



TRIAL BALANCE

PRIVATE SECTOR FINANCING
FOR ROAD PROJECTS IN INDIA

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Abbreviations

BOT	-	build-operate-transfer
CRF	-	Central Road Fund
DEA	-	Department of Economic Affairs, Ministry of Finance, Government of India
EPC	-	engineering, procurement, and construction
ICICI	-	Industrial Credit and Investment Corporation of India
IDBI	-	Industrial Development Bank of India
IDFC	-	Infrastructure Development Finance Company Ltd.
IIFCL	-	India Infrastructure Finance Company Ltd.
IL&FS	-	Infrastructure Leasing and Financial Services Ltd.
km	-	kilometer
NHAI	-	National Highways Authority of India
NHDP	-	National Highways Development Project
PPP	-	public-private partnership
SPV	-	special purpose vehicle
VGf	-	Viability Gap Funding

Note: A fixed exchange rate of Rs60 to \$1 has been used in this document.

I. Background

Since the mid-1990s, the Government of India has progressively adopted a structured and systematic approach to attract private finance to bridge India's significant infrastructure deficit and to improve its services. The effort has stemmed from the initiative of senior government officers and has progressively filtered down the various levels of administration. While the effort has related somewhat to road infrastructure, including the National Highways Development Project (NHDP), there have been many projects in other sectors that are significantly linked to the infrastructure focus of the country and to public-private partnerships (PPPs).

While the study of the road sector as an indicator for private financing¹ may appear one-dimensional, nevertheless, it examines the characteristics of PPPs in terms of their assessment, objectives, and risks. This paper examines the various private sector financing models that have been applied to the road sector in India, the gradual evolution of PPPs, and the changes that have propelled the process. The objective is to understand the drive toward sound and sustainable private sector finance. The accounting term "trial balance" is used to indicate the effort to integrate experimentation with learning, and while results to date have been significant, there has been a need for frequent course correction.

The introductory chapter provides a background of road sector development in India with a focus on PPPs, as well as the institutions, framework policies, and laws that relate to them.

1. Road Sector in India

1.1 Description of Road Network

India has one of the largest road networks in the world,² consisting of (i) national highways, (ii) state highways, (iii) major district roads, and (iv) rural roads, the last of which include other district and village roads. There are 79,243 kilometers (km) of national highways and while they represent less than 2% of the entire road network, they carry 40% of road traffic. The state highways and the major district roads (while constituting approximately 13% of India's total roads), together, represent the country's secondary road system and sustain approximately 40% of total road traffic.

¹ The terms "private sector financing" and "PPP" have been used synonymously in this paper, depending on context. Efficiency-based PPPs (e.g., contracts relating to operations and maintenance)—for which investments are low—are not included, since the focus is on the leveraging of government finance.

² Government of India, Planning Commission. 2013. *Twelfth Five-Year Plan, 2013-2017*. Economic Sectors, Volume II.

Table 1: India's Road Network

Road Category	Length in km
Expressways	200
National highways	79,243
State highways	131,899
Major district roads	467,763
Rural and other roads	2,650,000
Total length	3,329,105

km = kilometer.

Source: Government of India. 2014. *Second Report of the High Level Committee on Financing Infrastructure*. New Delhi.

While the network is very extensive, its standard is not high in terms of quality and capacity. Surfaced roads comprise a little over 50% of the entire road network and despite the progress in upgrading the national highways, approximately 25% of them have a single lane or intermediate lanes, and only 23% of their length are comprised of roads wider than two lanes. This leads to heavy congestion. The state highways are of a lower standard, with approximately 60% of this network comprising a single or intermediate lane. The low capacity of highways is aggravated by diverse traffic, road encroachments, and frequent and long halts at checkpoints. In terms of capacity and quality, the road network has not kept pace with the growth in registered vehicles, which has surpassed 10% a year over the last 5 years.³

1.2 Road Infrastructure Financing

Traditionally, most investments in road infrastructure have originated from the government budget, although there has been a concerted effort to shift a substantive proportion of this investment to the private sector. The basis for this shift, which began at the end of the 1990s, is due to the fact that the government budget is insufficient to meet the investment required to improve road infrastructure.

During the initial stages of various earlier projects, the expectation was that the private sector would be more efficient in identifying and developing the projects. As the process was gradually formalized, the emphasis shifted to the financing of projects. In the Tenth Five-Year Plan, 2002–2007, the aggregate investment in roads and bridges was approximately \$25 billion, of which 8% was from the private sector. This amount increased to approximately \$75 billion in the Eleventh Five-Year Plan, 2007–2012, of which 20% came from the private sector.⁴ In the Twelfth Five-Year Plan, 2012–2017, an investment of approximately \$152 billion has been earmarked for roads and bridges. Of this, 33% is anticipated to represent the private sector.⁵ The funding sources across the three previously mentioned Five-Year Plans for roads and bridges are provided in Table 2.

³ National Highways Authority of India, Indian Road Network. <http://www.nhai.org/roadnetwork.htm>

⁴ Government of India, Planning Commission. 2013. *Twelfth Five-Year Plan, 2012–2017*. Volume I.

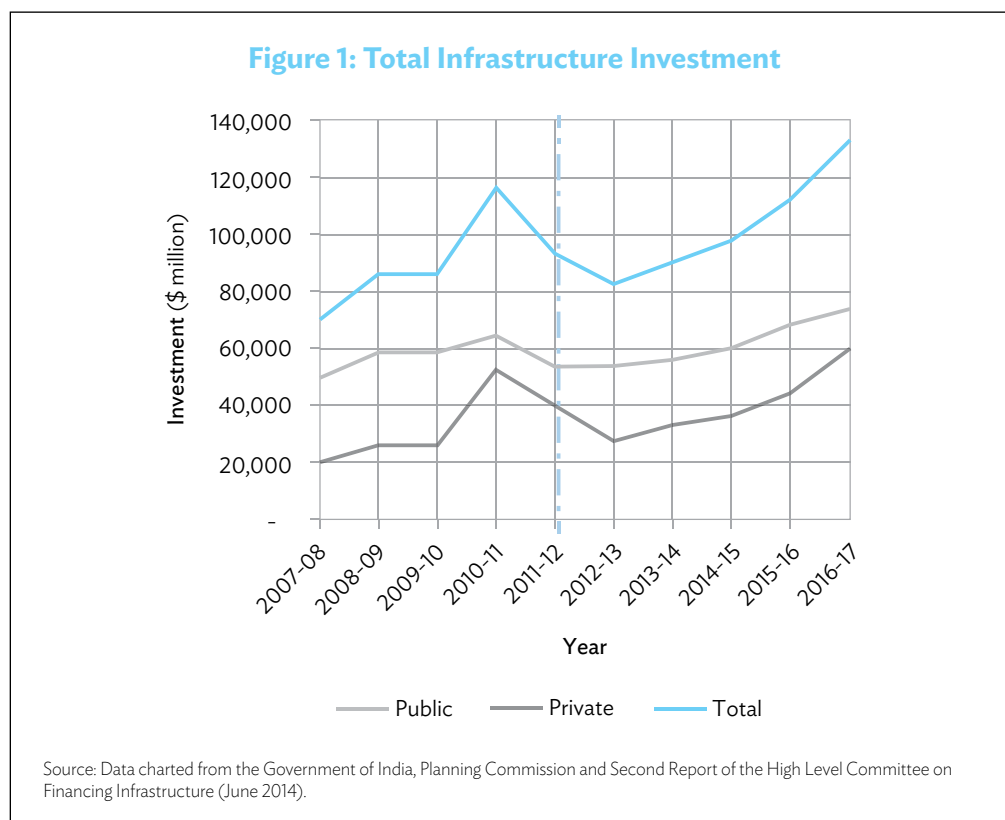
⁵ The figures from the Planning Commission for the Twelfth Five-Year Plan were subsequently revised downward by the High Level Committee on Financing Infrastructure. These are indicated in Table 2.

Table 2: Road Sector Financing (\$ million)

Category	Tenth Plan (2002–2007)		Eleventh Plan (2007–2012)		Twelfth Plan (2012–2017)	
	Public	Private	Public	Private	Public	Private
Central Sector	10,800	1,429	29,087	12,374	20,798	9,082
State Sector	12,072	436	30,660	2,241	50,582	16,636
Total	22,872	1,864	59,748	14,616	71,380	25,718

Source: Government of India. 2014. *Second Report of the High Level Committee on Financing Infrastructure*. New Delhi.

One key point from Table 2 is that the share of private sector finance in state sector projects is anticipated to increase from a marginal amount in the Tenth Five-Year Plan period to over 30% in the Twelfth Five-Year Plan. The investment profiles representing the Eleventh (2007–2012) and Twelfth (2012–2017) Five-Year Plans are illustrated in Figure 1. While representing the aggregate with regard to infrastructure, approximately 19% of total investment in infrastructure relates to roads and bridges.



As a consequence, there is a substantial increase in investment over the plan periods, as well as a significant rise in the percentage of finance expected from the private sector. The proportion of planned investment over the period of 10 years, covering the Eleventh and Twelfth Five-Year Plan periods, is unique to India. The Twelfth Five-Year Plan document explicitly mentions that

It is widely recognized that adequate investment in the development of infrastructure is a prerequisite for higher growth. In this context, steps have been taken by the government to create an enabling environment to promote investment in infrastructure... The following steps have been taken to promote private investment in infrastructure sector: (i) Setting up robust institutional structure for appraising and approving PPP projects; (ii) Developing standardized documents such as model concession agreements across infrastructure sectors; (iii) Increasing availability of finance by creating dedicated institutions and providing viability gap funding.⁶

1.3 The Role of Public–Private Partnerships in Road Development

While a number of projects⁷ were funded with private sector finance in the 1990s, this effort was based more on specific interests and by chance than on a systematic approach. The key event that signaled the outset of private sector financing on a systematic basis for the road sector in India was the launch of the NHDP in 1998. The NHDP is being implemented in phases, as indicated in the following:

- Phase I:** Augmenting the “Golden Quadrilateral,” connecting the four largest metropolises.
- Phase II:** Augmenting the North–South and East–West corridors.
- Phase III:** Creating four-lanes on high-density national highways, connecting the state capitals with the areas of economic, commercial, and tourist importance.
- Phase IV:** Upgrading single-lane roads to two-lane standards.
- Phase V:** Expanding four-lane highways to six lanes.
- Phase VI:** Building 1,000 km of expressways.
- Phase VII:** Building ring roads, bypasses, underpasses, flyovers, etc.

Table 3: Status of National Highways Development Project Phases

	Total Length (km)	Already 4/6 Lanes (km)	Under Implementation (km)	Balance Length for Award (km)
Golden Quadrilateral	5,846	5,846	0	0
North–South and East–West, Phases I & II	7,142	6,305	420	417
Port Connectivity	380	379	1	0
NHDP Phase III	12,109	6,214	4,210	1,685
NHDP Phase IV	14,799	610	5,246	8,943
NHDP Phase V	6,500	1,869	2,212	2,419
NHDP Phase VI	1,000	0	0	1,000
NHDP Phase VII	700	22	19	659
NHDP Total	48,476	21,245	12,108	15,123

km = kilometer, NHDP = National Highways Development Project.

Source: National Highways Authority of India. <http://www.nhai.org/whatitis.asp> (accessed 31 May 2014).

⁶ Twelfth Five-Year Plan, 2012–2017. Volume I. p. 84.

⁷ In the Indian context, PPPs usually relate to the upgrading of existing roads and rarely to alternate roads.

Since government budgets were limited and the perception was that many national highways would be financially viable in terms of the private sector, the NHDP gradually shifted to PPPs. During the NHDP Phases I and II, PPPs were under study with only some roads included. From Phase III onward, however, the PPP model began to gain favor. Prompted by the NHDP and the availability of standard modalities and documentation relating to PPPs, many state governments began to adopt the PPP model for other road projects. PPPs were thus formalized in the 2000s, tolling became acceptable, and private sector financing became the norm. Political acceptance for the model increased and it became the “default” option at the national level and in some state government jurisdictions. For instance, many PPPs have taken place in Madhya Pradesh, Gujarat, and Rajasthan, among others. The “PPP approach as the first option” was unique to the country and has served to trigger such projects in other sectors and jurisdictions.

2. Public–Private Partnerships and Private Sector Finance

2.1 Definition of a Public-Private Partnership

The definition of what constitutes a PPP (also termed private sector financing or private sector development) has been a subject of debate. While some of the characteristics are generally understood (e.g., risk allocation to the party best able to manage risk, output-based specifications, performance-based revenue structure, etc.), the concept requires a more objective definition, on account of its legal implications. The Government of India has thus defined PPP in the following manner:⁸



Photo: Author.

PPP means an arrangement between a government/statutory entity/government owned entity on one side and a private sector entity on the other, for the provision of public assets and/or public services, through investments being made and/or management being undertaken by the private sector entity, for a specified period of time, where there is well defined allocation of risk between the private sector and the public entity and the private entity receives performance linked payments that conform (or are benchmarked) to specified and pre-determined performance standards, measurable by the public entity or its representative.

Essential conditions in the definition of a PPP are as follows:

- (i) **Arrangement with private sector entity:** The asset and/or service under the contractual arrangement will be provided by the private sector entity to the users.

