



Report and Recommendation of the President to the Board of Directors

Project Number: 42928
September 2008

Proposed Loan National Highway 1 Panipat–Jalandhar Toll Road Project (India)

In accordance with ADB's public communications policy (PCP, 2005) this abbreviated version of the RRP excludes confidential information and ADB's assessment of project or transaction risk as well as other information referred to in paragraph 126 of the PCP.

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 1 September 2008)

Currency Unit	–	Indian rupee/s (Re/Rs)
Re1.00	=	\$0.023
\$1.00	=	Rs43.25

ABBREVIATIONS

AADT	–	annual average daily traffic
ADB	–	Asian Development Bank
BCEOM	–	egis bceom international
BOT	–	build–operate–transfer
COD	–	commercial operations date
CSP	–	country strategy and program
DBFO	–	design–build–finance–operate
DSCR	–	debt service coverage ratio
EIRR	–	economic internal rate of return
EPC	–	engineering procurement and construction
FIRR	–	financial internal rate of return
GDP	–	gross domestic product
HDM	–	highway design and maintenance
MOSRTH	–	Ministry of Shipping, Road Transport and Highways
NH	–	national highway
NHAI	–	National Highways Authority of India
NHDP	–	National Highways Development Project
NRRP	–	national rehabilitation and resettlement policy
O&M	–	operation and maintenance
PCU	–	passenger car unit
PPP	–	public–private partnership
ROW	–	right-of-way
SPV	–	special purpose vehicle
VOC	–	vehicle operating cost

NOTES

- (i) The fiscal year (FY) ends on 31 March. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2008 ends on 31 March 2008.
- (ii) In this report, “\$” refers to US dollars.

Vice-President
Director General
Director

B. N. Lohani, Vice-President-in-Charge, Operations 1
P. Erquiaga, Private Sector Operations Department (PSOD)
M. Barrow, Infrastructure Finance Division 1, PSOD

Team leader
Team members

S. Shah, Investment Specialist, PSOD
A. Akanda, Head, Operations Coordination Unit, PSOD
H. Brooke, Principal Counsel, Office of the General Counsel
R. Pladet, Senior Guarantees and Syndications Specialist, OCO
L. Hauck, Guarantees and Syndications Specialist, Office of Cofinancing Operations (OCO)
M. Manabat, Senior Investment Officer, PSOD
A. Hashimi, Investment Officer, Pakistan Resident Mission

CONTENTS

	Page
FINANCING AND PROJECT SUMMARY MAP	i
I. THE PROPOSAL	1
II. BACKGROUND	1
A. Sector Background	1
B. Government Policy Response and Plan	2
C. Public–Private Partnership	3
D. Asian Development Bank Operations	4
III. THE PROPOSED PROJECT	5
A. Introduction	5
B. Project Description	6
C. Management and Ownership	9
D. Implementation Arrangements	10
E. Environmental Aspects and Social Dimensions	12
F. Development Impact	13
G. Economic Evaluation	14
IV. THE PROPOSED ASSISTANCE	14
A. Loan	14
B. Justification	15
C. Main Risks and Mitigating Factors	16
D. Anticorruption Policy	17
V. INVESTMENT LIMITATIONS	17
VI. ASSURANCES	18
VII. RECOMMENDATION	18
IMPLEMENTATION ARRANGEMENTS	29
A. Construction	29
APPENDIXES	
1. Design and Monitoring Framework and Development Effectiveness Framework	19
2. Organizational and Contractual Structure	22
3. ADB Assistance to the Road Sector in India	25
4. Implementation Arrangements	29
5. Key Features of the Concession Agreement	32
6. Toll Rate Structure	39
7. Economic Evaluation	40
SUPPLEMENTARY APPENDIXES	
A. Summary Initial Environmental Examination	
B. Important Towns Along the Project Corridor	
C. Toll System	
D. Insurance	
E. NHAI Phase V Projects	

INDIA
NATIONAL HIGHWAY 1
PANIPAT-JALANDHAR TOLL ROAD PROJECT



- ★ National Capital
 - State Capital
 - ⊙ District Capital
 - City/Town
 - Project Road
 - North-South Corridor National Highway
 - National Highway
 - State Road
 - State Boundary
 - · - · International Boundary
- Boundaries are not necessarily authoritative.

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan of up to \$240,000,000 (denominated in Indian rupees and/or US dollars), without government guarantee of which up to the equivalent of \$100 million will be funded by Asian Development Bank (ADB) and up to \$140 million will be funded by commercial banks or other financial institutions under an ADB B loan, to Soma Isolux NH One Toll Way Private Limited for the expansion (to six lanes) of the National Highway 1 Panipat–Jalandhar Toll Road Project. The design and monitoring framework is in Appendix 1.

II. BACKGROUND

A. Sector Background

2. India has the second largest road network in the world, with a total estimated road length of about 3.3 million kilometers (km). An efficient and reliable transportation network is necessary for India's socioeconomic development as well as its national integration. The Indian road network is extensive but generally of poor quality. The transport sector is regarded as one of the priority sectors for improvement, to achieve India's ambitious development targets. The current state of the transport sector, caused by chronic underfunding and resulting capacity shortages, is broadly seen as the major constraint on India's economic growth.

3. Road transport is dominant in India, accounting for 65% of freight movement (in ton-km) and 87% of passenger traffic (in passenger-km); rail accounts for much of the rest. India's road network mainly consists of three categories of roads: (i) 66,754 km of national highways; (ii) 128,000 km of state highways and 470,000 km of major district roads; and (iii) about 2.7 million km of the tertiary system, mainly consisting of rural roads (other district roads and village roads).¹

4. The national highways serve as the arterial network of India. They run across the length and breadth of the country—connecting all state capitals, major ports, international boundaries, and areas of economic and strategic importance. They constitute less than 2% of the country's road length but carry about 40% of the road-based traffic. An overwhelming proportion of their total length is single-laned (27%) or double-laned (59%); only 14% has four lanes or more. The national highways are the lifeline of the transport network, and their development is critical for sustaining the momentum of economic growth.

5. Responsibility for developing and maintaining the national highway system rests with the Ministry of Shipping, Road Transport and Highways (MOSRTH), while state, district, and rural roads are the responsibility of state and local governments. The central Government provides funds for developing and maintaining national highways from a yearly budgetary allocation, while the respective state governments provide funds for state highways, and district and rural roads. The funds come from a mixture of general revenue, national and state fuel cess, tolls, and external funding.

6. The national highways and the secondary system have been unable to cope with the rapid traffic growth. In the road sector, freight traffic has increased at about 12% per year and passenger traffic at about 8% annually over the past decade. Over the last 6 years (FY2001-

¹ Department of Road Transport and Highways, Ministry of Shipping, Road Transport and Highways, Government of India. 2008. *Annual Report 2007–2008*. India.

