

# **Second Generation NHDP Programs -- Challenges Ahead --**

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# Three Questions to be addressed today

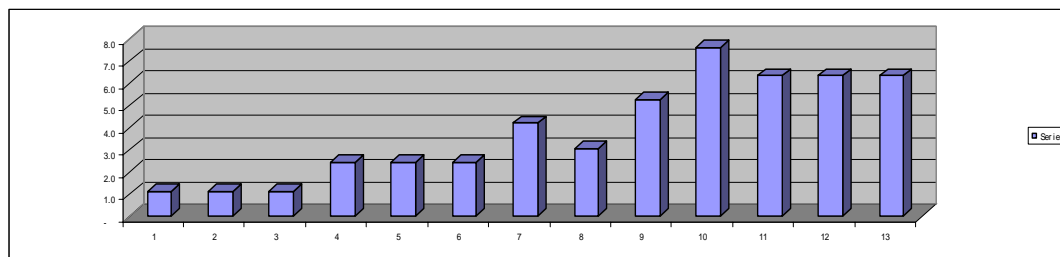
- A. Can India deliver ?
- B. What lessons can India learn from global experiences?
- C. What would be the role of multilaterals?

## A. Can India Deliver?

- Early 2005, GOI announced the second generation NHDP programs to be developed under the public private partnership (P3) at the estimated cost of around \$50 billion, a largest highway development program ever planned in the world for P3.
- This is an enormous challenge by any standard, but is it possible to deliver this in terms of (i) capacity of construction industry and (ii) capital markets.

# A.1. Simple Illustration for annualized size of investments for NHDPs

NHDP	Programs	\$ bilin	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
NHDP I	Golden quadrilateral	8.0		1.1	1.1	1.1	1.1	1.1	1.1	1.1							
NHDP II	NS&EW corridors	9.0				1.3	1.3	1.3	1.3	1.3	1.3	1.3					
NHDP III	High density & SCC	12.5								1.8	1.8	1.8	1.8	1.8	1.8	1.8	
NHDP IV	Two laning of NHs	5.7										1.1	1.1	1.1	1.1	1.1	
NHDP V	6 laning of GQ	5.3										1.1	1.1	1.1	1.1	1.1	
NHDP VI	Expressways (1,000km)	3.4											0.9	0.9	0.9	0.9	
NHDP VII	Ring roads, bypasses	3.4												0.9	0.9	0.9	0.9
Other	North eastern region	2.7													0.7	0.7	0.7
Total		50.0		1.1	1.1	1.1	2.4	2.4	2.4	4.2	3.1	5.3	7.6	6.4	6.4	6.4	



## Assumptions:

This is a simplified illustration, which is not necessarily based on the GOI's plan of implementation.

Each program is assumed to be progressed in a equal pace.

Civil works are assumed to start in the second year onward, while the first year is to be used for procurement of civil works.

**A. A possible method for estimating the capacity of construction industry-**

**A real constraint is human resource. A wild idea for solution would be to tap the potential of state PWDs with introduction of "exchange programs" (rather than VRS).**