⁸ Government of India, Ministry of Finance, National PPP Policy 2011: Draft for Consultation. <http://www.pppinindia.com/Defining-PPP.php>

An entity that has a majority nongovernmental ownership, i.e., 51% or more, is construed as a private sector entity.

- (ii) **Public asset or service for public benefit:** The facilities or services being provided are traditionally provided by the government, as a sovereign function, to the people.
- (iii) **Investments being made by and/or management undertaken by the private sector entity:** The arrangement could provide for financial investment and/or nonfinancial investment by the private sector; the intent of the arrangement is to harness the private sector efficiency in the delivery of quality services to the users.
- (iv) **Operations or management for a specified period:** The arrangement cannot be in perpetuity. After a predetermined period, the arrangement with the private sector entity comes to a closure.
- (v) **Risk sharing with the private sector:** Mere outsourcing contracts are not PPP.
- (vi) **Performance-linked payments:** The central focus is on performance and not merely provision of facility or service.
- (vii) **Conformance to performance standards:** The focus is on a strong element of service delivery aspect and compliance with predetermined and measurable standards to be specified by the sponsoring authority.

The Viability Gap Funding (VGF) scheme was established in 2005, whereby financial support of up to a specific maximum of project cost could be provided to particular infrastructure projects, depending on certain project development and approval guidelines. A PPP can also be defined for the purpose of eligibility under the VGF scheme.⁹ This is, however, a rather narrow definition, given that it may suit a particular purpose, such as the following:

- (i) if there is a contract or concession agreement between a government or statutory entity on the one hand and a private company on the other to deliver an infrastructure service on payment of user charges;
- (ii) if the contract or concession is awarded in favor of a private company in which 51% or more of the subscribed and paid-up equity is owned and controlled by a private entity; or
- (iii) if a private company is selected on the basis of an open competitive bid and is responsible for the financing, construction, maintenance, and operation of the project during the concession period.

Projects under the VGF scheme, however, constitute a small part of the projects under the PPP category. The Government of India's broader definition is used for the purpose of this document.

2.2 Government Public–Private Partnership Institutions

The policy and direction of PPPs in India have come from two different government entities, acting in parallel: (i) the Secretariat for the Committee on Infrastructure within the erstwhile Planning Commission,¹⁰ which produced many documents relating to the PPP model used in the country; and (ii) the Department of Economic Affairs (DEA) under the

⁹ Government of India, Ministry of Finance, Viability Gap Funding (VGF) Projects. http://pppinindia.com/VGF_Home.php

¹⁰ The Planning Commission has since been closed.

Infrastructure and Energy Division within the Ministry of Finance, which is responsible for infrastructure policy and financing, as well as PPPs.

Many state governments and central ministries have also set in place PPP “nodal offices,” developed standard processes and documents, and, in some cases, established PPP-related policies and legislation. Furthermore, multilateral and bilateral agencies have been very involved in PPP efforts, mainly in terms of capacity building and developing pilot projects and frameworks.

2.3 Policy and Legal Frameworks

2.3.1 Policy Framework

As in the case of a legal framework, there is still no specific PPP policy in India. Policy has been primarily driven by administrative decision and standardized documents and processes have been established by the Planning Commission and DEA. In 2011, a National PPP Policy was drafted for consultation; however, this has not yet been finalized. Some state governments have drafted their own versions of policies relating to infrastructure, such as the Karnataka Infrastructure Policy,¹¹ but this has not been the norm.

An observation is that India has not required substantive new policies to enable private sector financing. Some jurisdictions, nevertheless, have framed new policies, but these have been somewhat limited.

2.3.2 Legal Framework

While private sector financing for the road sector has existed for some time, there is a lack of specific laws and policies with regard to PPPs. The three tiers of government in India (central [federal], state [regional/provincial], and local [municipal, city]) have had some legislation or act that has enabled them to levy road and bridge tolls; these are, however, limited. For instance, the Indian Tolls Act 1851 (No. 1 of 1851) provides the basis for which tolls can be levied by the government. The collection of tolls for revenue under the act, however, was a public sector activity, which excluded the private sector except as an agency for collection. Similarly, the National Highways Act 1956 (No. 48 of 1956) gave the central government the power to levy “fees for services or benefits.” Many state governments had similar legislation, the legal framework of which determined that investments originated from the public sector, the fees charged would be limited, and any services provided by the private sector were in the nature of an agency to the government.

For private sector financing to become standard, the existing legislation was amended and it allows the collection and retention of user fees by the private sector. Such was the case of the National Highways Act 1956 (through the National Highways [Amendment] Act 1995). The amendment introduced a new subsection 8A:

8A. (1) Notwithstanding anything contained in this act, the central government may enter into an agreement with any person in relation to the development and maintenance of the whole or any part of a national highway.

¹¹ Infrastructure Development Department, Government of Karnataka, Legal Framework: Policies and Acts. <http://www.iddkarnataka.gov.in/ppp-lf-ip.html>

(2) Notwithstanding anything contained in section 7, the person referred to in subsection (1) is entitled to collect and retain fees at such rate, for services or benefits rendered by him as the central government may, by notification in the official gazette, specify having regard to the expenditure involved in building, maintenance, management and operation of the whole or part of such national highway, interest on the capital invested, reasonable return, the volume of traffic and the period of such agreement.

(3) A person referred to in subsection (1) shall have powers to regulate and control the traffic in accordance with the provisions contained in Chapter VIII of the Motor Vehicles Act, 1988 (No. 59 of 1988) on the national highway forming subject matter of such agreement, for proper management thereof.

The acts mentioned above are implemented by way of rules, such as the National Highways (Fees for the Use of National Highways Section and Permanent Bridge Public Funded Project) Rules, 1997 and the National Highways (Rate of Fee) Rules, 1997. These changes—and similar amendments to applicable legislation in other jurisdictions—have paved the way for the private funding of roads, as well as the collection of user charges and their retention by the private sector.

Based on the experience gained from the implementation of the 1997 rules and their amendments, the National Highways Fee (Determination of Rates and Collection) Rules 2008 were notified, the main features of which are (a) a rate structure for user fees on roads with two or more lanes, permanent bridges, and bypasses or tunnels forming part of the National Highway; (b) discounted user charges for multiple journeys and regular users; and (c) steep discounts for local residents for short journeys.

It is due to the above amendments to existing legislation that roads in India can now include private funding. Some state government jurisdictions have enacted separate PPP acts, such as the Gujarat Infrastructure Development Act¹² (No. 11 of 1999) and the Andhra Pradesh Infrastructure Development Enabling Act¹³ (No. 36 of 2001). These acts are comprehensive and addressed the needs of various sectors. They have also established the identification, procurement, and selection methods for PPP projects. Nevertheless, other state government jurisdictions have considered that there is no requirement for specific legislation and view it as cumbersome or inflexible. As a result, they have only drafted certain policies that serve as guidelines.

In summary, while there was a need for some amendments to legislation in relation to user fees and the private sector, India has found that there is no need for substantive new legislation for private sector financing. The existing legislation (e.g., for contracts and arbitration) has served sufficiently well, although some jurisdictions have enacted new laws.

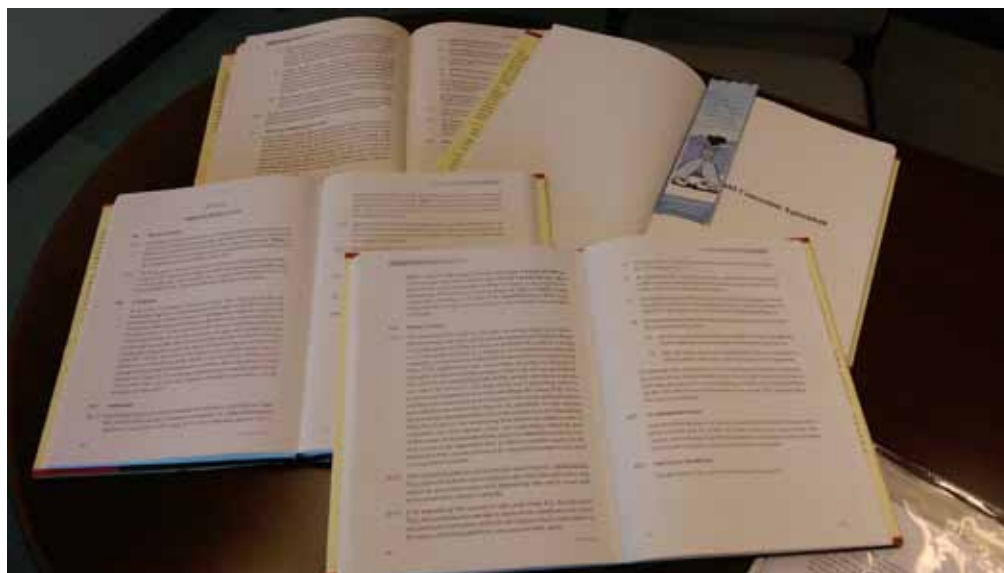
¹² Gujarat Infrastructure Development Board. <http://www.gidb.org/gidact>

¹³ Andhra Pradesh Infrastructure Development Enabling Act 2001. <https://ppp.cgg.gov.in/Documents/IDEact.pdf>

2.3.3 Model Documents, Processes, and Tool Kits

The Government of India, through its Planning Commission and DEA and with substantial resources, has developed and standardized PPP project processes and documents, including tool kits, which are in the nature of “how-to” manuals for assessing and structuring PPP projects in various sectors. This has taken place in consultation with the private sector and with the inputs of lenders and stakeholders, including the sharing of knowledge and experience. The processes, covering the entire scope of project development (including identification, appraisal, terms of reference, procurement of consultants and advisors, concession agreements), have been published and widely disseminated.¹⁴

Having overcome the challenges that came with streamlining the system, the procedures now in place have removed much of the subjectivity from the system. The widespread mainstreaming has provided the opportunity for stakeholders to review and familiarize themselves with the requirements. The documents have also stood the scrutiny of legal systems, since they have been challenged on many occasions. On the other hand, however, it is deemed that the system has now become more inflexible in terms of the ability to modify PPP approaches or review contractual frameworks when necessary, given that such projects can span over long periods. It has proved rather difficult for stakeholders to revisit a contract, since government procedures do not permit renegotiation. There have been periodic attempts to revise the relevant documents, one of which was by the B.K. Chaturvedi Committee in 2009. As of 2013, there is a strong move to establish a regulatory agency or dispute resolution process relating to the road sector to overcome the challenges faced by many ongoing contracts.



Model Concession Documents

Photo: Author.

¹⁴ The documents, processes, and tool kits are available on the DEA website: www.pppinindia.com

2.3.4 Dispute Resolution

PPP projects in India, which tend to have long lives, currently depend on the dispute resolution mechanisms in place for regular contracts, which are nationally oriented. The absence of an appropriate dispute mechanism has made it difficult for long-term PPP projects to adapt to various factors. This, together with the lack of an enabling business environment, has made it difficult for India to attract significant foreign investment. For example, *Project Finance International* (June 2013 edition, India Report) notes: “Dispute resolution and enforcement is another significant concern. According to the *Doing Business* report, enforcing a contract in India takes 1,420 days, costs 39.6% of the value of the claim and requires about 46 procedures. India stands at 184 in the ranking of 185 economies on the ease of enforcing contracts.”

Summary

Led by the NHDP, private financing for road infrastructure is one of the government’s key areas of focus. As part of the initiative to facilitate and establish PPP programs, the government has provided the capacity to standardize terminology, policies, legislation, and documentation for not only government authorities, but also for financiers, program developers, and consultants.

Public–Private Partnership Models

The Government of India has recognized some of the following PPP models:

- (i) **Build–Operate–Transfer (BOT) models with a user–fee approach:** These operate on a user–charge recovery base (e.g., tolls) which may also be supported by some form of capital cost support or VGF.
- (ii) **Annuity–based BOT models:** These relate to projects not appropriate for sizable cost recovery through user charges or through contracts based on availability/performance payments.
- (iii) **Performance–based Maintenance contracts:** These improve asset creation and maintenance efficiency.
- (iv) **Modified Design–Build (Turnkey) contracts:** Payments are linked to achievement of tangible intermediate construction milestones (instead of lump–sum payments on completion) and short–period maintenance responsibilities. The primary benefits of such contracts include time and cost savings, efficient risk sharing, and improved quality.

The above outlines some of the PPP models that are relatively recent. While many other models have been used in the past, there are ongoing attempts to modify those above through a combination of revenue structures to address specific road projects, such as rural roads, district roads, and state highways.

International Reference

The four PPP models are well-known internationally for infrastructure projects. The user-fee-based PPP model is widely used, and financial support through the VGF is a variant on that model so as to reduce capital cost to the private sector. The annuity model is very similar to the private finance initiatives in the United Kingdom, and is based on availability payments that replace the direct user fee, which reduces revenue risk to the private sector. Design-build, or engineering, procurement, and construction (EPC) contracts are also widely used in the international context. The India experience, therefore, is not exceptional in terms of developing new models, except for the scale of the exercise and its efforts to standardize the system.

II. Evolution of Public–Private Partnership Models

Historically, the road infrastructure in India was publicly financed. In some cases, tolls were collected (e.g., at major bridges) as a means of cost recovery, either directly by the government or through a private agency. The concept of tolling as a means to raise and service private sector finance was not recognized.

