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New Approaches to PPP in the Roads Sector: India's Annuity Concessions

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About the Author



Kathleen Booth is a PPP expert who advises governments on structuring and implementing public-private partnerships. Ms. Booth has worked across a range of sectors, including water and sanitation, solid waste, energy, transportation, telecommunications, environment, agriculture, health, and education. Globally, she has provided PPP services in Kenya, The Bahamas, Brazil, Bulgaria, Canada, Croatia, Egypt, El Salvador, Germany, Ghana, Guatemala, Guyana, Honduras, India, Jamaica, Kenya, Mexico, Mozambique, Nepal, Panama, Peru, the Philippines, Romania, Thailand, and Turkey.

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Abstract

India has pioneered a new model for PPP in the roads sector that holds the potential for application in other areas such as water and solid waste. In this case study, author Kathleen Booth describes how India has leveraged this new PPP model to attract private finance where classic project finance structures were too risky.

Introduction

India has pioneered a new model for PPP in the roads sector that holds the potential for application in other areas such as water and solid waste. This model, called “annuity concessions,” was developed by the National Highways Authority of India (NHAI) under the National Highways Development Program (NHDP).

NHAI was formed under the Ministry of Shipping, Road Transport and Highways (MSRTH) in 1988 as a result of the National Highways Authority of India Act, and became operational in 1995, when a fulltime Chairperson and five full time Members were appointed. It is responsible for the development, maintenance and management of national highways, primarily through the NHDP.¹

National highways are critical to India's economy and development. Although they constitute only 2% of the total road length in the country, they carry more than 40% of total road traffic.² Demand is steadily growing, and the number of vehicles in India has increased by 10.16% per year over the last five years. Work under the NHDP is aimed at developing international quality roads and improved traffic flow through:

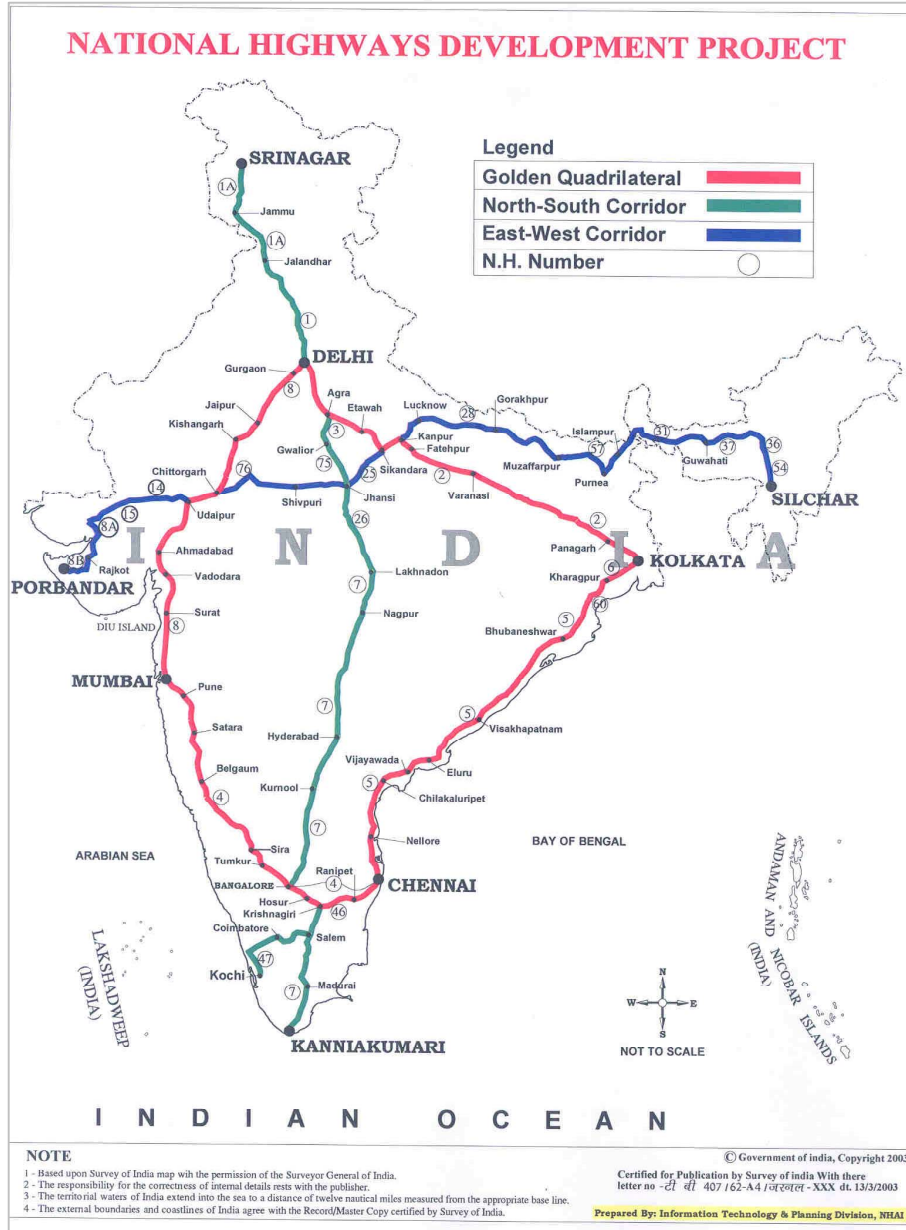
- Rehabilitating and widening (to four lanes) of roads;
- Enhanced safety features;
- Improvements to road surfacing;
- Better traffic management and signage;
- Divided carriageways and service roads;
- Grade separators;
- Over- and underpasses;
- Bypasses; and
- Wayside amenities.