FY2006), the annual average growth in road transport sector gross domestic product (GDP) was 9.5%, which was higher than the overall GDP growth of 6.5%.² The rapid growth in traffic has led to congestion, deterioration of road infrastructure, and increases in the cost of transportation. This is projected to get worse as the Indian economy is expected to grow at over 8% per annum in the long term. It is difficult to forecast the projected growth precisely in traffic volumes. However, the Investment Commission of India has projected an annual increase of 12%–15% for passenger traffic and 15%–18% for cargo traffic.³

B. Government Policy Response and Plan

7. Recognizing the challenge of accelerating the provision of road transport infrastructure, lack of which is becoming a clear drag on the economy, the Government initiated investment in, and reform of, the national highway system. An autonomous body, the National Highways Authority of India (NHAI), was made operational in 1995 and given the mandate to upgrade and strengthen the national highways comprehensively.

8. MOSRTH retained the overall strategy and policy-making mandate for the national highway system. NHAI is responsible for operations—including the development, maintenance, and management of the national highways, which are vested to it. NHAI is required to discharge its functions transparently, based on sound business principles, as far as is practicable. Through a series of reforms partly supported by the Asian Development Bank (ADB) (Appendix 3), NHAI has taken significant steps to develop and strengthen its institutional capacity and move in a more commercial direction.

9. NHAI launched an ambitious program in 1999. The National Highway Development Project (NHDP) was initially introduced in two phases at a cost of \$14 billion. Since then, it has been greatly expanded. The objective of the NHDP is not only to augment existing capacity, but to build a more efficient and safer highway network. It is being implemented concurrently in seven phases and broadly covers the following:

- (i) **Phase I** covers the golden quadrilateral linking the four metropolises of India—Delhi, Mumbai, Kolkata, and Chennai—through a four-lane highway (5,846 km).
- (ii) **Phase II** includes the north–south corridor (about 4,000 km) connecting Srinagar to Kanyakumari, and the east–west corridor (about 3,300 km) connecting Silchar to Porbandar. This phase also covers port connectivity.
- (iii) **Phase III** (10,000 km) covers national highways carrying high volumes of traffic; connects state capitals with the network established in the first two phases; and provides connectivity to places of economic, commercial, and tourist importance.
- (iv) **Phase IV** (20,000 km) envisages upgrading of existing single-lane and two-lane national highways across the country to high-quality two-lane national highways.
- (v) **Phase V** (6,500 km) provides for expansion to six lanes of the four-lane highways, comprising the golden quadrilateral and certain other high-density stretches. The Project is part of this phase.
- (vi) **Phase VI** (1,000 km) includes the development of 1,000 km of expressways on a build–operate–transfer (BOT) basis to serve the growing urban centers, particularly those located within a few hundred kilometers of each other.
- (vii) **Phase VII** provides for building of ring roads, bypasses, grade separators, and service roads to utilize the enhanced capacity of the national highways fully.

² Thangaraj Committee, Ministry of Shipping, Road Transport and Highways. 2006. *National Road Transport Policy*. India.

³ Investment Commission, Ministry of Finance. 2004, Committee on Infrastructure. India.

10. The NHDP is the linchpin of the Government's national highway strategy, and the cost of the seven phases of the NHDP is estimated at Rs236 billion (\$56 billion) until 2015. The NHDP is funded by a mixture of sources: (i) the Government of India from a non-lapsable and dedicated central road fund, financed by tax on petrol and diesel; (ii) market borrowing of NHAI; (iii) external assistance from ADB, World Bank, and Japan Bank for International Cooperation; and (iv) tolls and private sector investment through public-private partnership (PPP).

11. Initially, the Government mainly relied on public funding for implementation of the NHDP because of the scale of the investment, the long gestation periods, uncertain returns, and the relative inexperience of the concession industry. The magnitude of the resource requirements, and the perceived efficiency and responsiveness of the private sector, have recently led the Government to encourage active private sector involvement.

12. The Government has initiated a set of policies and incentives to make the sector more investment-friendly. They include the following: (i) the Government will carry out all preparatory work, including land acquisition, with the right-of-way (ROW) to be made available to concessionaires free from all encumbrances; (ii) setting up a transparent competitive bidding process, developing a standard concession agreement, and standardization of procurement requirements; (iii) 100% tax exemption for 5 years and 30% relief for the next 5 years; (iv) foreign direct investment under the automatic route permitted for all road development projects; (v) duty-free import of specified modern high capacity equipment for highway construction; and (vi) a capital grant of up to 40% for viability gap funding of uneconomic projects.

C. Public-Private Partnership

13. In accordance with the Government's decision of April 2007, all new projects under different phases of the NHDP will be implemented on a PPP basis by awarding them first on a BOT (toll) basis, failing which on a BOT (annuity) basis, failing which only on an engineering procurement and construction (EPC) basis. The PPP approach has been adopted, as it provides a solution to the enormous investment requirements in the sector and creates an efficient allocation of risks and rewards.

14. In a BOT modality, the private party is responsible for constructing, maintaining, and operating the road during the concession period. At the end of the concession period, the road is transferred to NHAI. In a BOT toll modality, the private party recovers its investment by collecting the toll over the life of the concession. The bids are awarded on the amount of the up-front lump sum payment made by the concessionaire to NHAI (or least the subsidy received from NHAI) through a competitive bidding process. The concessionaire provides the initial investment and takes the construction, operation, and traffic risk.

15. In a BOT annuity modality, the bid is awarded on basis of the least amount of annuity payments required by the concessionaire from NHAI. The private party takes no market or traffic risk; that risk is borne by NHAI. The concessionaire still provides the initial investment and takes the construction and operation risk. In the EPC modality, the private party is only responsible for construction of the Project, and NHAI provides the investment and takes the operation and traffic or market risk.

16. To provide an enabling environment for PPPs, a policy and regulatory framework has been developed for BOT projects, in the form of a standard model concession agreement. The concession agreement addresses issues that are typically important for limited recourse

financing of infrastructure projects, such as mitigation and unbundling of risks, allocation of risks and rewards, symmetry of obligations between the principal parties, and termination. The development of the concession agreement substantially helps in streamlining the tender process—enhancing transparency and providing a level playing field—which will encourage private investment.

D. Asian Development Bank Operations

1. Country Strategy

17. Mainstreaming poverty reduction is the central organizing theme of ADB's country strategy and program (CSP) 2003–2006 for India.⁴ The CSP draws on the three pillars of ADB's poverty reduction strategy: pro-poor growth, social development, and good governance. The strategy aims to support the Government's high-growth agenda by helping with fiscal consolidation, infrastructure development, and private sector development. Political and economic developments since finalizing the CSP indicate that the strategy remains valid, especially the core strategy of poverty reduction through infrastructure-led growth, supported by social development and good governance. The 2006–2008 CSP update⁵ suggests that the objective of accelerating India's annual GDP growth to 8% depends on upgrading infrastructure facilities and improving the efficiency of such public services. ADB's proposed assistance program reflects this priority, with infrastructure accounting for nearly 77% of the 3-year pipeline (excluding private sector and nonsovereign operations); transport projects account for the bulk (36%).