Toll road projects were initiated in the 1990s under private sector investment, with the fees collected to service the finance. In the absence of a PPP model, various projects used “sweeteners” to augment toll revenues (e.g., land development rights, additional tollway facilities). As the NHDP progressed, private investment for roads came under two broad categories: toll-based and annuity-payment-based.

This chapter examines the evolution of private financing in road infrastructure in India. It will specifically address project structure.

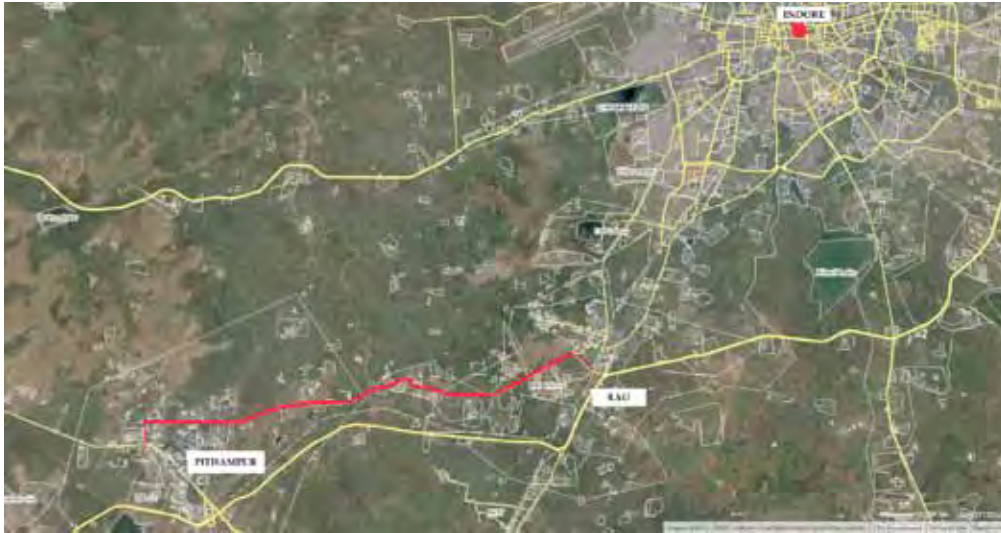
3. Direct Negotiation Models

At a cost of \$2 million, the approximately 12 km Rau-Pithampur Road in the state of Madhya Pradesh was considered a significantly small-scale project. However, it was the first toll road in India,¹⁵ and was completed in 1993, initiating the evolution of private sector financing for infrastructure in the country. The state government’s industrial development agency developed the road as an important linkage to industry. Since public funding was scarce, the state agency entered into a memorandum of understanding with Infrastructure Leasing and Financial Services Ltd. (IL&FS). The company would finance the project and secure its revenues by way of tolls. The project was an example of direct negotiation between a state agency and the private sector. In such cases, concession agreements and terms (e.g., toll rates, concession duration) were loosely negotiated after the informal selection of a private sector agency.

Another example of a project developed under a memorandum of understanding was that relating to the 110-km Bangalore–Mysore Expressway, known as the Nandi Corridor.¹⁶ The state government of Karnataka entered into an agreement with a private consortium in 1995, subsequent to a visit of a United States trade delegation. The consortium would develop the expressway with private funding. Since the project was not considered to be

¹⁵ N. K. Singh. 1995. Breaking a New Path. *India Today*. 31 March. <http://indiatoday.intoday.in/story/one-of-india-first-tollways-comes-up-in-madhya-pradesh/1/288515.html>

¹⁶ FAQ Information Document for the Bangalore-Mysore Infrastructure Corridor Problem. 2015. *India Together*. <http://indiatogether.org/campaigns/bmic/bmicfaq.htm#Q4> (accessed 17 March 2015).



Map of Rau–Pithampur Road

Photo: Wikimapia.org, CC BY-SA



Bangalore–Mysore Corridor Toll Plaza

Photo: Vinu Thomas from Bangalore, India (Nice Road - Toll Booth) [CC BY-SA 2.0] via Wikimedia Commons

viable on toll revenue alone, however, additional land was made available to the consortium for it to develop seven townships, which would have state-of-the-art infrastructure. Because of the continuing significant controversies associated with the project agreement, it has been only partially built to date.¹⁷

In general, where the identification and award of a project to a private sector investor or developer has been based on an informal methodology, issues have arisen due to a lack of transparency in procurement and governance. Despite controversies, these two early projects, nevertheless, did create the interest of private sector financing for infrastructure in India.

¹⁷ R. Chandran. 2013. Ashok Kheny: Miles of Uncertainty. *Live Mint* and the *Wall Street Journal*. 25 April. <http://www.livemint.com/Politics/tliTc68TILX8LSwtGYDW2L/BangaloreMysore-corridor-miles-of-uncertainty.html>

4. Joint Venture Model

The direct negotiation model highlighted in the previous section represents the separation between the public and private sectors—the concession-granting authority vis-à-vis the concessionaire. The early days brought forth some concerns regarding private sector financing and infrastructure. These included (i) the need for the developer to take over the land and obtain the necessary clearances and approvals, which could have been facilitated if the government had been involved; and (ii) the project preparation (design, procurement, financing, and implementation) which would have been easier had the private sector been in the leading role.

These concerns were eventually addressed through joint ventures—a consortium formed by a government agency and a private entity. The joint venture would become the project development and implementation agency, with senior government and private investor staff. The fact that the joint venture was quasi-government in nature facilitated the transfer of land and the necessary clearances and approvals, while the private sector enabled the design, financing, procurement, and implementation to be carried out more effectively. Given that the joint venture was assigned the project under concession, the actual work to be carried out was by contractors procured by the joint venture.

A number of projects were undertaken, based on the joint venture model that was pioneered by IL&FS. The World Bank, through its Private Infrastructure Finance (IL&FS) Project,¹⁸ facilitated the private entity, IL&FS, to structure a number of projects in this way. While the project design was ambitious in scope, only four subprojects (Vadodara-Halol and Ahmedabad-Mehsana toll roads in Gujarat; Delhi Noida Toll Bridge; and East Coast Road in Tamil Nadu) were structured as joint ventures under this loan. The Delhi Noida Toll Bridge is examined in the following section.

4.1 Delhi Noida Toll Bridge

The Delhi Noida Direct Flyway is a significant example of the potential strengths and challenges of the joint venture model, offering insight into the government's decision to use such a design. As mentioned in the website¹⁹ of the Noida Toll Bridge Co. Ltd. (the special purpose vehicle [SPV] to develop, construct, and maintain the Flyway), the project grew from the need to bridge the growing population of Delhi with that of the satellite town of Noida, across the river Yamuna. Excluding a bid, the project was assigned to an SPV that was promoted by IL&FS and the government.²⁰ The project underwent a long period of appraisal and design—from 1992 when the initial memorandum of understanding was agreed to 1997 when the concession agreement was signed. The eight-lane bridge of approximately 600 meters in length was finally commissioned in 2001. The project, costing approximately \$100 million, was completed more or less within budget and on schedule, excluding the delays experienced prior to the signing of the concession agreement.

¹⁸ World Bank. Documents and Reports. Project P039935, approved 1996 and closed in 2001, for \$205 million. <http://documents.worldbank.org/curated/en/2002/05/1802686/india-private-infrastructure-finance-project> (accessed 14 August 2014).

¹⁹ Noida Toll Bridge Co. Ltd. website. <http://www.ntbcl.com/>

²⁰ S. Pargal. 2007. *Concessions for the Delhi Noida Bridge*. Planning Commission. New Delhi. *Concession for the Delhi NOIDA Bridge: Case Study*. Case Studies: Planning Commission, Government of India. Available at <http://infrastructure.gov.in/pdf/NOIDA.pdf> (accessed 18 August 2014).



Photo: Sumeet (Template: Skyscrapercity) [CC0], via Wikimedia Commons

Delhi Noida Direct Flyway

During the first full year of operation, the toll revenue on the bridge was approximately 30% of that forecasted. The SPV was thus forced to create additional linkages, as well as significantly restructure its financial resources. While the SPV is now a publicly listed entity, a study was nevertheless carried out under the aegis of the Planning Commission (footnote 19). The study indicates that the concession agreement, which was negotiated by the SPV and the local administration, was biased in favor of the SPV. The concession agreement guaranteed a return on investment of 20% on the project cost through a mechanism that extended the concession period until that target was reached. The project cost was defined as a dynamic number rather than static, with the addition of major maintenance and investment costs during the period of the concession, as well as the unrealized returns short of 20%.

Since the forecast for revenues has fallen short, the project cost has continued to escalate, year on year, reaching approximately \$38 million of toll equalization by 2007. Calculations have indicated that at this rate, the initial concession period of 30 years has now extended to around 70 years. In addition, the SPV has used the shortfall in returns to invoke a clause in the concession agreement to gain approval for the use of over 30 acres of prime land for commercial use in order to augment the return.

4.2 Government's View of the Joint Venture Model

In theory, the joint venture model appears to blend the most favorable features of the private and public sectors. While concessions are assigned to the joint venture, a suggestion of transparency can be retained, given that operations and maintenance contracts are then bid out by the joint venture as downstream contracts. Since the board of directors of the joint venture comprises public and private sector nominees, it is deemed that the interest of the public is protected and that the returns on investment can be achieved by the private investors.²¹

In reality, the government considers that the experience of the joint venture arrangement has not met its expectations. Its position as the granting authority and regulator lies in conflict with its position as equity investor in the joint venture. Since the public sector entity is part of the joint venture, lapses by the joint venture have exposed the public sector to criticism. There is also some apprehension that the board directors representing the government may be held accountable for the actions of the joint venture, and this leads to risk-averse behavior. As a result, the Planning Commission, on behalf of the Government of India, published *Guidelines for Joint Ventures in Infrastructure Sectors*²² in 2009. In essence, the publication discourages the use of joint ventures, although if they are considered essential, joint ventures are required to follow certain procedural- and structure-related constraints. The guidelines also recommend that the private sector partner in a joint venture should be selected through a competitive bid. Given these guidelines, the joint venture method of developing infrastructure projects appears to be no longer recommended.

5. Competitive Procurement and Streamlining of Processes

During the initial stages of the NHDP, one of the first tasks of the National Highways Authority of India (NHAI) was to develop various financing structures in relation to private funding and to streamline the necessary documents and processes. Since the NHDP was such a large-scale and ambitious project, the objective was to establish a transparent and competitive procedure to avoid direct awards and joint ventures.

NHAI appointed IDFC²³ as advisors to attract private sector investment for the NHDP. Three private sector financing models were examined: (i) an annuity-based BOT scheme; (ii) a toll-based BOT scheme; and (iii) a shadow-toll-based BOT scheme. NHAI issued pilot bids to test the models and documentation. These are detailed in subsequent sections.

²¹ The experience of this author with the boards of various joint venture SPVs has indicated that there is a level of discontent with regard to the functioning of the board. This is due to the fact that directors representing each of the sectors have divergent objectives and process requirements.

²² Available at http://infrastructure.gov.in/pdf/JV_Guideline_12.pdf (accessed 18 August 2014).

²³ Earlier known as the Infrastructure Development Finance Company Ltd., which was established by the Government of India with multilateral (Asian Development Bank and World Bank) and domestic financial institution funding. IDFC currently has a banking license and is in the process of transforming into a private bank.

5.1 Annuity-based Build, Operate, and Transfer

In the early years during the project design stage, when private investment was not the norm in India, it was not recommended to assign the risks associated with the collection of tolls to the private sector. The government at the time was planning to improve a very large road network through NHDP and it was unable to rely on traffic forecasts, even under the most favorable economic conditions and environment. It was therefore considered prudent to avoid transferring the traffic risk (and the increases in the rates of return) to the private sector. It was also unclear, at the time, whether the practice of levying tolls on many roads would be acceptable to users. To avoid direct tolling, an annuity scheme was proposed, under which the private investment in the construction, maintenance, and operation of the road infrastructure would be serviced through semiannual (annuity) payments from NHA. The payments were to be spread over a period of approximately 15 years and would be the parameter under which the developers would bid and the winner be awarded the concession. The annuity method was considered to carry the least risk to the investor.

This model is similar to the United Kingdom's Private Finance Initiative, which has extensively used an availability payment method for the building of schools and hospitals to be designed, built, financed, and managed by private entities under contracts of approximately 30 years. The United Kingdom has also undertaken various annuity-based PPPs for highway projects where roads are not tolled.

Through IDFC, NHA streamlined the document processes relating to the annuity model. It called for bids on pilot projects, one of the first of which was the Panagarh–Palsit Highway (NH2), a distance of approximately 65 km, to be upgraded from two to four lanes.

The Panagarh–Palsit Highway project, for which the annuity payment was in the order of \$10 million, was awarded in 2001 to a Malaysian consortium. The aggregation of annuity payments over the 15-year period of the contract payments resulted in a figure that was over five times the project cost of a regular contract. Criticism arose from the public and the media, with a national magazine defining the case as the “great highway robbery.”²⁴ The fact that the simple addition of 15-year cash streams may be an inaccurate way to compute cost (net present value, cost of capital, cost of operations and maintenance for 15 years, etc.) was not accounted for.