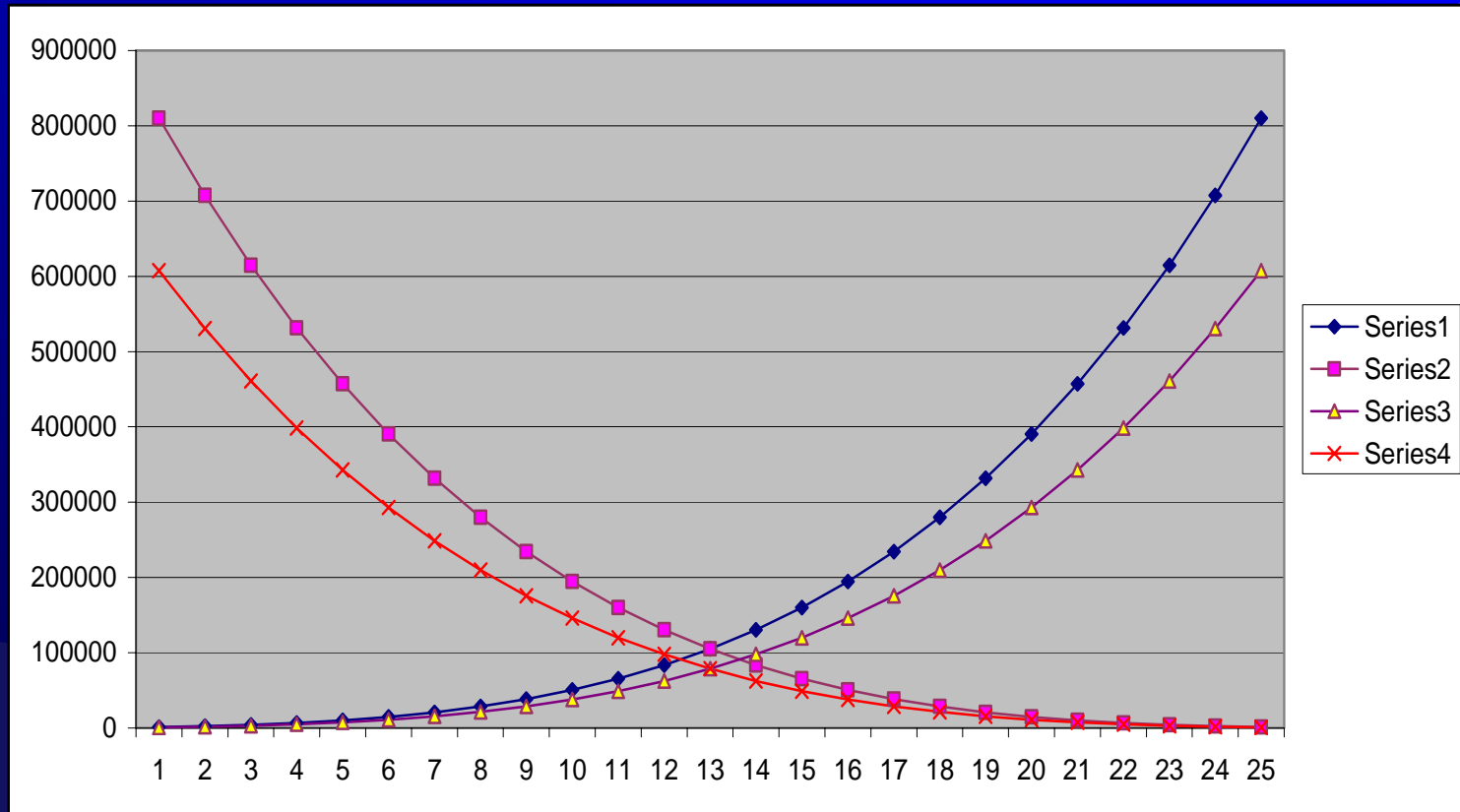
	Year 2000	Year 2005	Year 2010
No. of major construction companies in the <u>industry</u>	10 (??)	20 (??)	30 (??)
Turnover of <u>individual co</u> (\$ million)	(??)	600 (??)	(??)
Share of transport infrastructure	(??)	33% (??)	(??)
Share of National Highways among transport	(??)	33% (??)	(??)
Capacity for NH segment (\$ m)	(??)	65 (??)	(??)
Amaglamation of individual cos (\$ m) <u>Industry</u> capacity of NH segment	- (??)	1,307 (??)	- (??)

N.B. The above was not intended to show the estimated capacity, but to demonstrate its methodology.

## A. 3. Capacity of capital markets

- Three markets: borrowing from: (i) commercial banks; (ii) institutional investors such LIC; and (iii) bond issues. A relatively large size of the markets.
- An issue is that the P3 is non recourse or limited recourse finance. Do financiers have adequate appetite for this?
- Since Asian financial crisis, lending institutions are increasingly cautious toward project financing. They worry about negative impact of their credit rating if they engage in project financing in highway sector. They prefer fee based business. India has not yet been their target market.

**A. 4. India is not isolated, but a part of the global economy. If increased supply is needed, it would come from external markets. Supply curb will be shifted.**



## B. What lessons can be learned from global experiences

- Private financing initiative (PFI) have been in practice for the last three decades in the highway sector. However, the past experiences with the PFI approach is mixed to due to the following three intrinsic difficulties associated with highway development:
  - ❖ Risks related to land acquisition and construction
  - ❖ Lumpy initial investments and resultant long gestation period
  - ❖ Difficulties in traffic forecast and resultant uncertainties
- To address these difficulties, the governments have intervened in the process by: (i) assuming responsibilities for land acquisition and environmental measures; (ii) providing grants toward capital investments; and (iii) provision of guarantees to mitigate associated risks -- Public private partnership (P3)
- Major benefits of P3 include: (i) efficiency gain to be obtained though the introduction of private sector skills; and (ii) assumption of a life cycle cost by the private sector. While the public sector procurement (usually based on item rate contracts) may appear less costly at the first sight, it often ends up with more costly due to the frequent variations -- 28% higher than tender price in UK (National Audit Office) and 31% higher than original estimates in NHDP I & II (PricewaterhouseCoppers).