18. In support of the Government's 11th Five Year Plan, the country operations business plan 2008–2010 calls for continued infrastructure development assistance (transport, energy, and urban); and promoting PPP in a bigger way than it has done in the past.⁶ The draft country partnership strategy 2008–2012 reemphasizes support for inclusive and environmentally sustainable growth, with continued focus on infrastructure development. It also calls for catalyzing investment and greater use of the PPP modality.⁷

2. Sector Strategies

19. The operating priorities of ADB's transportation sector strategy are (i) investment in physical infrastructure, with an emphasis on augmenting existing structure; establishment of total connectivity, including at the national, state, and rural levels; reducing disparities between states; development of a modally balanced system; and subregional economic cooperation; (ii) policy and institutional reforms, including those at NHAI; (iii) traffic safety; (iv) focus on operation and maintenance (O&M); (v) developing environmentally and socially sound projects; and (vi) increasing private sector participation, including PPP. The strategy encourages ADB interventions to increase private sector participation in the transportation sector, to take advantage of the greater efficiencies that private operators can achieve and to help meet the large capital requirements.

⁴ ADB. 2003. *Country Strategy and Program (2003–2006): India*. Manila.

⁵ ADB. 2005. *Country Strategy and Program Update (2006–2008): India*. Manila.

⁶ ADB. 2007. *Country Operations Business Plan Update (2008–2010): India*. Manila.

⁷ ADB. Forthcoming. *Country Partnership Strategy (2008–2012): India*. Manila.

3. Consistency with Asian Development Bank Operations

20. The Indian road sector has benefited from sustained assistance by ADB over many years. ADB has provided loans as well as technical assistance amounting to about \$3.4 billion for the sector. In the 1980s, ADB placed emphasis on transportation systems and infrastructure. The loans approved in this period supported improvements in India's road, rail, and port transport networks; and in operating systems. In the early 1990s, ADB turned to institutional capacity building, agency restructuring, and policy reforms, including the promotion of private sector participation. Then, as the Government's priorities changed, focus was put on removing infrastructure bottlenecks and augmenting transportation capacity to reduce poverty through economic growth while continuing policy dialogue. Appendix 3 describes ADB assistance to the road sector in India and the indicative assistance pipeline.

21. The Project builds on assistance provided by ADB to the road sector in India. In particular, ADB's public sector operations (South Asia Transport and Communications Division and India Resident Mission) have played an important role in "setting the stage" through policy dialogue and technical assistance for the establishment and capacity building of NHAI; and in formulating and supporting the NHDP. These have enabled the proposed investment by the private sector (and ADB's Private Sector Operations Department).

III. THE PROPOSED PROJECT

A. Introduction

22. Rapidly increasing traffic demand on many stretches has necessitated augmentation of the existing four-lane highways to six-lane highways. NHAI has identified 6,500 km of such roads. This expansion program includes the golden quadrilateral. These sections form NHDP phase V, which will be bid out over a period of time as BOT projects. As part of the first wave, NHAI has bid out seven projects under NHDP phase V, including the Project (i.e., national highway [NH]1: Panipat–Jalandhar). This section of the road is part of the historical Grand Trunk Road, which ran from Sonargaon in Bangladesh to Peshawar in Pakistan. The road was upgraded to four lanes from two lanes during the past decade.

23. The Project is the largest among the NHDP phase V projects (Supplementary Appendix E). This will be the first time that the design–build–finance–operate (DBFO) model is used. DBFO is different from the traditional BOT model, where a detailed design is prepared by NHAI and both input and output parameters are defined. In DBFO, which is a well-tested model in other countries, only the output is defined and the developer is given the freedom to propose new technologies, designs, and methods to achieve the required output standard. Ultimately, this can lead to efficiencies and lower costs.

24. This is also the first time that revenue sharing will be used as a BOT model. Under this approach, bid evaluation is based on the percentage of revenues that a bidder is willing to share with NHAI, which is a departure from the traditional model of annuity or up-front lump sum payment to NHAI. Under this risk allocation, NHAI and the concessionaire share upside and downside risks, thereby creating a closer PPP. The revenue-share model is being tried for the first time in India (although it has been used successfully in other countries) and successful implementation would encourage further projects to be bid on this basis.

B. Project Description

1. Project History and Timeline

25. In November 2006, a two-stage international competitive bidding process was initiated by NHA for the expansion to six lanes of the Panipat–Jalandhar section of NH1. In the first stage, qualified bidders were selected based on their (i) technical capability and experience as developer and/or contractor; and (ii) financial strength in terms of net worth and cash accruals. The short-listed candidates from stage one made detailed proposals in the second stage, which were evaluated on the basis of technical submissions and financial bids.

26. In January 2008, the Soma Isolux Consortium emerged as the winning bidder. The concession agreement was signed between NHA and Soma Isolux (concessionaire) on 9 May 2008. The consortium ownership comprised Isolux Corsán Concesiones (51%) and Corsán-Corviam Construcción (10%), both part of the Group Isolux Corsán, and Soma Enterprises (39%).

2. Project Scope

27. The Project consists of retrofitting the existing four-lane highway to a six-lane highway, and building flyovers or overpasses and vehicular underpasses on all existing intersections to allow continuous flow of traffic. This has to be undertaken with the minimum possible inconvenience to existing traffic, and with no major deterioration in current levels of service. The concessionaire will also be responsible for the O&M of the road during the concession period. At present, NHA is collecting tolls on the existing four-lane sections. This will continue until financial close. Thereafter, including during the construction period, the concessionaire will be entitled to collect all tolls. At the end of the 15-year concession period, the road will be transferred back to NHA.

28. The project length starts from km 96.0 in Panipat (state of Haryana) and ends at km 387.1 in Jalandhar (state of Punjab), with a total length of 291.1 km. The project scope consists of (i) widening the existing four-lane road to six lanes (three lanes in each direction), with partial access control; (ii) construction of service roads on either side; (iii) provision of crossover facilities with exit and entry points at major intersections; (iv) overpasses, grade separators, pedestrian underpasses, vehicular underpasses, culverts, minor bridges, major bridges, road over bridges, protection works; and (v) O&M, including toll collection during the concession period.

29. In addition, the Project includes the following facilities: roadside furniture (including crash barriers, guard rails, cat's eyes, etc.); street lighting; pedestrian facilities; landscaping and arboriculture; truck parking; bus bays; highway patrol vehicles; ambulances; cranes; an advanced traffic management system; and toll plazas. The toll plaza system will be state-of-the-art, with care taken to minimize any theft of tolls. Supplementary Appendix C contains details of the toll system.