Palsit Toll Plaza

Photo: Biswarup Ganguly CC BY-SA 3.0 via Wikimedia Commons

²⁴ M. Krishnan. 2001. *Outlook*. 21 May. <http://www.outlookindia.com/article/The-Great-Highway-Robbery/211697>

Other key issues were the budget inadequacy of the government to undertake these projects and the need for the immediate availability of roads for the annuity method to contribute to economic growth. As India's experience relating to annuity bids has developed in terms of its national contractors, the bids have become much lower in later projects. The annuity payment method, nevertheless, has continued to have many critics for the following reasons:

- (i) There is still concern that annuity payments are a method to defer funding, thus preventing the transfer of substantive risk to the private sector. A report by the Planning Commission supports the view that "While concessions based on user charges lead to mobilization of additional resources, annuity concessions imply deferred government payments akin to borrowings and do not normally lead to mobilization of additional resources."²⁵
- (ii) The mathematical summing methodology illustrated above has remained in the minds of many who are connected to or keep abreast of the process. Annuity bids, in general, are considered to be significantly inflated in relation to regular contracts.
- (iii) The Planning Commission has highlighted the fact that annuity contracts are a way to treat project finance as "off balance sheet," since government budget mechanisms fail to capture the contracted future liability cash stream of these projects.

PPPs create explicit and implicit obligations on the part of the public entity that is party to them so that, in the final instance, they become contingent liabilities of the Government of India. The fiscal fallout of such partnerships could reflect on the health of the aggregate balance sheet of the public sector and may create demands for enhanced budgetary support to the public sector entities contracting such liabilities. Explicit contingent liabilities, which may be in the form of stipulated annuity payments over a multiyear horizon, should be spelled out (footnote 25).

5.1.1 Current Status of Annuity Projects

Based on some of the above considerations—and as the application of BOT is proving more successful—the use of the annuity model is gradually receding, despite the fact that it does remain an accepted method of financing road infrastructure. Its use is not accepted by the Government of India for projects supported under the VGF scheme, although the NHAI maintains it for specific cases as an intermediary tier between toll-based BOT and Engineering, Procurement, and Construction (EPC) contracts. A committee,²⁶ set up in 2009 by the Prime Minister to streamline processes relating to PPPs in the NHDP, recommended that the annuity model take precedence over the EPC model when the projected return on equity is anticipated to be 18% (21% in very special cases).

²⁵ Government of India. Planning Commission. 2010. *Report of the Task-Force on Ceilings for Annuity Commitments, 2010*. <http://infrastructure.gov.in/pdf/finalAnnuityreport.pdf> (accessed 19 August 2014).

²⁶ Government of India. 2009. *Report of the B.K. Chaturvedi Committee on NHDP*. Ministry of Road Transport and Highways. New Delhi. www.nhai.org (under the drop-down "About Us:").

5.1.2 Hybrid Annuity

As a modification of the full cost annuity scheme, the government has also opted for a hybrid annuity model, based on the following premises: (i) toll-based viability for state roads will be less than for national highways and, in many cases, the tolling may not be feasible; (ii) cost of funds from the private sector will be higher than that at which the state can borrow;²⁷ (iii) private sector investment is sufficient to ensure efficient construction, maintenance, and operation.

These assumptions have led to a model where the government will meet a substantive portion (approximately 50%) of the capital cost of the project, while the balance is met by the private investor. The private entity will maintain the roads for a specified duration following construction and be paid an annuity on meeting the required performance standards. The Second Karnataka State Highway Improvement project has applied a similar model for some of its roads, to be partially funded by the World Bank.²⁸ In this model (grant + annuity), there is no traffic risk on the private sector. An alternative option, which has been attempted with regard to some state roads, is the addition of a toll collection (toll revenues and annuity payments, where the annuity would be the bid parameter). In addition, a capital grant can be applied as a viability gap support to extend this.

5.1.3 Financial Implications of Annuity Projects

Annuity payments represent a direct liability on state finances, while termination and *force majeure* provisions in the underlying contracts will be contingent liabilities. The present government budgetary practices tend to ignore both these liabilities as “off budget” and only focus on current budget provisions. The Planning Commission (footnote 25) has highlighted this deficiency in recognition of annuity payments, where future payment requirements may absorb a significant amount of government budgets. Assessing value for money, in terms of better construction and maintenance standards, and leading from the efficiencies gained from involving the private sector would be crucial to justifying the use of annuity projects, compared to the number of road projects undertaken. The impression that many more road projects can be undertaken through an annuity scheme than through a regular contract may not be based on an accurate recognition of fiscal liabilities.

5.1.4 Road Funds

From a private sector perspective, the assured nature of annuity payments is only as good as the credibility of state budgets to fund these payments year on year. Since road budgets are provided each year, based on a legislative process, such annual budgets may not be a reliable source of secured finance for the private sector to take on an investment risk.

To give comfort and assurance to private sector investors, the Government of India has constituted a Central Road Fund (CRF), for which a separate legislation was enacted by way of the Central Road Fund Act (No. 54 of 2000). The CRF is funded through a levy on diesel and petrol, and a part of the CRF is set aside for the NHDP, while it also allocates

²⁷ This is a debatable circumstance since, in many cases, the fiscal responsibility legislation in the state may limit the state's borrowing capacity.

²⁸ World Bank. <http://www.worldbank.org/projects/P107649/second-karnataka-state-highway-improvement?lang=en> (accessed 20 August 2014).

funds for other subjects, such as road-rail bridges and rural roads. The CRF, however, is not ring-fenced, but funds go into India's consolidated fund under a separate budget heading.²⁹ The CRF also does not have an independent regulatory structure, since it is within the ambit of the government. Despite these issues, the CRF has been seen as a positive step by the industry sector, and there has been sufficient response to annuity projects.

Some state governments have also set in place road funds; for instance, the Kerala Road Fund.³⁰ Accruals into the fund come from a variety of sources, and the fund can be used for supporting the viability of a PPP project. There are other state jurisdictions that have set up or proposed road funds. These funds, however, have not achieved scale and the experience has not been very positive.

While the CRF has served to provide comfort to the private sector to bid on annuity projects for the national highways, this has not been the case at the state government level. In the absence of such a construct, the private sector may consider one-off projects or those projects where the investment risk is perceived to be low. It is, however, unlikely that large scale would be achieved without a stronger support mechanism. Other than projects in the national highways, the use of annuity payments for private sector financing of road projects has been limited.

5.2 Shadow Tolls

One of the formats initially envisaged for standardization was the shadow tolling method, where the users would not directly pay toll, but the state agency/government would pay the concessionaire, based on the number of vehicles used and counted on the road stretch. Shadow tolling was considered a method of passing some of the traffic risk on to the private sector, unlike in annuity models. Model concession documents were prepared for the shadow tolling methodology, along with the annuity documents. There have been some informal announcements that shadow tolling of roads is likely to occur. Some of these have been covered in the media,³¹ even as late as 2009. The model has not yet been used in India, however, except in an indirect manner that is detailed in the subsequent paragraph.

A very limited form of shadow tolling—as it is known—is used in some toll road projects, where a certain amount of capital cost support in the form of a grant is given to the project. The amount of capital support is in the order of 10%, and the logic of this shadow toll is to offset the nonpayment of toll by exempted vehicles, such as those belonging to the government.

The reasons for the shadow toll method not being used are not clear: in some ways, shadow tolls form a bridge between the annuity scheme and a toll-based concession. The general perception on the non-use of shadow tolling is because it is heavily dependent on automated vehicle counts and classification, as well as information technology, and there are concerns on the cost, reliability, and robustness of such systems.

²⁹ India Institute of Technology, Kanpur. 2002. *India Infrastructure Report*. Chapter 3. <http://www.iitk.ac.in/3inetwork/html/reports/IIR2002/chap%203.pdf>

³⁰ Kerala Road Fund Board. <http://www.krfb.org/content/index2/>

³¹ P. Sharma. 2009. Get Set for Toll-Free Travel on Highways. *India Today*. 26 October. <http://indiatoday.intoday.in/story/Get+set+for+toll-free+travel+on+highways/1/67843.html>

5.3 Toll-based Concessions

Toll-based BOT concessions remain the most preferred mode for private sector financing of road projects. On the national highways, toll rates were standardized on a per-kilometer basis, depending on the vehicle classification, and these are reviewed and notified every year based on inflation rates. The model concession documents also set out the mechanism for notification of toll rates every year. This has given a degree of predictability to the toll rates. Over a period of time, toll rates have also found acceptability with road users, especially when the level of service is seen to be good.

The B.K. Chaturvedi Committee (footnote 26) sets out the priority for undertaking PPP projects as follows: “Based on the feasibility reports, the projects would be tried first on BOT (Toll) and in case of non-viability/poor response, the same would be shifted to BOT (Annuity) failing which on EPC.” The recommendations indicate the precedence of the BOT (toll) model.

5.3.1 Land Development Rights for Viability Enhancement

In the early experience, many projects were seen to be not viable for attracting private sector finance on toll revenues alone. Since some of the earlier toll-based concessions were also through direct negotiation or joint venture models, the views of the private sector on the implication of viability were given credence. These viability enhancements were generally rights to land development, as in the examples of the Bangalore–Mysore Expressway (Nandi Corridor) or Delhi Noida Toll Bridge, discussed in earlier sections.

The idea of granting development rights over land appealed to the government since the perception was that the government owned substantial tracts of land or could use eminent domain to acquire land at low prices. The private sector could develop these land portions and generate additional revenues, which would make the road project attractive to the private sector. For the government, this appeared as a least-cost alternative since land—particularly near greenfield road projects—was acquired at low cost. The private sector saw a significant arbitrage opportunity between the cost of land acquired through exercise of eminent domain and the commercial value of developed land next to a new road artery.

From the experience of a couple of projects mentioned above, the land development model has not proved to be successful. The reasons are many:

- (i) Where the land development was a substantial part of the project, this became a separate project with its own development costs and project risks. It is not as if the land could be sold, but it had to be developed and then used, based on permitted utilization.
- (ii) As soon as the new road asset came up and the value of land increased, the extent of arbitrage opportunity by way of sharp increases in value of adjacent lands became obvious to all. Title holders who lost land through exercise of eminent domain by the government started protesting, and it turned into a sociopolitical matter, as in the example of the Bangalore–Mysore Expressway. The debate has two obvious sides to it, since in the absence of the road, the value of land might

not have increased at all, and the private sector is also seen to develop good infrastructure. It does, however, remain an obvious point of dispute.

- (iii) Since the value of land is not very easy to determine, the quantum of viability support is also difficult to compute. This again leads to a dispute with some stakeholders deeming that too much has been “given away,” while the private sector feels that it is essentially just a risk-reward situation.
- (iv) Lastly, the business and management skills of a road company are not necessarily similar to the skills required to successfully develop real estate. This is one of the reasons why blending road development with real estate seldom works in practice. With the problems of land acquisition gaining dominance, as well as the enactment of the new Land Acquisition Act,³² this model of granting land development rights can be considered to be defunct.

5.3.2 Additional Toll Facilities

One of the early projects of the NHAI piloted an innovative model to bolster viability of the road project. This was by way of granting the private sector the rights to levy user charges on an adjacent facility not necessarily related to the project. If this additional facility had had a higher financial rate of return, then the bundled project would have become more viable to attract private sector finance. An example of this modality was the Coimbatore Bypass Project,³³ where a national highway bypass of about 28 km was constructed for the city of Coimbatore. The project was bid out as a BOT on toll basis, but received only one conditional bid. Since the bidder, one of India’s largest engineering conglomerates, perceived that the bridge was not financially viable on a stand-alone toll basis, it suggested the addition of a small river bridge within the urban area

of Coimbatore, which would be improved and also tolled. Since the cost of the additional facility was low and the projected toll revenues were high, this would be a “sweetener” to the main bypass project and increase the viability of that project.

Since securing funding for the project was important, the government agreed to this conditional bid and the inclusion of the additional toll facility into the project. Of the project cost of approximately \$17 million, only around 5% was for the bridge within the city, while projected toll from the bridge was approximately 60% of total toll revenues. Evidently, such a skew of low costs and high financial returns is expected for the additional facility, otherwise it would not be a viability supporting “sweetener.”



Athupalam bridge

Photo: Resikant05 (Own work) CC BY-SA 3.0 via Wikimedia Commons

³² The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (No. 30 of 2013), which replaced the earlier Act that was over 100 years old (1894).

³³ Indian Institute of Management. Ahmedabad. 2002. *Government’s Role in Road Toll Collection: The Coimbatore Bypass Experience*. <http://www.iimahd.ernet.in/publications/data/2002-09-07GRaghuram.pdf>

The idea, though good in theory, was not well received by road users. Road users for the bypass road had high acceptability for toll payment. The users of the additional facility, however, did not accept tolling at all and opposed the tolls from inception. Bus operators—a substantial proportion of toll revenue traffic—were the first to object and refuse to pay toll. The reason for the opposition was not difficult to understand. Users recognized that they were being asked to pay toll on the city bridge, and that the toll rates were not commensurate with improvements to the bridge. In other words, the users of the bridge were being asked to pay toll to cover project returns on a facility that they did not use. In addition, the bridge was in the city approach and toll collection was an inconvenience to users.