The objective of these programs is to spur economic growth and productivity through reductions in vehicle operating costs, travel time,

fuel consumption, accidents, and road maintenance costs, as well as enhanced economic activity by facilitating trade and transport, particularly of perishable materials.

The NHDP has to date included three phases – NHDP I, II, and III – which have received funding and support from a variety of international financial institutions including the World Bank, the Asian Development Bank, the Japan Bank for International Cooperation (JBIC) and others. A number of projects have been completed under the NHDP, including the rehabilitation and widening of the Golden Quadrilateral corridor (over 5,000 kilometers of highway network connecting Delhi, Kolkata, Chennai, and Mumbai),

Figure 1: Map of NHDP Projects



¹ National Highways Authority of India (<http://www.nhai.org/>), accessed July 23, 2006.

² National Highways Authority of India (<http://www.nhai.org/balancelength.htm>), accessed July 23, 2006.

the North-South and East-West corridors (7,300 kilometers connecting Kashmir to Kanyakumari and Silchar to Porbandhar), as well as 361 kilometers of port connectivity projects and 779 kilometers of other national highways (see Figure 1 above).

Funding for these projects comes from a combination of sources: cess (a dedicated assessment on gas and diesel), donor agency support, commercial loans, and the private sector through public-private partnerships. (see Table 1 below)

Table 1: Source of Funds for NHDP Projects³

Source of Funds	Amount (US Dollar)
Cess	4.3 billion
World Bank/Asian Development Bank	4.3 billion
Commercial loans	2.6 billion
Private Sector	1.3 billion
TOTAL	US\$ 12.5 billion

The money raised by cess goes directly into a Central Road Fund (CRF) that is used exclusively to fund road improvement projects carried out by NHAI as well as other agencies including State Governments. Transfers from the CRF have helped NHAI not only to fund projects under NHDP, but have helped to leverage other sources of finance by serving as security for commercial borrowing.

Public-Private Partnerships

Transport sector spending as a share of total public investment in India has been declining steadily over the years and as a result, there is a severe shortage of public funds available for road construction and maintenance. Private financing for road improvements thus constitutes a critical element of NHAI's strategy for funding projects under the NHDP, and the Government of India has introduced a number of policy initiatives aimed at bolstering the level of international as well as domestic private sector participation in the construction and maintenance of roads projects. These include:

- Inclusion of PSP in the transport sector as a specific goal in the Government's Tenth Plan⁴;
- An amendment to the National Highways Act of 1965 to allow Build-Operate-Transfer (BOT) projects and the collection of tolls by private operators on both public and private roads;
- The development of standardized formats for PPP contracts in the roads sector;
- Simplification of the procedures required to acquire land for roads projects and to receive environmental permits;
- Passage of the 2002 Securitization Act, which allows banks or financial institutions that are secured creditors under a non-recourse or limited recourse arrangement with a borrower to enforce a secured interest created in its favor without the intervention of any court or tribunal; and
- Passage of the 1996 Arbitration and Conciliation Act, which allows dispute resolution under United Nations Commission on International Trade Law (UNCITRAL) rules.

³ National Highways Authority of India (<http://www.nhai.org/fundrequirement.htm>), accessed July 23, 2006.

⁴ Para 8.3.18 of Draft 10th FYP, Planning Commission

In addition, the Government introduced a specific policy for PPP in the roads sector. The main features of that policy include:

- Foreign direct investment of up to 100% is allowed;
- NHAI can participate with up to 30% of the total equity of a Special Purpose Vehicle (SPV) established to develop a road project;
- NHAI can provide capital grants to road project developers on a case by case basis;
- Traffic support/guarantees are provided on a case by case basis;
- Real estate development can be made an integral part of BOT projects to enhance their financial viability;
- Private investors are to be protected against force majeure situations including political, non-political and legislative changes;
- Dispute resolution will be governed by the 1996 Indian Arbitration and Conciliation Act, which incorporates UNCITRAL provisions; and
- The ownership of land for highway construction and roadside facilities will vest in Government and mortgaging of such land is not allowed, however land can be leased to private operators under a PPP.⁵

As a result of these and other policy initiatives, a range of PPP modalities have been employed to fund approximately 20% of the roads projects under NHDP, including traditional models such as BOT arrangements and joint ventures, and a new and innovative form of PPP, referred to as an “Annuity Concession.”