30. The road will be designed for continuous flow of traffic. There are currently 114 intersections, which cause congestion and are a safety hazard. Overpasses and vehicular underpasses will be built at these intersections, which will improve the speed and safety of the road considerably. The paved carriageway on each side of the median will be 10.5 meters wide, and each of the lanes will be 3.5 meters wide. The specifications and standards of the project

scope are to conform to the *Manual of Specifications and Standards for Six-laning of National Highways through Public Private Partnership*⁸ published by MOSRTH.

3. Concession Agreement

31. The concession agreement is based on the standard concession agreement for BOT projects in the road sector and has been awarded as a DBFO with a revenue share. It defines the commercial arrangements, allocates the risks, and unambiguously specifies the roles and responsibilities of NHAI and the concessionaire. The objective of the concession agreement is to allow the private sector to develop bankable projects in a timely fashion. Appendix 5 describes the key terms of the concession.

32. There is a strict timeline for various milestones to be met, with liquidated damages specified for any delays: (i) the concession agreement commences (appointed date) when financial close is achieved, which has to be 180 days after the concession agreement is signed. This will be 5 November 2008. Failure to achieve financial close (which is defined as all conditions precedents being met for disbursement) within this period will lead to substantial liquidated damages payable by the concessionaire; (ii) within 365 days from the appointed date, construction needs to start and at least 25% of the total capital cost must be spent; (iii) within 730 days from the appointed date, the concessionaire must have commenced construction of all bridges and expended at least 65% of the total capital cost; (iv) by the 912th day from the appointed date, construction needs to be completed; and (v) the concession is for a period of 15 years after the appointed date. The concessionaire starts collecting tolls immediately after the appointed date on the existing four-lane toll road while it is constructing the Project and is thereafter entitled, subject to payment of a concession fee, to retain all tolls both during and after construction for the duration of the concession period.

33. The risks under the concession have been generally allocated to the parties who are in the best position to manage them. ROW acquisition risk and environmental permitting risk, which have caused delays for many projects, are taken by the Government as its sole responsibility and are a prerequisite condition to closing the transaction. NHAI will be responsible for providing the ROW to the concessionaire, free and clear of all encumbrances and occupation. NHAI is responsible for all land acquisition, resettlement, and compensation. NHAI will procure all applicable permits relating to environment protection and conservation of sites. It will also secure approval from the railway authorities to enable the concessionaire to construct road over bridges and under bridges at grade crossings.

34. The concessionaire is responsible for designing, building, operating, and maintaining the Project, so all technical risks are allocated to the concessionaire. The technical parameters are based mainly on output specifications whose standards are clearly laid out, rather than on input specifications. Since only the outputs are generally specified, enough room is left for the concessionaire to innovate, add value, and reduce cost.

35. The concessionaire is responsible for procuring financing.. A number of provisions are made in the concession agreement to facilitate financing and protect the rights of the lenders: (i) in the highways sector, project assets do not constitute adequate security for lenders; rather, the project revenue streams are the basis of lender security. Lenders have been given assignment

⁸ Department of Road Transport and Highways, Ministry of Shipping, Road Transport and Highways, Government of India. 2008. *Manual of Specifications and Standards for Six-laning of National Highways through Public Private Partnership*. India.

and substitution rights so that the concession can be transferred to another company in the event of failure of the concessionaire to operate the Project successfully; (ii) the concession agreement provides that, upon termination caused by force majeure, 90%–100% of outstanding debt will be paid by NHAI, subject to some limitations as laid out in the risk and mitigation section; (iii) in the event of termination caused by NHAI default, 100% of the outstanding debt will be paid by NHAI; in the event of termination because of concessionaire default, 90% of the outstanding debt will be paid by NHAI during the operating period (but none during the construction period), subject to some limitations as laid out in paragraph 92; and (iv) all financial inflows and outflows of the Project are routed through an escrow account.

4. Traffic and Tolling

36. The project road forms part of the important north–south corridor and has some of the heaviest traffic loads in the country. The project corridor passes through some of the most important agricultural and industrial hubs of India. It also attracts passenger traffic destined for pilgrim centers like Sirhind and Fatehgarh Sahib, Amaranth, and Vaishnodevi as well as centers of tourism such as Simla and Kashmir. It connects Delhi to important cities in Punjab and Haryana. Traffic growth on this road is expected to be robust, as this region is considered one of the most dynamic parts of the Indian economy.

37. The road passes through Khanna, the largest grain market in Asia. Several trading and manufacturing industries, rice mills, and agro-industries are spread along both sides of the corridor; Jalandhar, Ludhiana, Gobindgarh, Ambala, and Karnal are the more important industrial clusters. Supplementary Appendix B lists the important towns along the corridor.

38. The Project's traffic study was carried out by BCEOM, a French engineering consulting firm with considerable experience in the sector. The traffic projections take into account growth in population, state per capita income, net state domestic product, vehicle registrations, and alternative routes. This is an existing road where tolls have been collected for several years, so the risk profile of the transaction is considerably lower than that of a greenfield road project.

39. The revenue risk is shared by the concessionaire and NHAI. The concessionaire pays NHAI 20.14% of the revenues, with a 1% increase to the NHAI share every year. If the actual traffic is lower than the targeted traffic in 2018, the concession period will be increased subject to a maximum increase of 20%. If the actual traffic is greater than targeted traffic in 2018, the concession period will be reduced or the revenue share of NHAI will increase subject to a maximum reduction of 10%.

40. The road is access-controlled and tolls are collected at toll plazas located at km 146 (Butana), km 212 (Shambu), and km 328 (Ladhowal). Tolls are already being collected by NHAI from these plazas. After the appointed date, the concessionaire will improve the facilities. The toll rates for various categories of motorized vehicles have been fixed nationally for such BOT projects by NHAI, at predetermined rates on a per-km basis. Concessionary rates are provided for local traffic. Appendix 7 details the toll rates, which are indexed to inflation. Willingness to use and pay has been established as it is an existing toll road; a user survey also confirms this.

5. Safety

41. India records the highest number of road accidents in the world. According to the National Transportation Planning and Research Centre, the number of road accidents in India is three times higher than in developed countries. The number of accidents per 1,000 vehicles in

India is as high as 35, compared to 4–10 in developed countries. In 2006, there were around 460,000 road accidents, which killed 105,749 and injured close to 500,000 people in India. These numbers translate into one road accident every minute and one road accident death every 5 minutes. Road traffic injuries and fatalities impose a huge economic burden. The socioeconomic cost of road accidents for India in 1999–2000 has been estimated at some 3% of GDP.⁹ However, while contributing to economic growth, an improved road network with more traffic can also lead to more road accidents unless safety issues are more widely addressed.

42. The Project will have many features that will address the critical issue of safety. The concessionaire has to follow relevant standards and guidelines issued by MOSRTH and the Indian Roads Congress. A safety consultant will be appointed by NHAI to oversee safety measures during the development, construction, and operation periods—both for workers and road users. Safety is addressed in the design phase, with the safety consultant reviewing the road design. Provisions have been made for a change in project scope to address the recommendations of the safety consultant. All accident data will be compiled, analyzed by the safety consultant, and recommendations will be put forward for prevention. Once a year, the safety consultant will carry out a safety audit.