The dispute continued for a long time as the concessionaire pressed the government to enforce the contract and force users to pay toll, or to compensate for lost toll revenue. The NHAI put the onus for enforcement on the state government. The state government was not in a position to enforce against such widespread opposition from the public and felt that the concessionaire was taking a very rigid stance. Based on the learning from this experience, the concept of additional toll facilities as a means to improve viability did not get wider acceptance.

5.3.3 Viability Gap Fund

After attempting various methods to improve the financial viability of PPP projects, the government soon recognized that the best way to proceed was to provide direct and transparent financial support, by way of a grant, as part of the bid process itself. The VGF scheme was set in place in 2005 as a “Scheme for Support to PPP in Infrastructure.”³⁴ Basically, the scheme’s objective was that financial support of up to a maximum of 40% of project cost could be given to specified infrastructure projects if certain project development and approval guidelines were followed.³⁵ The concerned state government could provide up to 20% of the project cost as support for capital expenditure from the central government’s VGF scheme, while the balance of 20% could be provided as support during operations. The quantum of VGF is the bid parameter: the lower VGF is the preferred bid.

While the scheme was well thought through and detailed, the offtake in the initial years was poor, given the complex process and approvals in accessing the VGF, lack of information, and the poor capacity of executing agencies. Over time, this has improved. In the 10-year period since inception, approximately 190 projects had been approved under the VGF scheme, with around \$800 million of final approval and about \$2.8 billion “in-principle.” Almost 70% of the approvals relate to the road sector.

While the approval numbers seem reasonably good, given the scale of the infrastructure deficit and funding requirement, as well as the time it has taken to reach these numbers, the utilization of this scheme has not been very good. Moreover, over time, the perception has been that the breakup of 40% of project cost (as 20% during construction and 20% during

³⁴ Government of India, Ministry of Finance, Department of Economic Affairs. 2005. Scheme for Support to Public-Private Partnerships in Infrastructure. July. http://finmin.nic.in/the_ministry/dept_eco_affairs/ppp/PPPGuidelines.pdf

³⁵ Government of India, Department of Economic Affairs. Guidelines for VGF. http://finmin.nic.in/the_ministry/dept_eco_affairs/ppp/Guidelines_VGF.asp

operations) was not sufficient to facilitate project financing since, in any case, the private sector had to fund 80% of the capital cost up front. For national highway projects, the B.K. Chaturvedi Committee (footnote 26) proposed that the entire 40% of the VGF could be given during the construction stage as capital cost support, thus reducing the quantum of private sector finance to 60%.

As a variant of the VGF, in the case of some state road projects, an additional 10% “shadow toll” has also been permitted by the Government of India to compensate for vehicles that are exempt from toll (section 5.2). From past experience, the VGF scheme of the central government, and some of its equivalent schemes with other government agencies, remains an accepted and transparent method to support project viability, compared to other means that have been tried.

Summary

Over the past 15- to 20-year period, various PPP models have been tried in India. Of these, the direct negotiation and the joint venture models, which initiated the PPP process, did not get established. Competitive procurement methods have been set in place and have strengthened over time. Among the subsisting PPP models, the BOT with tolls has been the prominent mode, followed by the annuity model. The latter is less risky as far as the private sector is concerned, but has been less preferred by the government, since the model is roughly equivalent to a performance-based deferred payment scheme. As per NHA data, as of October 2014, only approximately 20% of national highway projects have been on the annuity format. This choice between toll-based and annuity models, however, is also driven by market offtake. As discussed in subsequent chapters, toll-based projects have had cycles of investor interest, followed by almost complete withdrawal from the market. In recent years, following 2012, investor response to both toll-based and annuity projects has been so low that the government shifted many projects to an EPC method with an additional maintenance period. Government has also formulated a structure where VGF, annuity, and toll are combined to balance revenue risk sharing.

III. Financing Scenario

As outlined in the preceding chapter, substantial effort has gone into developing acceptable framework processes and documentation to bring in private sector financing into the road (and other) infrastructure sectors. Some of this was planned, while some was refined through a process of trial and error. Concurrent with this approach of establishing process and creating documentation, there are other crucial interventions and developments related to the infrastructure financing scenario. The existing development finance institutions related to specific sectors, such as housing or industrial development. Additional specialized infrastructure finance institutions were formed, given the need for infrastructure finance. Existing banks, which were used to corporate/industrial lending, developed the ability to carry out project finance transactions on a non-recourse basis with longer loan tenures.

Existing banks and insurance institutions also participated indirectly in the infrastructure finance sector through the capital market. Most important was the transformation of regular contracting companies into equity investors that enabled these projects to be taken up at all. Subsequent development of private equity funds, specializing in infrastructure, widened market participation. These developments in infrastructure finance were not all planned, nor were they without uncertainty and volatility. A combination of factors has led to this volatility, and these include the developing nature of the market, cycles of optimism bias and risk aversion, as well as supply-side factors influencing projects coming on the market. This chapter examines various developments in the infrastructure finance space in India.

6. Financing Requirements

The second report of the High Level Committee on Financing Infrastructure³⁵ has estimated a requirement of about \$21 billion for central sector roads, including rural roads under the Pradhan Mantri Gram Sadak Yojana plan, \$50 billion for state sector roads, and approximately \$26 billion from the private sector. Of this \$26 billion—estimating a debt-equity requirement of 2:1—around \$17 billion of debt and \$9 billion of equity would be required. The requirement of approximately \$4 billion of debt and \$2 billion of equity in each year of the Twelfth Five-Year Plan is a very substantial requirement, and this is only for the road sector. In the Eleventh Five-Year Plan, the average investment each year was around 60% of this figure. For the country, these are significantly large levels of investment.

³⁵ Government of India. 2014. *Second Report of the High Level Committee on Financing Infrastructure*. New Delhi.

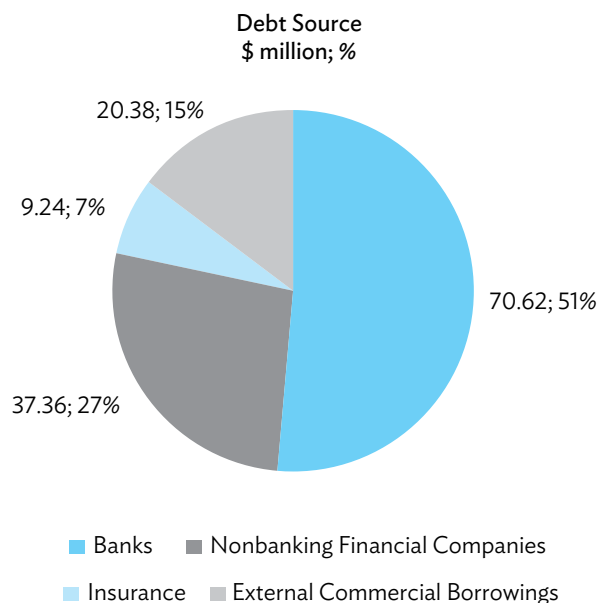
7. Existing Financial Institutions

In the 1990s, when infrastructure project finance from the private sector commenced, India had a reasonably strong banking system which catered not only to individual and corporate customers, but also to the country's industry sector. A large proportion of lending, however, was on the corporate balance sheet, and in the case of project finance, it represented industrial entities with financing tenures of 5–7 years. For infrastructure, loans to SPVs require much longer tenures.

Some development finance institutions have served specific sectors, as did the Housing and Urban Development Corporation, Industrial Development Bank of India (IDBI), Industrial Credit and Investment Corporation of India (ICICI), among others. There were also many such agencies at the state government level, although they did not possess sufficient experience in project finance or long tenures. Many of these institutions have changed their business lines (e.g., ICICI and IDBI are now banks). Lagging industrial loans, high nonperforming assets, and asset–liability mismatches, including those of industrial lending, were key contributors in the decision to transform to a wider banking platform for these entities. The regulatory system also initially failed to recognize infrastructure financing as substantially different from industrial finance. On the equity investment side, there were no infrastructure developers, only contractors. Overall, there was not much capacity or appetite to fund infrastructure projects.

While three specific infrastructure financing institutions are discussed in subsequent sections, the reason for this focus has more to do with their role in establishing market models for private sector financing in infrastructure than with indicating that they are the only players in the infrastructure financing space. The bulk of lending for PPP projects

Figure 2: Sources of Debt for Infrastructure Projects



Source: Data charted from R.B. Lall and R. Anand. *Financing Infrastructure*. www.idfc.com/pdf/white_papers/bs_infra_funding.pdf

has actually come from public and private sector banks and financial institutions. In the Eleventh Five-Year Plan period (2007–2012), over 50% of debt finance has been provided by commercial banks, while dedicated nonbanking financial companies have funded approximately 27% of debt. Insurance companies and external commercial borrowing account for the balance. Figure 2 indicates the distribution of debt finance in the Eleventh Five-Year Plan period.

8. Infrastructure Finance Institutions

Led by the road sector, demand for infrastructure finance started to pick up toward the end of the 1990s. Three financial institutions represent the growth of capacity and quantum of private sector financing in infrastructure. All the three were supported by the government in terms of their establishment and operations. Two of them relate to the private sector (with a minority of government agency holding), while the third is public sector.

8.1 Infrastructure Leasing and Financial Services

Infrastructure Leasing and Financial Services (IL&FS)³⁶ was promoted by public sector banks and financial institutions (Central Bank of India, Housing Development Finance Corporation Limited, and Unit Trust of India). IL&FS has broad-based its shareholding and admitted institutional shareholders, including State Bank of India, Life Insurance Corporation of India, ORIX Corporation-Japan, and Abu Dhabi Investment Authority. IL&FS was incorporated in 1987 with the twin business mandates of commercializing infrastructure projects and setting up value-added financial services. IL&FS pioneered private sector financing in India, including toll roads, and it developed the joint venture model mentioned in Chapter II. Through various group companies, it has acted as advisor to the government, financier to the private sector, and is now a diversified infrastructure developer with international operations. IL&FS operates through a large number of SPVs and group companies. Over time, its business model has turned to the private sector, targeting project development investment and financial services, while turning away from government-related work. IL&FS itself is not listed on the stock exchange, although some of its group companies are.

8.2 Infrastructure Development Finance Company

Originally established as the Infrastructure Development Finance Company (IDFC)³⁷ in 1997, IDFC was promoted by the Government of India on the recommendation of the Expert Group on Commercialization of Infrastructure Projects. The government developed the shareholding structure of the company through equity and subordinated debt, such that the government's share in the company remained less than 50%, with a majority of shares owned by the private sector. IDFC is a provider of financial, advisory, and management services in the infrastructure space. It also has interests in asset management, investment banking, and brokerage. IDFC became a public entity in 2005 and is listed on India's stock exchange. Its name changed in 2012 from the expanded version to its new acronym, IDFC Ltd. IDFC is transforming into a bank, having obtained a banking license in 2014.

³⁶ Infrastructure Leasing and Financial Services Ltd. www.ilfsindia.com

³⁷ IDFC. www.idfc.com

8.3 India Infrastructure Finance Company Ltd.

While IL&FS and IDFC were facilitated by the government with a minority government share, India Infrastructure Finance Company Ltd. (IIFCL)³⁸ was incorporated as a wholly government-owned company in January 2006. IIFCL provides long-term finance to viable infrastructure projects through the Scheme for Financing Viable Infrastructure Projects.³⁹ Under the scheme, IIFCL participates as a consortium lender and provides up to 20% of the total project cost, based on the approved appraisal of the lead bank. IIFCL has other schemes relating to the refinancing of banks and financial institutions against their infrastructure lending portfolio, take-out finance, and credit enhancement. IIFCL also has a role in borrowing foreign currency for infrastructure and on-lending to projects in India, for which it has incorporated a subsidiary in London. Furthermore, it has created a subsidiary company which operates in the infrastructure advisory services space.

8.4 Business Trajectory and Learning

While IIFCL remains a government-owned infrastructure finance company, the business trajectory of IL&FS and IDFC are illustrative of the opportunities and challenges in the infrastructure sector. That these companies have grown their business interests and balance sheets indicates that the infrastructure finance sector has remained profitable. These companies, however, have had to diversify quite greatly from government sell-side work in leading infrastructure interventions, and move substantially into the private sector domain, turning into developers, private sector financiers, and into (for IDFC) retail banking. The majority private sector ownership and profit motives appear to have facilitated business diversification and the move away from being conduits and facilitators for government's interventions in the infrastructure space into other business avenues. From the government's perspective—having facilitated the establishment of these two institutions—setting up IIFCL indicates a perceived need that the government's objectives for certain interventions can be met only by a government-owned company such as IIFCL.

The shift of IL&FS and IDFC away from assisting in government-designed interventions, however, can also be seen in a positive light for the government; they reflect a maturing infrastructure finance market from a capacity perspective. These institutions pioneered many of the initial infrastructure finance projects in many sectors. They facilitated the testing of various PPP models, set in place precedent projects in many sectors, established contract and concession documents, and created a wealth of learning. Working with the government, these institutions have also created substantial capacity across various levels of the government, both through a learning-by-doing approach and training programs. In hindsight, some of the projects structured by these institutions are sometimes assessed as being unsuccessful in the outcomes of PPPs or contract documentation. They, nevertheless, can be viewed as part of the “trial balance” exercise of formulating and testing various methods of the PPP modality.