For high density corridors where the potential for direct tolling of road users exists, the Government of India has successfully utilized BOT toll road concessions as a way of mobilizing private financing. Under this model, the private sector builds, operates, and maintains the road for the period of the contract (usually up to 30 years), after which the road is transferred back to Government. The private operator is remunerated through the collection of tolls charged for use of the road, and in some cases, in part by payment directly from Government. Today, approximately 500 km of national highways are privately managed as toll roads, raising around 10.5 billion rupees per year (US\$ 224 million).⁶

The joint venture model of PPP has been used primarily for port connectivity projects, the least risky of the NHDP programs. Under this model, the Government and the private sector join forces in establishing a Special Purpose Vehicle (SPV) for financing and implementing the PPP project. Because user entities generally can contribute to part of project financing, these projects have been able to achieve investment-grade ratings from at least one credit rating agency and thereby attract long-term financing from such risk averse sources as insurance companies, pension funds, and other institutional investors.

Annuity Concessions

Where revenues from tolling are uncertain or will be insufficient to attract BOT operators, the Government traditionally had to employ Engineering, Procurement and Construction (EPC) contracts which entail little to no risk on the part of the private sector. To fill this gap, NHAI has

⁵ The World Bank, “Highway Sector Financing in India” (http://www.highwayfinindia.org/psp_indian_enabling2.htm) accessed July 23, 2006.

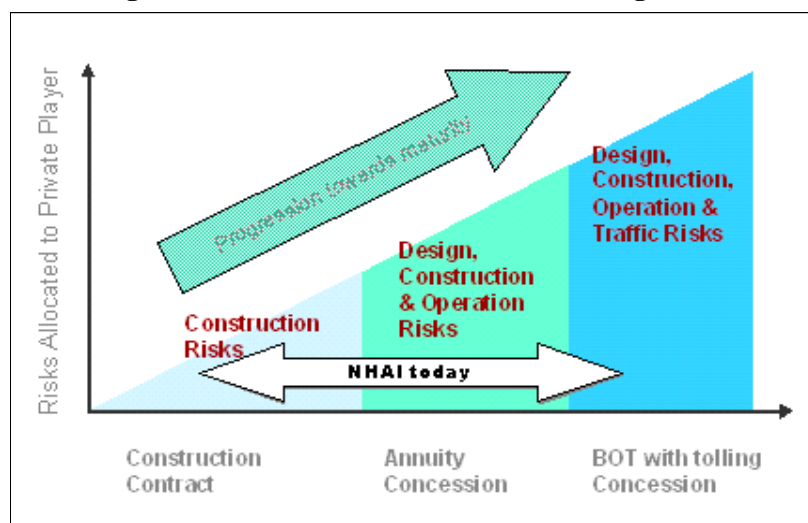
⁶ World Bank estimates (see http://www.highwayfinindia.org/psp_indian_rationale.htm)

developed the Annuity Concession model. To date, approximately 8% of the length of roadways subject to NHDP funding has been commissioned using the Annuity Concession model.⁷

Annuity Concessions are a variant of the BOT model in which the private operator is remunerated via a fixed, periodical payment (“annuity”) from NHAI rather than through toll proceeds. Under these contracts, the private operator is responsible both for constructing the road, as well as for operating and maintaining it for a fixed period of time (typically ten years). Because the break-even point for the private operator does not occur until late in the contract (typically around the seventh year in a ten year contract), this form of PPP transfers both responsibility for bridge financing and performance risk to the private sector. In addition, because the annuity payments are not indexed, the private sector retains any risks associated with higher than anticipated operations and maintenance (O&M) costs.

Although Annuity Concessions do transfer certain key risks to the private sector, they keep revenue risk with Government (which retains the right to set and collect tolls). This makes Annuity Concessions attractive to private operators where a BOT-type arrangement would be considered too risky (see Figure 2, below).