43. In addition, the Project has provision for the following: (i) the concessionaire will assist the state government to set up and operate a medical aid post at each of the three toll plazas. The concessionaire will pay for construction of the aid post and the recurring expenditure; (ii) around-the-clock ambulance services will be provided, with response time of no more than 10 minutes; (iii) highway patrol will be provided at all times to provide assistance to users and monitor road conditions; (iv) cranes will be provided to tow away disabled vehicles that might become a safety hazard; (v) a lighting system will be provided; (vi) crash barriers, guardrails, and delineators and cat's eyes will be provided; and (vii) accelerating and decelerating lanes will be provided to enter and exit the highway.

44. Many accidents occur in India because local traffic is mixed with fast-moving highway traffic. This is a major safety hazard and causes considerable congestion. However, local traffic very often has no other option but to use the main highway. In the case of the Project, no direct access is provided to local traffic. Access will be provided through service roads, which will be constructed on both sides of the highway and will only be broken at bridges and toll plazas. To connect the service roads and allow the local traffic to move freely in between, 43 vehicular underpasses and 71 overpasses will be provided.

45. For pedestrian safety, the Project will have (i) pedestrian walkways and guardrails along service roads in urban areas; (ii) 55 footbridges and 19 pedestrian underpasses; and (iii) pedestrian crossings at service roads. In addition, 72 bus bays will be provided for picking up and dropping off passengers; these will be separated from the main highway and built only on the service roads. Sixteen truck parking areas will also be provided so that trucks do not park on the main highway.

C. Management and Ownership

46. Soma Isolux NH One Toll Way Private Limited (Soma Isolux) has been incorporated as a special purpose vehicle to implement the Project. The entity is wholly owned by the sponsors in the following ratios: Isolux Corsán Concesiones (51%), Corsán-Corviam Construcción (10%), and Soma (39%). Isolux Corsán sees India as one of its key future markets and has built up its

⁹ ADB. Forthcoming. *Country Partnership Strategy (2008–2012): India*. Manila.

India office for a long-term position in the market. Isolux Corsán has also formed a more extensive and long-term joint-venture relationship with Soma, and they plan to implement many projects jointly in India.

47. Isolux Corsán Concesiones and Corsán-Corviam Construcción belong to the Isolux Corsán Group, a leading Spanish group involved in construction, infrastructure concessions, and real estate development. The Isolux Corsán Group has about 7,800 employees. In addition to its strong presence in Spain, with projects nationwide, the group has a strong international presence extending to more than 30 countries in five continents. Corsán-Corviam Construcción is the construction arm of the company and Isolux Corsán Concesiones is the concession arm. The organizational structure and financial highlights of sponsors are detailed in Appendix 8.

48. Isolux Corsán Concesiones operates in both Spanish and international markets. The Madrid–Toledo Toll Highway AP-41 (Spain), A-4 Expressway Madrid–Ocaña (Spain), Monterrey–Saltillo Toll Highway (Mexico), and Perote–Banderilla Toll Highway (Mexico) are a few of its prominent road concessions. It also has 13 energy concessions in Brazil and 32 carpark concessions in 16 cities. Corsán-Corviam Construcción undertakes work in two main areas—civil engineering construction and building construction. It participates in large-scale infrastructure projects, both for the construction of new infrastructure as well as for improvements and extensions to preexisting infrastructure in the road, rail, airport, and port sectors. It has successfully constructed several road projects in Spain and internationally.

49. Soma is one of the top 10 construction companies in India, with an operating record of more than 11 years in the industry. Soma has over 400 engineers, technical, and support staff at various project locations; and a team of over 2,500 skilled and 6,000 unskilled workers.

50. Soma has received the ISO 9001¹⁰ certification for design, planning, construction, and project management for infrastructure and turnkey projects. Soma has its own engineering and design department, and is well equipped to implement projects on a turnkey basis. Soma owns most of the critical equipment needed for all aspects of complex infrastructure projects such as earthmoving, foundations, mining and aggregate processing, heavy material handling, and tunneling.

51. Soma has executed or is executing over 15 NHAI highway projects, including BOT projects. Some of the important projects have been the construction of a four-lane elevated highway on the Bangalore–Hosur section of NH7, expansion to four lanes of Pimpalgaon–Dhule section of NH3, expansion to four lanes of divided carriageway on NH7 at Adilabad, and construction of a new four-lane highway on the Nellore–Chilakalurupet section of NH 5. It is also implementing sections of the Delhi metro. Soma has also successfully constructed ADB-funded projects in Gujarat. It prides itself in completing projects on time and has successfully collected bonuses for completion ahead of schedule.

D. Implementation Arrangements

52. The Project will be implemented by Soma Isolux. The contractual structure and detailed implementation arrangements are in Appendixes 2 and 4. Overall management control of the company will be through the board. Soma Isolux will have five members on the board, Isolux Corsán Group has the right to nominate three directors, and Soma has the right to nominate two

¹⁰ ISO 9001 is an international standard for quality management system maintained by the [International Organization for Standardization](#).

directors. The board will delegate the day-to-day work to the general manager, to whom the construction manager, finance manager, and O&M manager—all with considerable experience in their fields—will report.

1. Construction

53. Soma Isolux will enter—on an arm’s-length basis—into a lump-sum, fixed-price, time-bound EPC agreement on a turnkey basis, with a joint venture of Corsán-Corviam Construcción, and Soma (the EPC contractor). Corsán-Corviam Construcción will have a 61% share in this venture and Soma will have a 39% share.

54. The EPC contractor will carry out design and quality control, and overall project management. The project management team will comprise professionals with extensive experience in road management, construction, and operations. The EPC contractor will outsource construction work to a constructor through an EPC outsourcing agreement. The outsourced constructor will be 100% owned by Soma. The EPC contractors will be jointly and severally liable for all the obligations under the EPC agreement. Soma has been given the main responsibility to construct the Project because of its familiarity with local conditions and extensive experience in implementing NHAJ projects. Corsán-Corviam Construcción will provide its input extensively during the design phase.

55. The implementation schedule has been defined under the concession agreement, with construction to be completed within 30 months and intermediate project milestones to be met at regular intervals. Failure to meet any milestone will lead to liquidated damages. Monthly progress reports will be provided, and the road will have to pass several tests and inspections before a project completion certificate is issued. The EPC agreement’s implementation schedule is structured so that completion should occur 6 months ahead of schedule.

2. Operation and Maintenance

56. During the construction and operation periods, Soma Isolux will be responsible for operating and maintaining the project highway in accordance with the concession agreement, which lays out the standards and requirements. Details of the O&M are yet to be finalized but it is expected that the sponsors will undertake this activity directly and not outsource it, given their experience. The standards of O&M have been developed by the Indian Roads Congress and are based on best practice. O&M operations will be divided along four key departments—toll plaza, corridor control, routine road maintenance, and central control center. Each department will be headed by its own manager, who will report to the O&M manager.