³⁸ India Infrastructure Finance Company Ltd. www.iifcl.org

³⁹ India Infrastructure Finance Company Ltd. Scheme for Financing Viable Infrastructure Projects through a Special Purpose Vehicle called the India Infrastructure Finance Company Limited (IIFCL) (Revised). <http://www.iifcl.org/Content/schemeproducts.aspx>

9. Constraints in Debt Finance

As noted in the previous sections, there has been increasing ability in terms of resources and management capacity to provide debt finance to private infrastructure projects. The government, private sector, and financial regulators have been seeking other measures to increase the availability of funds. Some of the measures that have been set in place are

- (i) **Grant Fund:** The VGF mentioned in Chapter II;
- (ii) **Institutional:** Through IIFCL, as a cofinancier for debt;
- (iii) **Instruments:** Take-out, bank refinance, partial credit guarantees;
- (iv) **Regulatory:** Infrastructure assets treated differently from other assets in terms of restructuring and refinancing. Debt rollover for infrastructure assets permitted to bridge asset–liability mismatch; and
- (v) **Sources:** Infrastructure debt funds either through a mutual fund route or through a nonbanking finance company route. Infrastructure bonds issued by specified infrastructure finance institutions.

Despite these measures, there is a general perception that long-term debt funds for infrastructure projects are not easy to come by, since it appears that many projects do not reach financial closure or are substantially delayed. Not all delays, however, would be on account of a shortage of funds. In many cases, it could reflect poor proper preparation, aggressive bids that are unsupported by project financials, shortage of equity commitments, delayed land acquisition and government approvals, among others. Media reports and industry discussions, which highlight poor project progress, focus on land acquisition, environmental clearances, and insufficient project preparation, resulting in low project readiness. “Delayed financial closure” is a catchall phrase that seems to encompass many areas that may not have actually resulted from the shortage of debt funds.

10. Equity Investment

While a lot of emphasis has been placed on the debt side of private sector investment, equity investments are also equally—if not more—important. Equity investments are primarily from infrastructure developers, and in the Indian context these were initially contractors who took on a promoter role. Since the road sector was moving to a PPP on account of government policy, regular contracts were reducing and contractors had to adjust to the new business model.

Apart from promoter equity, the sources of equity have been limited, since banks and financial institutions rarely invested in equity. There are a number of private equity funds, including IDFC Alternatives, ICICI Ventures India Infrastructure Advantage Fund, IL&FS Investment Managers, among others. Clear figures of the infrastructure investments from these institutions are not available, since some of them invest in greenfield projects, while others invest in brownfield and/or operational projects, allied industries, telecommunications, and corporate equity. Media reports, as well as collations of numbers from various public domain websites, indicate that the total equity investment by these

private equity funds directly into infrastructure projects has been of the order of \$3 billion, and from a general proportionality, approximately 30% of this may be in the road sector. Media reports also indicate that many of the international funds, which came into India in the mid-2000s, have since pulled out because of poor profitability.⁴⁰ The impact of private equity funds has been very visible, but as far as specific infrastructure sectors are concerned, the numbers do not appear to be very substantial.

Two other factors have contributed to the dearth of equity finance and why it is turning into a severe constraint. Firstly, the key issue with equity has been the need to lock in the investments for significant periods of time on account of requirements of the concession agreements and lenders' covenants for financing. Lock-in provisions not only hamper a rollover of investment capacity; they also prevent any strong market in project equity from emerging.

Secondly, while the government has a limited role in investing in equity, it does have a role in creating a positive enabling environment through policy and regulatory interventions. Delayed clearances and land acquisition, lack of regulatory institutions, absence of a credible dispute resolution mechanism, noncompliance by regulatory agencies, and so on, are some of the reasons cited for the slackening of investments in the infrastructure sector in the Second Report of the High Level Committee for Infrastructure Financing.

10.1 Subordinate Debt and Mezzanine Capital

One way to bridge the equity gap is to use subordinated debt. This, however, has not been a common instrument, since most lenders are unwilling to forgo the senior lender status and pricing is difficult to negotiate. Promoter group investment sometimes comes in as subordinate equity, when there are constraints in actual equity investment, but this is more by structural necessity than as a mode of choice. While IIFCL's scheme for financing infrastructure has a provision for incorporating subordinate debt, this has not been used to any significant extent. These instruments are, therefore, theoretically advocated but rarely used.

Summary

On account of the government's policy focus on PPPs, as well as the shortage of budgetary resources, high reliance is placed on the private sector with almost a third of road sector investment depending on it. This translates to almost \$5 billion–\$6 billion in every year of the remaining Twelfth Five-Year Plan period to 2017. In the past, the government has facilitated and/or established a number of interventions to increase infrastructure investments from the private sector. These have included the establishment of financial institutions, grant funds to improve viability, financial instruments such as take-outs, regulatory changes to cater to infrastructure lending, pooling instruments such as infrastructure debt funds, and others. Private financing of public infrastructure is a complex subject that involves multiple stakeholders and a myriad of externalities. The availability of funds is a significant part of the paradigm, but is not sufficient by itself. Therefore, despite many modes of intervention, a subsisting and recurring theme is that there is a shortage of debt and equity funds, and that the measures already set in place may not be adequate to meet the needs of investment plans.

⁴⁰ *The Economic Times*. 2013. UK-based 3i to Exit India, Pulls Out of All Portfolio Companies. 13 May. http://articles.economictimes.indiatimes.com/2013-05-13/news/39228497_1_india-fund-india-infra-quit-india

IV. Sector Performance

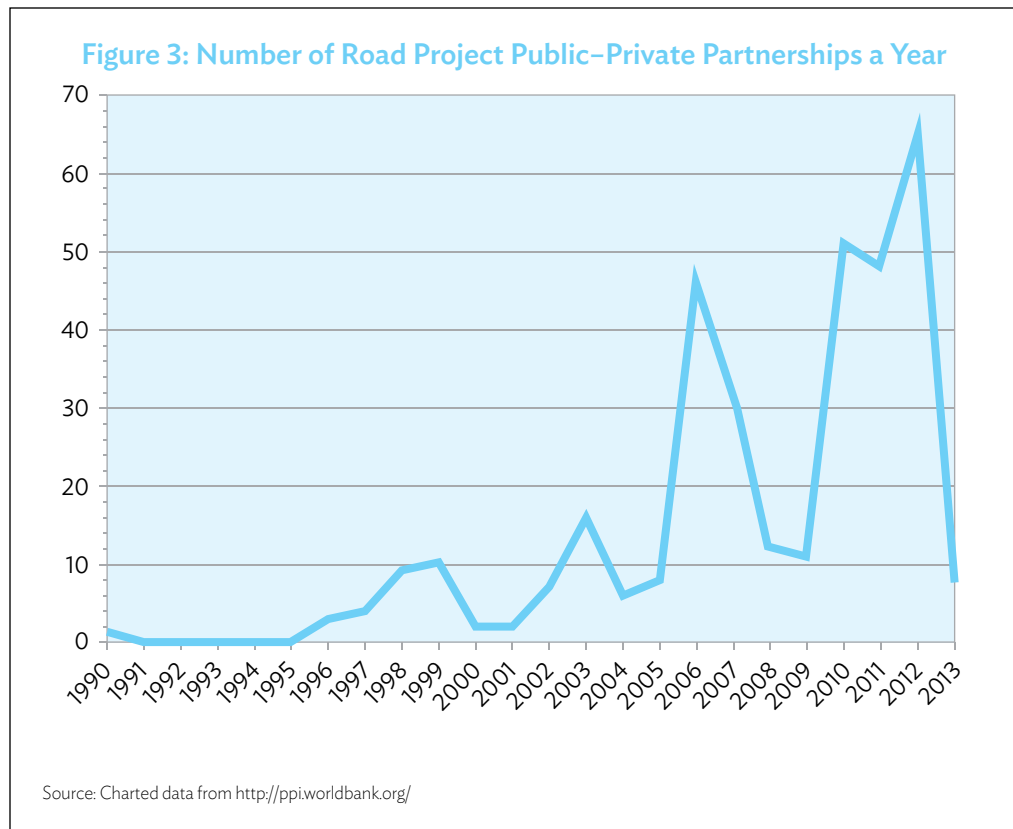
One of the key features of the infusion of private sector finance into the road sector in India has been the marked lack of consistency and reliability in such investments. Repeated interventions are undertaken by the government to address “start-stop behavior” in this sector, and each time there is a perception that the issues are fixed—followed by yet another cycle. This chapter examines some of the major characteristics displayed by the market over the 20-year period from 1995.

11. Cycles of Optimism and Pessimism

Despite incentivizing private sector investment in road infrastructure, the continuing concerns have been volatility and change. Data from the World Bank’s Public Private Infrastructure Advisory Facility database best illustrates this, reflected in Figure 3. Cycles of very high optimism appear to reverse into pessimism. To illustrate this change over a timeline, some media headlines are mentioned here: An article in *the Economic Times* of 31 December 2010 is titled “Public-Private Partnership: Cornerstone of India’s Economic Growth.” Another article of 21 February 2014 is titled “Public-Private Partnerships a Sisyphean Task for Infrastructure Needs.” Most articles in the media on PPP in roads turned negative into 2013: for instance, an *Economist* article of 15 December 2012 was titled “Infrastructure in India RIPPP.” This pessimism again slowly changed into an optimistic outlook into 2014, where articles in the media again focused on the positive aspect of PPP as seen in an article in *The Economic Times* of 2 August 2014, “Infrastructure needs Public-Private Partnerships: President.”

The fact that private sector investment appears to be subjected to intense business cycles may be remotely dependent on the incremental availability of PPP models, documents, and policies, as these do not vary from year to year. The variations and volatility seen may be triggered by

- (i) immediate perceptions of opportunity and profitability that trigger an influx of investments through optimistic bids, backed by optimistic assessments of financial institutions;
- (ii) the realization over a couple of years that the optimism was biased and that infrastructure returns are neither assured nor quick, thus leading to a correction; and
- (iii) the reversal into a pessimistic view that private sector investment in infrastructure is not a sound business proposition.



11.1 Project Preparation and Business Cycles

The level of project preparation (detailing) and its acceptability also seems to move with these cyclic changes in perception. In the early stages of the NHDP, project studies were very detailed and potential bidders spent resources forming their own assessments. As the system became standardized and bidder interest was taken for granted, the project studies declined to the level of a feasibility assessment. Given that the risk of a PPP bid lies with the bidder, government agencies felt that it was the responsibility of the bidders to carry out greater due diligence. The bidders, however, were resource-constrained and faced competitive pressure, as were the lenders, whose responsibility it was to scrutinize a project's financial model.

There are three critical elements of project preparation: project cost, traffic forecasts, and land acquisition and clearances. In cycles of optimism, all three tend to be overestimated, resulting in project implementation and financing issues. Evidence suggests that where a significant number of projects were bid during an optimistic cycle, the traffic forecasts were inflated and the challenges underestimated. Many project bids returned a negative grant,⁴¹ appearing to be a windfall for the government agency. GMR Infrastructure, for instance, won a bid for a road project from Kishangarh (Rajasthan) to Ahmedabad (Gujarat) at a cost of approximately \$900 million, with a negative grant of approximately \$100 million.⁴² This was far more than the government had anticipated even during a time when there

⁴¹ A negative grant is when a bidder provides the government agency with an up-front payment rather than a grant.

⁴² A. Kumar. 2011. GMR Bags Biggest Highway Deal thus Far in India. *DNA India*. 30 July. <http://www.dnaindia.com/money/report-gmr-bags-biggest-highway-deal-thus-far-in-india-1570879>

was optimism in favor of road PPPs. In 2013, the company pulled out of the project, citing reasons of land acquisition and environmental clearances.⁴³ It is a matter of speculation whether the company would have pulled out had the model of the project been annuity-based rather than toll-based. These experiences have raised the question as to whether or not the negative grant approach offers the right incentives during the bidding process.

Project costs—key to the structure of PPPs—were estimated under the concession agreement as the government's lowest in the detailed project report, which included the actual cost incurred by the promoter and the lender's estimate at project closure. In most cases, the government's low cost estimates tended to impact the lender's position and the termination payments. Finally, the fact that the project assessment had omitted to include the issue of land acquisition and clearances caused a delay in a large number of projects.

While these issues reflect poor project preparation due to optimistic bias, the opposite (pessimism) provides the same impacts. The bidders, and especially the lenders, would be very conservative, resulting in constrained financing. Project preparation is, therefore, a procedure that is critical to the business cycle.

12. Government Action

Since public infrastructure is essentially a state function, government actions have very substantial effect on driving perceptions and investments. Government actions, however, are also influenced by current perceptions and sentiment, which adds to the volatility discussed in the previous section. An example lies in the standardization of documents and PPP models. During 2000–2005, the PPP model was the model of choice for national highway projects. Based on a VGF, the model was well defined, documents (requests for proposal and concession) were standardized and completed, and the entire project design and procurement process was formalized and systemized. Capacity at the time was substantial within the public and private sectors, as well as within the relevant financial institutions.