Figure 2: Risk Profile of NHAI PPP Arrangements



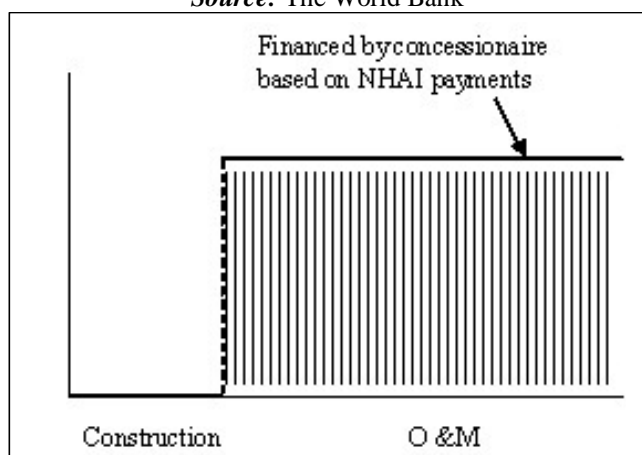
Source: The World Bank

Because these projects are seen by the financial community as having a secure and stable source of funding (the annuity payments, which are financed by cess), many of them have been funded with debt-equity ratios of up to 75:25 (whereas the typical toll-based projects have debt-equity ratios of 70:30). Generally, there is no requirement for debt servicing the construction period, and repayment begins after project commissioning (see Figure 3, below).

⁷ The World Bank, “Highway Sector Financing in India” (http://www.highwayfinindia.org/psp_indian_national.htm#2) accessed July 23, 2006.

Figure 3: Structure of Annuity Concessions

Source: The World Bank⁸



As of 2003, NHAI had awarded annuity concessions totaling 28.8 billion rupees (approximately US\$ 618 million). (see Table 2 below)

Table 2: Annuity Concessions Awarded to Date⁹

Road	Annuity Amount (Rs. Millions)
Golden Quadrilateral	
Panagarh – Palsit	5,550
Palsit – Dankuni (Durgapur Expressway)	3,998
Makarastra Border – Balgaum	5,050
Ankapalli – Tuni	2,948
Tuni – Dharmavaram	2,791
Dharmavaram – Rajamundry	2,962
Nellore Bypass	1,296
Other Projects	
Tambaram – Tindivanam	4,186
TOTAL	28,781

NHAI procures Annuity Concessions using a competitive bidding process (including prequalification based on bidders' experience and financial capability) that awards the contract to the bidder offering to perform the work for the lowest annuity payments from NHAI. Although selection is primarily based on the financial bid, technical proposals must comply with predefined design, construction, O&M and hand-back requirements.

Unlike typical construction contracts, Annuity Concessions do not require any advance payment to the private operator. Instead, NHAI does not begin paying the annuity until the road is constructed in accordance with the quality standards set out in the contract. This model rewards early completion and provides the private operator with a built-in incentive to ensure that the road is constructed in a way that minimizes long term O&M costs while meeting quality standards. This focus on performance has reduced the amount (and cost) of monitoring and oversight

⁸ See The World Bank, "Highway Sector Financing in India" (http://www.highwayfinindia.org/psp_indian_financial.htm) accessed July 23, 2006.

⁹ Financial Engineering Techniques Assessment and Options Report", CES and Ernst and Young, October 2003 (Accessed on July 23, 2006 via The World Bank, "Highway Sector Financing in India" http://www.highwayfinindia.org/psp_indian_national2.htm)

required of Government during the construction period. It has also resulted in construction costs that are on average 12 to 35% lower than NHAI's estimates.

The Annuity Concession model of PPP has proven popular with private investors in India, and is now the most widely employed form of PPP in terms of length of roadways. The model has been particularly successful at attracting domestic private investors, with all but a few of the contracts underway being implemented by Indian companies.

The model is also favored by the Indian Government, which has seen a number of advantages to Annuity Concessions, including:

- Transfer of initial financing, construction, O&M, and project completion risks to the private sector;
- Construction completed much faster and less expensively than under traditional EPC contracts;
- The annuity payment structure allows a firm calculation of NHAI's financial exposure under the contract;
- The fixed nature of the annuity payments significantly reduces the risk of contract renegotiation with the private sector; and
- Substantial growth of domestic private sector capacity (not just in construction, but in operations and maintenance as well) in the roads sector.

Based on its successful experience with the Annuity Concession model in the roads sector, the Government (national as well as some state governments) of India has now begun testing the model in other sectors such as water and solid waste.

Conclusion

Through the application of a variety of PPP models, the NHAI has succeeded in mobilizing private financing for the roads sector in India. As a supplement to the more traditional PPP models such as BOTs and joint ventures, the Annuity Concession has proven an effective way to attract private finance where classic project finance structures would be considered too risky. While this model keeps revenue risk with Government, it does transfer other risks – including initial financing, construction, O&M and project completion risk – to the private sector. And its focus on outputs, or performance by the private operator, has reduced the cost and administrative burden to Government for monitoring private contractors.

Given its successful use in the roads sector in India, the Annuity Concession model of PPP holds the potential to attract private finance in other sectors – such as water and solid waste – which often do not generate sufficient revenues to support BOT or concession type models. And the experience in India can provide valuable lessons to Governments around the world looking for a PPP solution that leverages private finance without necessitating dramatic increases in tariffs or user fees.

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