57. There will be three toll plazas, which will have semiautomatic, automatic, and electronic toll collection. Special care has been taken to provide a high quality of service and avoid theft of toll revenues. This will be achieved by implementing state-of-the-art toll equipment and strict monitoring. Each toll plaza will have a plaza manager to manage the day-to-day operations and maintenance. The plaza manager will be supported by the plaza controllers, administration and plaza maintenance team. The operation will be audited on a day-to-day basis by the on-site audit team member, who will ensure that all control measures and company policies are adhered to at all times. The audit team on site, although working at the toll plaza, will report directly to the audit manager.

3. Monitoring and Supervision

58. Monitoring and supervision of construction, operation, and maintenance will be undertaken through an independent engineer who will be selected by NHAI from its panel of qualified firms. The independent engineer will be remunerated through NHAI rather than the concessionaire, to ensure its independence. The process of appointing the independent engineer has already been initiated and one should be appointed very soon. A lenders' independent engineer will also be appointed to assist the lenders.

59. The independent engineer plays a critical role in the Project. The broad role and functions of the independent engineer include (i) review of the drawings and documents during the development period; (ii) review, inspection, and monitoring of construction works during the construction period; (iii) conducting tests on completion of construction, and issuing completion certificates; (iv) review, inspection, and monitoring of O&M during the construction operation periods; (v) determining the costs of any works or service and/or their reasonableness; and (vi) assisting the parties in resolution of disputes.

60. The concessionaire will maintain a book of accounts recording all toll receipts. As it shares the revenue with the concessionaire, NHAI is highly motivated to ensure that all toll revenues are collected correctly. A reputed statutory auditor will be selected by the concessionaire from the panel of auditors approved by NHAI, and will audit the traffic count for each category of vehicle and the payment of fee. NHAI can directly appoint an additional auditor if required.

E. Environmental Aspects and Social Dimensions

61. ADB classifies the Project environment category B, involuntary resettlement category B, and indigenous peoples category C. NHAI commissioned the social impact assessment and environmental impact assessment reports in 2007. ADB reviewed the studies related to the environmental and social impacts of the Project, and an environmental and social safeguard due diligence mission was fielded during 7–10 May 2008.

1. Environment

62. ADB classifies the Project environment category B. No protected areas or ecologically, culturally, or historically sensitive sites are traversed by or near the project area. An initial environmental examination has been conducted by consulting engineering services on behalf of NHAI, and the summary initial environmental examination is in Supplementary Appendix A. The Project is expected to create minor environmental impacts normally associated with construction works such as loss of trees, erosion, siltation, spoil and waste generation, dust, noise, emissions from asphalt and hot mix plants and from construction equipment and vehicles, and impacts from borrow pits and quarry sites. Mitigating measures will include planning and confining activities within the construction area and replanting to address damage to vegetation; implementing adequate drainage, embankment consolidation, and slope stabilization measures; balancing cut and fill; proper siting of asphalt, hot mix plants, and construction camps; and installing dust and noise suppression and exhaust emission control measures. Borrow pits and quarry sites will be suitably identified and approved by the state pollution control boards. The negative environmental impacts are considered temporary and insignificant, provided mitigation measures are adopted and implemented. Detailed mitigation measures and a monitoring program with cost estimates have been developed in the detailed environmental management plan to be implemented during construction and operation. Public consultation has been

undertaken and stakeholders' views were collected and responded to in the project design and environmental management plan formulation. During operation, the Project is expected to have long-term positive impacts related to the improved road and transportation, time and fuel savings, and economic growth nationally and along the highway corridor.

2. Social Safeguards

63. NH1 is a heavily traveled four-lane divided highway intersected by several national and state highways that run through one of the most prosperous agricultural and commercial and industrial areas in India. Most lands are agricultural, with commercial and built-up areas in some stretches. The lands adjoining the highway are primarily agricultural, with extensive plantation cover and a few pockets of barren land. NH1 has relatively few encroachments, with shops, commercial establishments (largely roadside cafes), and residences set back from the road, apparently mainly in anticipation of expansion by NHAI. As is customary along its major highways, NHAI has conducted extensive information campaigns. Most of the land was acquired when the original road was expanded to a four-lane highway a decade ago; only around 2% of land acquisition remains to be done for the Project.

64. NHAI is responsible for acquiring all lands and compensating for loss of assets and livelihoods for development on the national highway network it administers. The basic parameters are governed by the National Highways Act of 1956 and 1988, together with the Rules of 1957, 1974, and 1997 and various circulars related to land acquisition. Resettlement and compensation issues are also dealt with in NHAI's Works Manual (2006). ADB has been a development partner of NHAI for many years, with several technical assistance activities and loans totaling about \$1.6 billion provided for national highway development, mainly the golden quadrilateral. NHAI will be responsible for resettlement, if any, and restoration of income in accordance with the national rehabilitation and resettlement policy (NRRP), 2007, prior to handing over the land to the concessionaire.

F. Development Impact

1. Impact, Outcome, and Output

65. The Project aims to promote sustainable economic development in India by developing a more efficient transport system. An efficient highway network, which is the main artery of the transportation system in India, is a prerequisite for sustained socioeconomic development. The Project will achieve the following objectives: (i) allow continuous traffic flow on a critical section of the Indian highway network, alleviating congestion which will reduce fuel use and allow faster travel; (ii) remove capacity constraints by making the road a six-lane highway (iii) improve connectivity and trade by facilitating efficient movement of goods in the agricultural heartland of the country; (iv) improve safety by introducing design features that will reduce traffic accidents; (v) encourage further private sector investment in the critical and underfunded transportation sector from international and domestic sponsors; and (vi) underpin a new PPP model, which allows efficient sharing of the project risks and benefits between NHAI (public) and the private sponsor. The Project's design and monitoring framework is in Appendix 1.

2. Development Effectiveness

66. The development effectiveness of the Project will be assessed in terms of private sector development, business success, and economic sustainability in accordance with the guidelines

for implementing the good practice standards for evaluating private sector investment operations, prepared by the evaluation cooperation group of multilateral development banks. In terms of private sector development impact at the company level, the Project will expand the sponsors' capacity to build, operate, and manage very large projects. This is the largest BOT project ever awarded in India for a road project. The Project will also allow Spanish and Indian sponsors to exchange technical and operational skills, which will improve the efficiency in construction and management of the toll road.

67. For the Project and beyond, positive impacts include development of workforce skills and building capacity in the Indian construction and infrastructure industry. The Project is expected to yield a private sector development impact well beyond the Project. It is the first of the toll road projects being tried on a DBFO basis with revenue share, which will help demonstrate the feasibility of joint public-private development of such road projects. It also demonstrates the execution of international collaboration. This is important, as Indian infrastructure needs in the transportation sector would be hard to meet without international investment, capacity, and expertise. The Project is financially sustainable and meets local environment requirements. Its development effectiveness framework is in Appendix 1.