Nevertheless, despite the fact that all processes were in place, the market dropped to a trough (see Figure 2 on p. 26) throughout 2008 and 2009. The government thus decided on a major reassessment of the project and established a high-level committee (B.K. Chaturvedi Committee), which submitted a report addressing the PPP model, documentation, processes, and some recommended revisions to the VGF (footnote 26). The B.K. Chaturvedi Committee report was accepted with optimism and subsequently implemented. Project investments were on the rise during 2010–2012, until a subsequent market decline reoccurred in 2012. Significant differences of opinion ensued between government agencies. NHAI pressed to revise the model from a PPP to an EPC. By 2012, the Government of India had adopted standard documents for the EPC model in the road sector, and since 2014, it is considered a standard method though its nature is no longer PPP.

⁴³ *Money Control*. 2013. Exited NHAI Contract after More than 200 Days Wait: GMR. 8 January. http://www.moneycontrol.com/news/business/exited-nhai-contract-after-more-than-200-days-wait-gmr-_804804.html

Similarly, much effort went into formalizing procurement documents and the concession agreement. Once finalized, they were considered too rigid. While the B.K. Chaturvedi Committee report had been an attempt to relax some of the procurement document provisions, by 2012 the view was that some mechanism was needed to enable the revision of provisions and/or the ability to renegotiate concession agreements, based on changing traffic (as a result of macroeconomic factors), delays in land acquisition and clearances, and delays in financial closure. The concessions, however, had been signed and executed; a deviation thus would be difficult. The absence of a mechanism to resolve disputes, as well as a regulatory agency, made it difficult to reopen the contracts.

In sum, while government action has played its role in terms of the documents, processes, financial regulation, and financial support, there has nevertheless been some criticism. The result of this review is unclear, as it depends on many internal and external factors which will be discussed in the following section.

13. Stakeholder Interaction

PPP projects are regarded as a simple contract between a public and private sector entity (e.g., construction contract). This can lead to a simplistic view in terms of project success with regard to PPPs, depending only on the government agency and the selected private sector partner. It has taken time to develop the appropriate documents relating to key stakeholders, such as the lenders which, while central to the outcome of the projects, are external players. The overall stakeholder interrelationship is far more complex and, therefore, the number of external actors can have a significant direct impact on the outcome of a project. These actors include

- construction contractors,
- equity investors (other than promoter),
- government,
- insurance provider,
- lenders,
- operation and maintenance contractors,
- project-affected persons,
- promoter(s),
- regulator (or government in a regulatory capacity),
- dispute adjudicatory authority,
- project special purpose vehicle (SPV),
- equipment suppliers, and
- users.

Most of these entities may be groups in themselves and not necessarily have the same view within them on the project. Furthermore, while the term “government” implies one entity, it can also relate to local, state, or central government, and may involve multiple agencies and departments, each with its own mandate and responsibilities—not all of which are in agreement.

The key linkages between project participants are the contracts and agreements (e.g., concession, shareholder, loan, and intercreditor agreements; construction contract). There are, however, informal and widespread networks which can be powerful. These include

- media (print and, increasingly, social media);
- civil society; and
- sociopolitical systems.

These three are network channels and can be significantly interrelated, their impact stemming from their interdependence. These channels principally connect the government, the SPV, project-affected persons, and users. The networks also impact construction activities to some extent, informally linking project-affected persons to the construction contractor. Similarly, the users and the contractors may be linked through an informal network. The Appendix includes charts that indicate the complex interlinkages and networks between stakeholders.

It is clearly difficult, if not impossible, to address all aspects of stakeholder interaction. For example, failures in the Coimbatore Bypass project were seemingly triggered by bus operators' associations, which were external to the project contracts. Users have also successfully litigated against tolling on many other road projects. The only feasible solution is to have a flexible response system built into the contracts. This aspect is examined in the following section.

14. Contractual Rigidity and Absence of Regulator

Initial concessions were loosely framed and, especially in the joint venture or direct negotiation model, these were discussed and finalized between the private sector and the government agency. As the process became more formal, however, the documents also became more rigid. From the government's perspective, there also has been some attempt to regulate and cap financial returns to the concessionaire by inserting covenants into the concession agreement. For instance, if traffic exceeds design capacity, the revenue in excess has to be paid into a government fund or the concession may be ended under a specified compensation framework. While a PPP project is supposed to be a partnership, the culture in government agencies has been control oriented, stemming from the experience of traditional contracts. As the second report⁴⁴ of the High Level Committee on Infrastructure points out:

By its very definition, PPP projects imply a partnership between public entities and private sector participants. Each party must, therefore, discharge its obligations to enable the project to move forward as anticipated. The experience so far suggests that in a large number of cases, the project authorities do not discharge their obligations in time and thus impose additional

⁴⁴ Second Report of the High Level Committee, Financing of Infrastructure. June 2014. p. 14.

time and costs on the private sector participants. Moreover, the public entities do not even agree to pay the small amounts of damages specified in the concession agreements.

The two illustrations below exemplify the rigidity of the system:

- (i) **Project Cost:** Project cost is defined in the concession agreements as the least of three numbers, one of which is the detailed project report prepared by the government agency (with a permitted mark-up). The actual cost, as appraised by the promoter and lenders, may vary and is normally higher. Since the document limits the recompense to lenders as a proportion of project cost, there remains a gap between actual cost and that accepted by the government. Lenders either have to accept this risk, or (more usually) seek additional guarantees from the promoters.
- (ii) **Land:** Delays in land acquisition and associated clearances are endemic, but government authorities rarely take on any liability for this. In the earlier period, there was a stated policy that at least 80% of land should be acquired before bids are floated. Since this took time, however, bids were delayed and government agencies have relaxed these requirements and commenced bid processes. Once the bids are awarded, much of the onus for the progress has shifted to the private sector, which had a substantive financial stake. This not only impacts project profitability, but in many cases, it gives the private sector leeway to rescind the contract.

Concession agreements for PPPs have significantly long-term tenures, and are impacted by many externalities. It is not feasible to predict all these and set a rigid contractual structure around the project. One of the standard mechanisms to address contractual issues in a changing environment and the long duration issue is to have an independent regulator. This has not occurred in the road sector, however, with the result that the attempt is still to provide a regulation by contract framework over 15–30 years. There are now attempts to have a regulator in place for the road sector, but the matter is still under discussion.

15. A Changing Project Profile

One key feature of the sector that is sometimes overlooked is the changing nature of projects that are being put forward to the private sector for financing. The first projects were directly identified by the private sector, followed by key roads (national and state) that were viewed as very viable. Progressively, the “low-hanging fruit,” in terms of financial viability, has been picked. Current projects relate to the less viable roads, and, as Table 2 (on page 3) indicates, in the Twelfth Five-Year Plan period (2012–2017), state roads will need to raise almost twice the amount of private sector financing as national highways—up from being less than 20% in the Eleventh Five-Year Plan period. Historically, private sector interest in financing state roads has been weak. Clearly, many aspects of the model that has been thought through in the past decade would need to be revisited.

Summary

Private sector financing for the road sector is an investment business like any other, and it appears to go through business cycles. These cycles of optimism and pessimism are exacerbated by the activities of government and other stakeholders through continued interventions, as well as changes in models, processes, and documentation. Over time, the flexibility required in handling the long-tenured partnerships involved in private sector financing of infrastructure has reduced. In the absence of an independent regulator, contract documents attempt to predict and regulate contractual requirements over the long time frame required for road concessions. These aspects have led to a paradoxical situation where very substantial progress has been made in reducing risk by increasing the predictability and stability of procedures and documents; however, market forces (financing) and basic public sector project preparatory capacity still lag behind.

V. Trial Balance

The previous chapters have examined the contextual background for private sector financing in the road sector, evolving PPP models, and the financing scenario. From the mid-1990s, the sector has been subject to an enormous amount of thought and activity. Many models have been tried and continued, refined, or abandoned. Standard documents have been framed to address almost every conceivable model of PPP. Institutions have been established and metamorphosed. Financial instruments have been developed and regulatory norms modified. Very substantial capacity for PPP has been built up through various tiers of the government, private sector developers, consultants, and financial institutions. Many high-level committees have deliberated upon the matter and have framed policies and legislation. Therefore, very substantial progress has been made in reducing framework risks by standardization and in attracting private sector finance into the road sector.

As noted in the previous chapter, however, there is also a marked lack of consistency and reliability in such investments. A “trial balance” is an accounting term, but the term also very well illustrates the continual attempts by all stakeholders to attain stability and reliability in private sector financing for the road sector in India. This chapter assesses the outlook for private sector financing based on the background discussed in the previous chapters.

16. Summary of Developments

Private sector financing in the road sector in India has been in a state of evolution and refinement since the late 1990s. India has achieved an overall level of private sector participation in the road sector, which, percentage-wise, is possibly one of the highest in the world. The government and the private sector have partnered well to set in place a system that addresses PPP modes, processes, and documentation. Substantial capacity for undertaking PPP projects has also been built among all stakeholders, especially in the roads sector. A summary of the developments is given in the following sections.

16.1 Public–Private Partnership Background

- (i) **PPP Model:** From some attempts at a joint venture model, it is now settled to a private sector SPV. Toll-based BOTs are the preferred model, though annuity payment schemes are acceptable.
- (ii) **Procurement:** The model has changed from a single-source, negotiated contract, to a joint venture-negotiated contract, to a transparently procured private sector concessionaire.

- (iii) **Concession Documents and Process:** While initial documents were tailored to specific projects, and sometimes even directly negotiated between the government and the private sector, the entire process and documentation has been progressively streamlined and standardized.
- (iv) **Viability Support:** After attempting viability support through means such as land development rights or additional toll facilities, the model has shifted to a VGF one with the quantum of financial support being the bid parameter.
- (v) **Debt Finance:** Initial weak capacity in the financial system. Over time, banks and financial institutions have developed substantial capacity to appraise and fund PPP road sector projects.
- (vi) **Equity:** Initial equity investments came from contractors-turned-developers. Some infrastructure finance institutions also entered the sector, and later, so did private equity funds. The model, however, still remains that of “promoter equity.” Institutional investors, if they participate, follow the promoter equity.
- (vii) **Institutions:** Public and private sector banks provide a majority of debt funding. Institutions, such as IL&FS and IDFC, have played very substantial roles in developing the sector in terms of resources and building capacity, although their business model has transformed. More recently, IIFCL has been a key nodal agency of the government in enabling financial support from the government.
- (viii) **Regulatory:** Initially, regulatory norms treated infrastructure finance on a par with any industrial or corporate finance. Progressively, the norms are recognizing and providing for the requirements of long tenure infrastructure financing.

16.2 Market Response

With so many measures and initiatives, one would expect a certain stability and predictability to the market, especially since almost a third of financing requirements is anticipated to be met from the private sector. This has not been the case, however, and as illustrated in Chapter IV, market response has been marked by volatility.

Market response in the case of private sector financing of road projects is a combination of the response of many stakeholders. Since the relationship is strongly interdependent, as in the case of lenders and promoters, the failure of one link can impact overall investment levels. Fluctuations in investor and lender participation have been very sharp. The government seeks to address this response in some manner, but the next cycle appears. This leads to the conclusion that this volatility may be a characteristic of the market itself, driven by inherent limitations of investment appetite and regulatory norms, as well as the market limitations (viable projects). If this volatility is in the nature of the market itself, then predicting consistent investment from the private sector actually may not be feasible.

16.3 Multiple Stakeholders

As seen in Chapter IV, in the case of private financing of road projects, a very large set of stakeholders interact, and their interests are not aligned and may be completely opposite. As an illustration, most PPP projects depend on a toll road where the “user pay” principle is used. As the number of toll roads has grown, so has the perception that (i) toll stops are getting more numerous, and (ii) the user is already paying by way of road and vehicular taxes, as well as taxes on fuel, and is being made to pay twice through tolls. Users therefore seek media pressure or judicial intervention to quash tolling.

Another illustration is from the nature of the business product: most of the promoters for these projects are from the contractor background. For them, the shift to becoming developers was partly forced by the nature of the market changing because of government policy, and also from potential excess profits through equity investments. As the market has become more regulated and competitive, however, promoters have dropped off the market. The reduction in developer interest, in turn, has triggered the government into altering the private financing model, for example, to push for EPC contracting. This change is welcomed by many developers since it reverts to the domain of contracting.

The conclusion for private investment to flow into infrastructure is that it needs many stakeholders to come together in a true partnership to make it successful, while the break of a single link will impact investments. This feature not only contributes to the increased volatility in investments, discussed in the previous paragraph, but also to the frequent shifts in the thought process for PPP models.