## B. What lessons can be learned from global experiences? (II)

### (1) Mexican experiences:

- ❖ The Government of Mexico (GOM) announced in 1989 a major highway development program of 6,000 km at the estimated cost of \$16 billion.
- ❖ In order to secure the private sector participation, a rather unusual selection criterion was adopted -- a shortest concession period, a scheme favored by construction industry.
- ❖ The result is the concession period of 8-15 years and enormously high level of tolls (up to the max toll). This had led to the situation where newly built roads are almost empty but the parallel non-tollable roads continue to be congested.
- ❖ Another problem was the enormous cost overrun claimed by BOT contractors, averaging 50% of the original project cost estimate. All concessions were renegotiated with extension of concession period to 30 years. Toll was reduced, and the government paid \$7.8 billion in 1997.
- ❖ The GOM was in a hurry to get the program completed within the then President's administration. This has resulted in the overly concessional contracts to the private sector.

## B. What lessons can be learned from global experiences (III)

### (2) Chilean experiences:

- ❖ The GOC decided to develop 2,000 km of intercity expressway networks under the BOT scheme at the estimated cost of \$3.3 billion.
- ❖ Program was implemented relatively smooth, but most of the project companies have experienced difficulties in securing long term loans. The government responded quickly by introducing a number of credit enhancement measures, including: (i) minimum revenue guarantee; (ii) least present value of revenue scheme; and (iii) foreign exchange risk guarantee.
- ❖ All 12 contracts were awarded in mid 1990s, construction completed during 1998-2002. The average elapse time between tender and the commencement of operation is 4.5 years, an excellent performance.
- ❖ Another indication of success. Originally, the Government did not expect the participation of many foreign contractors, but many foreign contractors had participated.

## B. What lessons can be learned from global experiences? (IV)

### 1. Good Planning is essential

- The P3 could be successful if planned well, but if not, it could lead to a major fiscal drain.
- The plan should be kept flexible so that the scheme can be improved over the years based on the experiences and lessons learned. Flexibility is also important so as to avoid snowballing effects of the accumulated problem. This is applicable particularly in the large scale program.
- The implementation schedule should not be overly optimistic. The elected bodies are often enthusiastic in demonstrating the visible impact during their administration. This often led to exerting undue pressure on implementing agencies for fast delivery of programs.

## B. What lessons can be learned from global experiences? (V)

### 2. Be aware of contractor oriented nature of BOT.

- BOT structure has been contractor driven since the inception of BOT concept in Turkey.
- While a BOT contract covers both construction and O&M stages, project companies try to recover all the costs during construction period. Once this is done, they may be willing to let special purpose companies to fail. The result is the public will suffer (no infrastructure service available). Be aware of this potential behavioral pattern of contractors.
- A root cause of this problem is that the BOT is basically contractor oriented. Unless strong O&M industry is developed, BOT schemes may not work well.
- A challenge for India is the development of O&M industry.

## B. What lessons can be learned from global experiences? (VI)

### 3. Be aware of an “optimism bias” for traffic projection

- ❖ The past experience indicated tendency of overstating traffic. For instance, the Guangzhou-Shenzhen Superhighway Project projected twice higher traffic than the level actually realized. Dulles Greenway Project realized only a quarter of the estimated traffic in the first few months of operation. This is often due to: (i) the underestimate of the potential negative impact of competing roads; and (ii) failure to estimate the impact of tolls on the traffic level. The project company tends to be too enthusiastic to justify the project.
- ❖ The problem of optimistic traffic projection should not be overly emphasized since the original traffic projection will be eventually materialized with a few years of delay. The capacity of toll roads will be fully utilized sooner or later, but the difficulty is to predict when this would happen. Initial low cash flow is a problem for this potential to be realized.
- ❖ Currently traffic projection is done by consulting firms with strong engineering orientation for section by section. Not much emphasis is placed for this aspect. Traffic projection should be done in a more systematic manner by specialized transport consultants with adequate experience for economic assessment.
- ❖ More analyses should be made on impact of tolls, impact of alternative routes or other competing modes of transportation.