G. Economic Evaluation

68. The economic analysis for the Project was carried out in accordance with ADB's *Guidelines for the Economic Analysis of Projects* (1997). The main benefit of the decongestion, expansion, and improvement of NH1 is faster traffic flow, which leads to savings in vehicle operating cost (VOC) and time. The VOC was analyzed using the Highway Design and Maintenance (HDM) model. The comparison between with- and without-project scenarios determined the incremental costs and benefits. The quantified benefits are savings in VOC and savings in passenger time costs. Other benefits, such as the reduced number of accidents, are not quantified. Population growth and increases in economic activity drive traffic growth. The sensitivity of the EIRR was tested under increases in costs and declines in traffic volumes. Under all scenarios, the EIRR is well above the social discount rate of 12%.

IV. THE PROPOSED ASSISTANCE

A. Loan

69. The proposed ADB assistance will comprise (i) ADB loan of up to \$100,000,000 (denominated in US dollar and or Indian rupee equivalent) which will be provided from ADB's ordinary capital resources without government guarantee; (ii) a B loan of up to \$140,000,000. The ADB assistance will be subject to relevant Reserve Bank of India and other government approvals for any US dollar-denominated lending loan. Any rupee loan will require the Government's approval to issue an Indian rupee bond and/or the completion of cross-currency swap documentation with the Government's approved swap counterparty.

70. The ADB loan will have a maximum term of up to 13 years, including a grace period of up to 3 years. It will be repaid quarterly. The loan will carry an interest rate and fees customary in the market to be determined by ADB's Pricing and Credit Enhancement Committee.

71. The loan will share common terms and conditions with the loans of other lenders to Project, where appropriate, in addition to ADB-specific terms and conditions. The loan will be

subject to conditions precedent for disbursements, including all necessary government and shareholder approvals, consents, and contractual and financial arrangements satisfactory to ADB. The loan agreement will include appropriate (i) representations and warranties; (ii) covenants, including affirmative, negative, financial, and information covenants; and (iii) events of default.

72. The security package will include arrangements typical for such financing, including charges over the project shares, bank accounts, project assets to the extent allowed by national law, debt service reserve, support for cost overrun, assignment of project agreements and insurance. The Project will be bound by covenants related to security, tailored to the transaction. The lenders will be protected by appropriate remedies for events of default. ADB will enter into an inter-creditor agreement and share in the security package *pari passu* with the other lenders.

B. Justification

73. The Project merits ADB support for the following reasons:

- (i) **The Project is consistent with the Government's transportation and road sector strategy and its 10th and 11th five year plans for augmenting the capacity of national highways, which face enormous constraints because of accelerating traffic demand. The Project is part of the Government's NHDP phase V, which provides for expansion to six lanes of the key highway arteries in India.**
- (ii) **The Project is consistent with ADB's CSP for India, which calls for continued infrastructure development assistance (transport, energy, and urban) and promoting PPP. In particular, the Project is built on ADB assistance in the reform and capacity building of NHAI and dovetails with various efforts by the regional department to encourage private investment in the road sector.**
- (iii) **The Project is consistent with the priorities of ADB's transport sector strategy—investment in physical infrastructure, with an emphasis on augmenting existing structures; traffic safety; and increasing private sector participation, including PPP.**
- (iv) **The Project is consistent with the PPP strategy of ADB and India. The strategy encourages increased private sector participation in underfunded sectors through structuring projects, initiating policy reforms, and direct interventions. Private sector participation can bring greater efficiency and add private investment to a critical sector like the highway sector in India (which needs to mobilize \$52 billion equivalent by 2015).**
- (v) **The Project is the largest of the first phase of NHDP V projects. It would be one of the first DBFO structures to use a revenue-sharing model for the first time in Indian roads. This BOT structure allows efficient allocation of risks and allows private sector players to innovate, as it focuses on outputs and levels of service rather than inputs. Successful implementation of this Project would allow other projects to follow this modality.**

- (vi) **The Project runs through the so-called “bread basket” of India. The road passes through the largest grain market in Asia as well as many towns with important agro-industries. Having an efficient and reliable transportation network in this part of the country will benefit the agrarian economy.**
- (vii) **The proposed ADB financial assistance will enable Soma Isolux to raise long-tenor debt financing for the Project. This type of financing is suitable for infrastructure projects of this nature but not readily available in the Indian market. If relevant government approvals are obtained, the Project can raise attractive dollar-based financing from ADB, which is not readily available in this sector for India from international banks.**
- (viii) **This is ADB’s first private sector loan in India’s road sector (and only the third private sector loan for a road project by ADB). The proposed loan complements and builds on prior work done by ADB.**

C. Main Risks and Mitigating Factors

74. **Right-of-Way Acquisition.** NHAI will be responsible for providing ROW to the concessionaire, free and clear of all encumbrances and occupation. NHAI is responsible for all land acquisition, resettlement, and compensation. The Government has recognized from experience that this is a likely cause of delay, which concessionaires have limited ability to mitigate. It has thus taken this as its sole responsibility. As a condition precedent to the financial close, 60% of the ROW is to be provided at financial closure and the remaining ROW within 90 days. Delay will lead to liquidated damages to be paid to the concessionaire. The Project already has over 60% ROW available, and the rest will be acquired soon. Most of the ROW was acquired a decade ago when the two-lane highway was expanded to a four-lane highway.

75. **Permitting.** NHAI will procure all applicable permits relating to environment protection and conservation of sites, and approval of the railway authorities to enable the concessionaire to construct road over bridges, under bridges and at grade crossings. Lack of the necessary environmental clearance has been a major cause of delay in projects, so it has been made a condition precedent for the appointed date. For other permits, Soma Isolux will receive assistance from NHAI and the governments of Punjab and Haryana in accordance with their agreements. Availability of all applicable permits to the satisfaction of NHAI and ADB will be required in accordance with the loan agreement.

76. **Construction Completion Risk.** Soma Isolux will sign a fixed-price, lump-sum EPC contract with Corsán-Corviam Construcción and Soma. The core competency of both companies is engineering and construction and they have substantial experience in India and internationally in successfully implementing similar road projects. Given the experience with the Indian environment, the EPC contractor will outsource construction work to a constructor 100% owned by Soma. Soma has implemented, or is implementing, 14 NHAI projects. It has a successful record for completing all the road projects on time or before time. The EPC contractor has also hired an experienced design coordinator and design consultant for the Project, both experts in the field.

77. The project road has been divided into five separate sections and each section is being run as an independent project with its own management, labor, material, and machinery. The construction schedule has been planned to complete the Project 6 months ahead of schedule. This redundancy and independence would help in mitigating the construction risk delay. The

Project has already been mobilized well ahead of time. The risk of construction cost and delay will also be mitigated to some extent by insurance (Supplementary Appendix D) and support from EPC contractors and/or sponsors. The sponsors will bring in additional equity or provide subordinated loans to cover any shortfall caused by cost overruns during implementation.