Conclusion: Trial Balance

The examination of private sector financing in the road sector can be summed up in the following statements:

- (i) There has been enormous effort since the end of the 1990s to pave the way for partnerships between the public and private sectors and resolve the many issues relating to the PPP model in the road sector.
- (ii) Private sector investment in the Eleventh Five-Year Plan period (2007–2012) has largely met its targets.
- (iii) Investments have not followed a stable pattern.
- (iv) Many of the easier projects (national highways) and more viable state roads have been taken up. The next step will be the more difficult projects, including state and district roads.
- (v) Availability of funds is constrained by regulatory norms for banks and financial institutions, limits on equity availability and appetite, and the “locking in” of equity investment into the SPV.
- (vi) In many cases, delays are not related to the policy and regulation of PPP projects but rather to land acquisition, environmental clearances, and underprepared projects. A recent article in the *Financial Times* highlights some of these points.⁴⁵

⁴⁵ A. Kazmin. 2014. India Struggles to Build Up Infrastructure Dream. *Financial Times*. July. <http://www.ft.com/cms/s/0/a4152f94-1627-11e4-93ec-00144feabdc0.html#axzz3ZKHcK3dj>

The High Level Committee on Infrastructure,⁴⁶ in its second report of June 2014, has already recognized a significant reduction in projected investment levels in infrastructure compared to initial projections for the Twelfth Five-Year Plan period of 2012–2017. The Committee has also recommended a series of corrective measures to facilitate private sector investments.

The government has already invested extensively in policy, capacity building, and process standardization and documentation for attracting private sector investment into the road sector. Given the complex nature of the stakeholder linkages and regulatory structures, there is now limited room available for government intervention. Recent announcements of the government, therefore, have focused more on reducing delays for clearances and expediting approvals through various mechanisms, such as single-window and empowered committees. The onus is now more or less on market forces to steer investment, and by their nature, these can be facilitated but not dictated.

The B.K. Chaturvedi Committee, in its report in 2009, recognized the need for adopting a flexible approach to identify and fund national highway projects by suggesting a mix of BOT toll, annuity, and EPC contract modalities. This represents only one side of the story, however: the supply side of projects. As seen in the previous sections, there are numerous factors and perceptions that impact the demand side (investor uptake) of projects. Since aggregate uptake for projects requiring private sector financing is a combination of all factors, the volatility in the availability of private sector finance is likely to continue.

While the government continues its actions to reduce delays in approvals and clearances, as well as to refine the financing and regulatory systems to facilitate private sector finance, its obligations to create the infrastructure in time—with or without private finance—are also ongoing. Since private sector finance has not been very predictable, the government needs to retain the flexibility to finance these projects by other means.

Private sector financing implies the leveraging of government finances and the substantial flowing of finance from the private sector. The previous process, which was considered foremost, was that if some particular aspect of the PPP structure is redressed, private investments will follow a predictable path. This paper takes the view that the situation will always be cyclic and not significantly predictable. Planners, therefore, should view private investments as an important—but not very predictable—element of the financing tool kit. Given the dynamic nature of this business proposition, the solutions lie in enabling the environment for such investment and in having sufficient flexibility to step in and bridge the investment gap through other means, rather than to predict fixed investment proportions and then depend on the estimates.

The Government of India has already taken very substantive actions in setting up policies, legal frameworks, standard processes and documents, financial regulation, and debt funds. At present, the next steps by governments at the central and state levels may be the following:

- (i) Expedite “enablers” for road projects, primarily for the flexibility of land acquisition and related clearances. This step will benefit not only PPP projects, but also other projects, in general.

⁴⁶ Government of India. 2014. *Second Report of the High Level Committee on Financing Infrastructure*. New Delhi.

- (ii) Create the flexibility to negotiate and reboot stalled or problematic projects (e.g., through mediation of a road sector regulator).
- (iii) Examine revenue models (e.g., a combination of toll and annuity with capital support to address the changing viability profiles of road projects).
- (iv) Exercise more thought into PPPs for state road projects. As indicated in Chapter I, the share of private sector finance in state sector projects is anticipated to increase from a marginal amount in the Tenth Five-Year Plan period to over 30% in the Twelfth Five-Year Plan period. This changing profile will have substantial impact on the mode for and financing support of PPP projects.
- (v) Revisit lock-in provisions for equity investors and facilitate asset transfers, once certain milestones are met. This will unlock equity and facilitate more projects.
- (vi) Plan PPP investments in a realistic and flexible manner with the recognition that these cannot be considered as predictably as budget allocations.

APPENDIX

Public–Private Partnership Stakeholder Linkages

Public–Private Partnership Network Participation

The following charts illustrate the “network” of participants in private sector financing. The legend key used in Figure A.1 and Figure A.2 is as follows:

Entity	Network Abbreviation
Construction contractor	Con
Equity investors (other than promoter)	Equ
Government	Gov
Insurance provider	Ins
Lenders	Len
Operation and maintenance contractors	O&M
Project-affected person	PAP
Promoter	Pro
Regulator	Reg
Dispute Adjudicatory Authority	DAA
Project special purpose vehicle (SPV)	SPV
Subcontractors	Sub
Equipment suppliers	Sup
Users	Usr

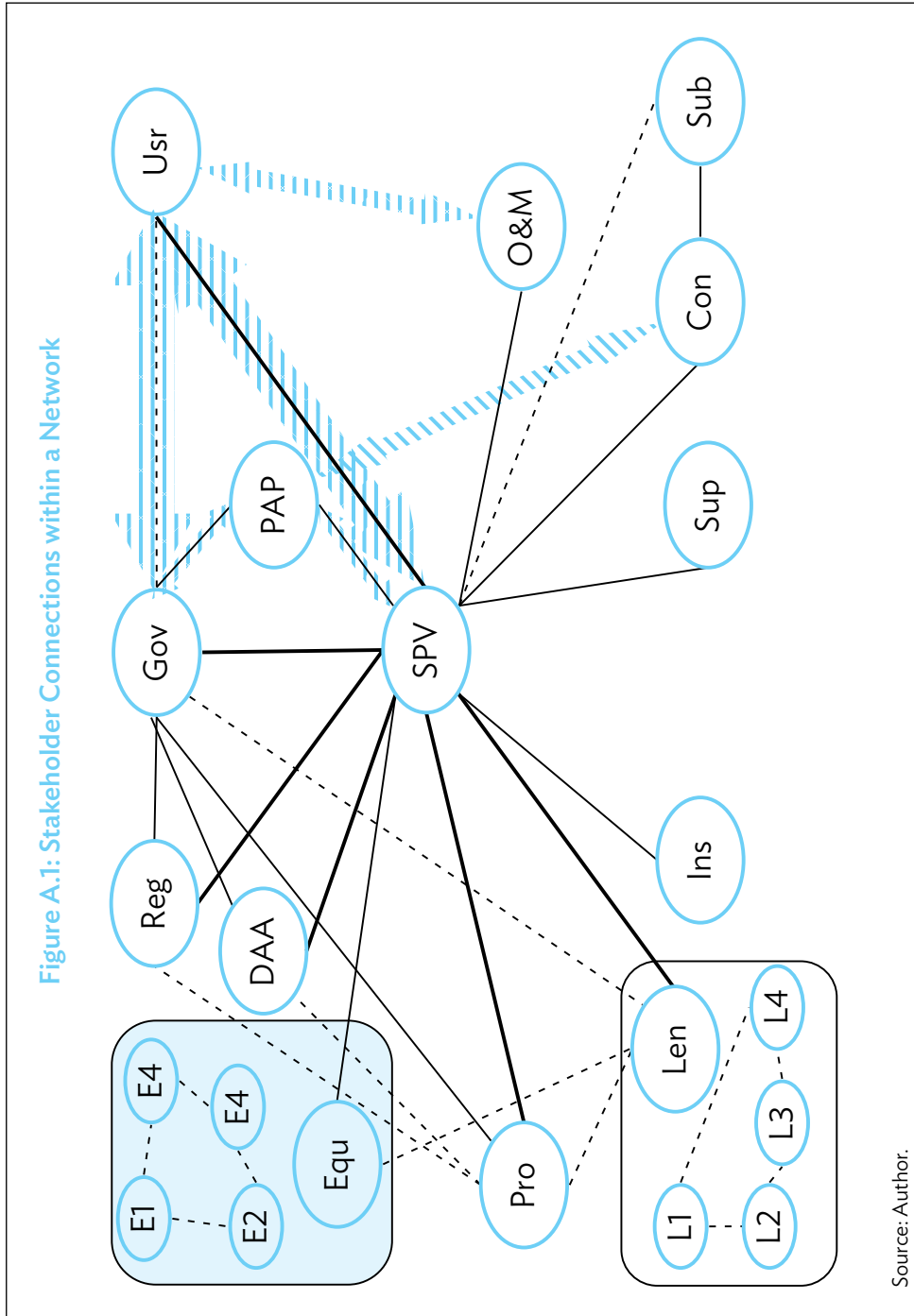
Source: Author.

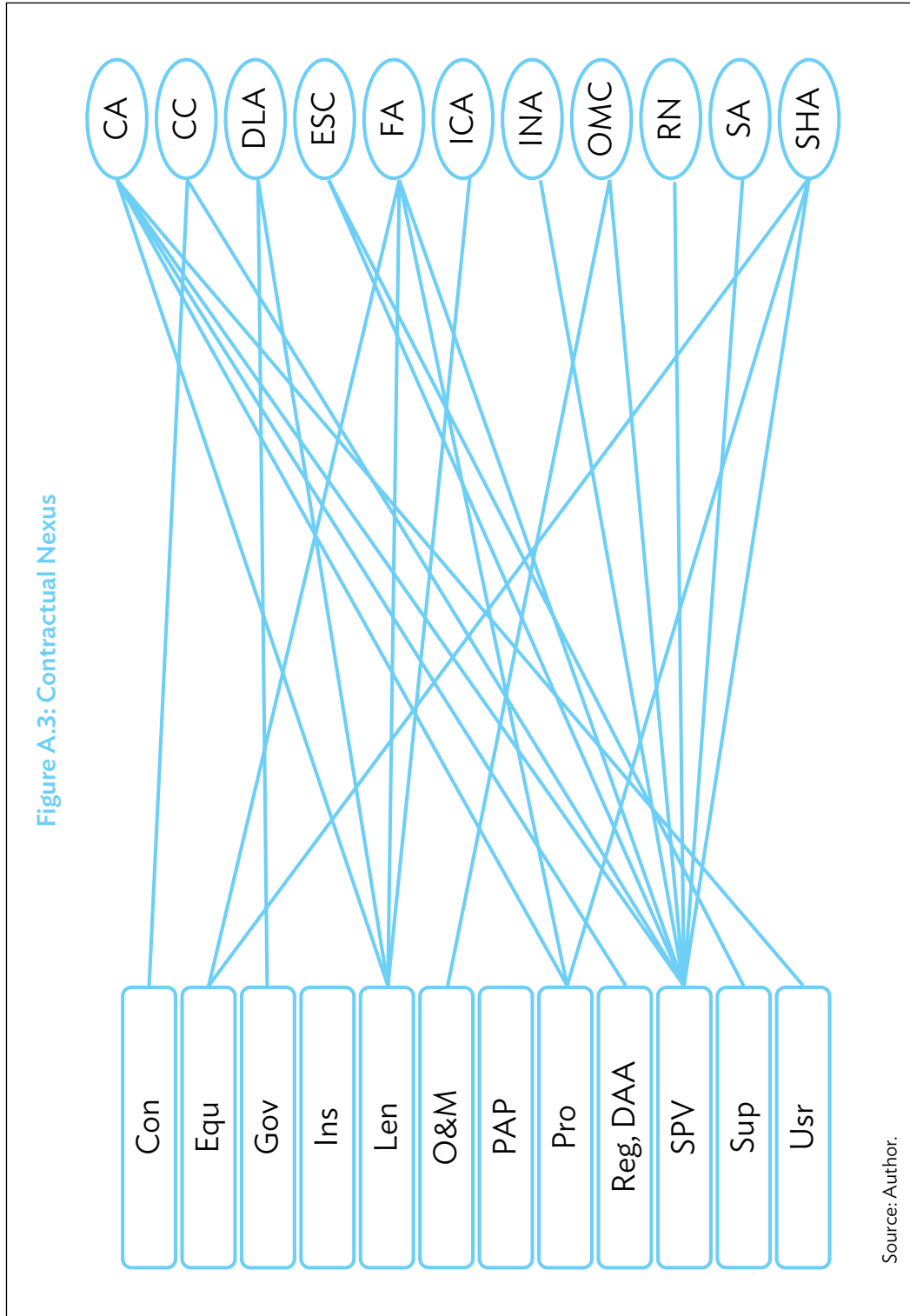
Contractual Linkages

Most linkages between stakeholder entities are through formal contracts and, on an aggregate basis, the linkages are quite complex. Some of the key contracts are listed in the following table, and the legends in the table are used in Figure 6.

Contract	Abbreviation
Concession agreement	CA
Construction contracts	CC
Direct lenders' agreement	DLA
Equipment supply contracts	ESC
Financing agreement	FA
Intercreditor agreement	ICA
Insurance agreements	INA
Operation and maintenance contracts	OMC
Regulatory norms	RN
Security agreement	SA
Shareholders' agreement	SHA

Source: Author.





Trial Balance

Private Sector Financing for Road Projects in India

India has developed and tested various mechanisms and processes for more effective public–private partnerships in the roads sector, with the goal of achieving an optimal balance of value–for–money and business interests. This report examines various public–private partnership models that India has tested and modified along the way toward its attempts to find the most appropriate model. It also examines the previous and ongoing experiences of the Government of India to create the necessary mechanisms and systemization, policies and legislation, and flexibility for contract negotiation, to allow public and private stakeholders to work cohesively in their effort to improve India’s road infrastructure.

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