NB. The word “Optimism Bias” was used by the World Bank Presentation on PPP in 2005.<sup>13</sup>

## B. What lessons can be learned from global experiences? (VII)

### 4. Need to avoid the renegotiation

- ❖ Little attention has been paid to the possible cases of renegotiation at a later stage. The real cost of BOT concession could not be measured until the BOT project has been completed.
- ❖ A study by J. Luis Guasch found that over 60% of 1,000 concession contracts awarded in the 1990s in Latin America were renegotiated within three years.
- ❖ In the case of a high profile and lucrative projects, bidders are tempted to offer below-cost prices to win the contract in anticipation of later renegotiation.
- ❖ Due consideration should be given to prevent this to happen.
- ❖ Setting a minimum bid price would also be effective to prevent below cost bidding.

## B. What lessons can be learned from global experiences? (VIII)

### 5. Need to tap the potential of reputed foreign contractors

- ❖ The current size of BOT projects in India typically ranges from \$50 m to \$ 150 m.
- ❖ Usual size of oversea BOT projects ranges from \$200 m to \$500 m. Some exceed \$2-3 billion (Malaysia's North South Corridor BOT project: \$3.2 billion and China's Guangzhou/Shenzhen Superhighway: \$1.6 billion).
- ❖ While the "section-by-section" approach in developing corridor would be continually valid for India, an alternative larger contract approach may be worth to be considered for selected corridors. This would, in turn, require the participation of larger BOT operators.
- ❖ While caution would be necessary for engaging foreign contractors because of the past poor performance of joint ventures, but it is still worthwhile to try bringing in larger and reputed foreign contractors to India.

## C. What would be the role of Multilateral

### 1. Long term financing

- Increased private sector participation in highway development means lesser requirement for public sector funds. This has led to a question on the extent of involvement of multilaterals in the second series of NHDP programs.
- To answer to this question, a detailed cash flow analysis was conducted. The analysis has indicated that the implementation of the second series of NHDP programs (III-VII) would require significant amount of funds, which may result in several billions of funding gap. This funding gap needs to be filled out by borrowing, preferably through long term loans.

## C. 1. Findings of cash flow analysis

The cash flow model has indicated negative cash flow during 2007-2016, with accumulated amount of \$7.5 billion \$ 7.50 billion

The financial gap need to be filled out by loans, preferably by long term loans (to avoid assets/liability mismatch) so as to bridge this negative cash flow to the later stage postive cash flow.

*Scenario one: The whole financial gap to be covered by the commercial banks/Market Borrowings* \$ 7.30 billion

Outstanding Debt by the end of 2030 \$ 18.40 billion

Cash balance at the end of 2030 \$ - billion

*Scenario two: Mixture of multilaterals (\$1 billion/year 2007-2011) and commercial banks (Funding Gap)* \$ 7.30 billion

Outstanding Debt by the end of 2030 \$ 3.60 billion

Cash balance at the end of 2030 (can avoid debt trap) \$ 4.40 billion

## C. What would be the role of Multilateral (II)

### 2. Institutional strengthening

- The PPP represents a major paradigm shift in the ways to develop national highways. The first series of NHDP programs (NHDP I and II) has been public sector driven, while the second series of NHDP programs (NHDP III-VII) would be private sector driven. Under the former scheme, NHAI was a developer cum operator, but under the latter scheme, NHAI would be a facilitator for the private sector development and operation. The roles of NHAI would include: (i) specification of design requirements and selection of concessionaires; (ii) land acquisition, resettlement and environmental protection measures; (iii) contract management and monitoring; (iv) network wide corridor management and road safety; and (v) provision of necessary funding support to the private sector.
- The institutional strengthening process would start with clear recognition of this change in role of NHAI. This would require: (i) the reorientation of NHAI from a project developer to a program administrator, from project management to contract management/monitoring; and (ii) change in skill mix, including retraining of the current staffs and engagement of new experts. This would further require: (iii) strengthening of its organizational arrangement with stronger focus on the PPP program implementation; and (iv) enhancement of financial structure.
- The Government has recently announced its decision to transform NHAI into a "multi-disciplinary" organization, and to further strengthen its capacity so that NHAI can deliver this massive PPP programs in a more efficient manner. These efforts would be supported by ADB.

## C. What would be the role of Multilateral (III)

### 3. Challenges ahead

- The PPP scheme would pose a challenge not only to NHAI, but also to ADB. Past ADB interventions tend to have resulted in significant transaction costs. ADB has taken or plan to take a series of actions to address this issue including the recent introduction of new financing schemes called “Innovation and Efficiency Initiatives”, expanding the range of items to be financed under the loans, simplification of procedural requirements for procurement. Efforts would also be made to adopt, on a pilot basis, a safeguard system closer to the country/agency system.