models	10	9	4	7	8
	Regulatory robustness	10	7	5	6	6
Financial sustainability	Cost recovery	20	16	7	14	13
	Demand Risk	10	5	4	6	6
Implementation ease	Track Record	10	8	7	5	7
	Externalities	10	6	5	5	6
Total		100	**74**	**50**	**64**	**67**

[10] Source: CRISIL Infrastructure Yearbook 2018, published in October 2018

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