78. **Traffic Risk.** The primary risk of the Project is that not enough traffic will be generated to meet debt service obligations. This risk is tied to the general macro economy of India, particularly the economy of the Project's traffic catchment area. Punjab and Haryana are the two richest states in India. The macroeconomic conditions within the catchment area of the highway are very strong and are expected to remain strong, as this area has good, balanced growth in both the agricultural and industrial sectors. Tolls have been collected for many years on the existing four-lane highway, so users' willingness to pay and the current traffic demand have been clearly established.

79. **Operation and Maintenance Risk.** The sponsors have a strong record of operating toll roads in India and internationally. The concession agreement delineates in detail the specific operating and maintenance requirements, and the independent engineer will monitor all the related work. Insurance will be taken out to cover some of the risks during the period. Adequate provisions will be made to have sufficient funds available for regular and heavy maintenance through cash flows and/or reserves.

80. The toll road also faces the risk of toll revenue leakage through theft because of employee misconduct. This risk is mitigated by the concessionaire installing an automated state-of-the-art tolling system that has three level levels of control and supervision. In addition, it has an organization structure that will strictly monitor and audit toll collection. The sponsors have managed toll roads before and have a strong record of minimizing toll leakage.

81. **Force Majeure and Default Risk.** The concession agreement provides the lenders protection directly from NHAI under termination events related to force majeure, concessionaire default, and NHAI default. This protection, although incomplete, is in addition to what is usually available to lenders in similar transactions.

D. Anticorruption Policy

82. Soma Isolux was advised of ADB's *Anticorruption Policy* (1998, as amended to date) and policy relating to the *Combating of Money Laundering and the Financing of Terrorism* (2003). Consistent with its commitment to good governance, accountability, and transparency, ADB will require Soma Isolux to institute, maintain, and comply with internal procedures and controls following international best practice standards for the purpose of preventing corruption or money laundering activities or the financing of terrorism; and covenant with ADB to refrain from engaging in such activities. The investment documentation between ADB and Soma Isolux will allow ADB to investigate any violation or potential violation of these undertakings.

V. INVESTMENT LIMITATIONS

83. Once approved, the proposed loan of up to \$100m funded from ADB's ordinary capital. The proposed loan is within ADB's aggregate country, industry, group, and single project exposure limits for nonsovereign investments.

VI. ASSURANCES

84. Consistent with the Agreement Establishing the Asian Development Bank, the Government of India has confirmed that it has no objection to ADB's proposed loan of \$100,000,000 to the Project subject to pertinent Reserve Bank of India approvals. The Government's confirmation of the proposed B loan of \$140,000,000 will be sought and obtained prior to the closing of the proposed financing. ADB will enter into suitable finance documentation in form and substance satisfactory to ADB, following approval of the proposed financing by ADB's Board of Directors.

VII. RECOMMENDATION

85. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve (i) a loan of up to \$100,000,000 (to be denominated in US dollar and/or Indian rupee equivalent) funded from ADB's ordinary capital resources; and (ii) a B loan funded by commercial banks or other financial institutions of up to \$140,000,000, to Soma Isolux NH One Toll Way Private Limited for the National Highway 1 Panipat–Jalandhar Toll Road Project on terms and conditions as are substantially in accordance with those set forth in this report, and as may be subsequently reported to the Board.

Haruhiko Kuroda
President

23 September 2008

**DESIGN AND MONITORING FRAMEWORK
AND DEVELOPMENT EFFECTIVENESS FRAMEWORK**

Table A1.1: Design and Monitoring Framework

Design Summary	Performance Targets/Indicator	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Impact</p> <ul style="list-style-type: none"> • Promoting a more efficient transport system that supports sustainable economic growth in the project area 	<ul style="list-style-type: none"> • Gross state domestic product of Haryana and Punjab continues to grow at 7%–8% per year until 2023 	<ul style="list-style-type: none"> • National and state macroeconomic data 	<p>Assumption</p> <ul style="list-style-type: none"> • Continued macroeconomic and political stability
<p>Outcome</p> <ul style="list-style-type: none"> • Improvement in road capacity in project area • Continuous flow of traffic achieved • Increase in number of road projects bid out as BOT under the DBFO scheme • Road safety improves 	<ul style="list-style-type: none"> • Traffic volume on the project road increases by 8% per year during 2010–2013, by 7% per year during 2014–2018, and by 6% from 2019 onward while improving the current service level • 114 intersections relieved of congestion through overpasses and underpasses by April 2011 • Successful awarding of bids for the expansion to six lanes of 6,500 km of the current four-lane national highways under the DBFO scheme • Reduction in rate of traffic accidents 	<ul style="list-style-type: none"> • Traffic counts by concessionaire and NHAI • Information from MOSRTH and NHAI • Project company's progress and operating reports • Information on traffic accidents compiled by concessionaire 	<p>Assumptions</p> <ul style="list-style-type: none"> • Assumed economic growth rate materializes • Policy of MOSRTH to encourage PPPs and BOT remains <p>Risk</p> <ul style="list-style-type: none"> • Significant delay in project completion date

Design Summary	Performance Targets/Indicator	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Outputs</p> <ul style="list-style-type: none"> • The project road is expanded from four to six lanes • Project facilities constructed 	<ul style="list-style-type: none"> • 291 km of NH1 expanded to six lanes by April 2011 • Service roads constructed on both sides of the highway • Road roughness reduces from 3.45 m/km to 2.0 m/km by April 2011 • Project and project facilities constructed to specifications of concession agreement 	<ul style="list-style-type: none"> • Project company's progress and operating reports • Information from independent engineer and NHAI 	<p>Assumption</p> <ul style="list-style-type: none"> • No significant delay in financial closure and project completion date
<p>Activities with Milestones</p> <ol style="list-style-type: none"> 1. Financial closure and concessionaire appointed by 5 November 2008 (Appointed Date). 2. Project milestone I: On the 365th day from the appointed date, the concessionaire should have commenced construction of the project highway and expended at least 25% of the total capital cost. 3. Project milestone II: On the 730th day from the appointed date, the concessionaire should have commenced construction of all bridges and expended at least 65% of the total capital cost. 4. Scheduled six-laning date: On the 912th day from the appointed date, the concessionaire should have completed expansion of the highway to six lanes in accordance with the concession agreement. 			<p>Inputs</p> <p>ADB: \$100 million</p> <p>Other lenders and equity: \$967 million</p>

ADB = Asian Development Bank; BOT = build–operate–transfer; DBFO = design–build–finance–operate; MOSRTH = Ministry of Shipping, Road Transport and Highways; NH1 = National Highway 1; NHAI = National Highways Authority of India; PPP = public–private partnership.

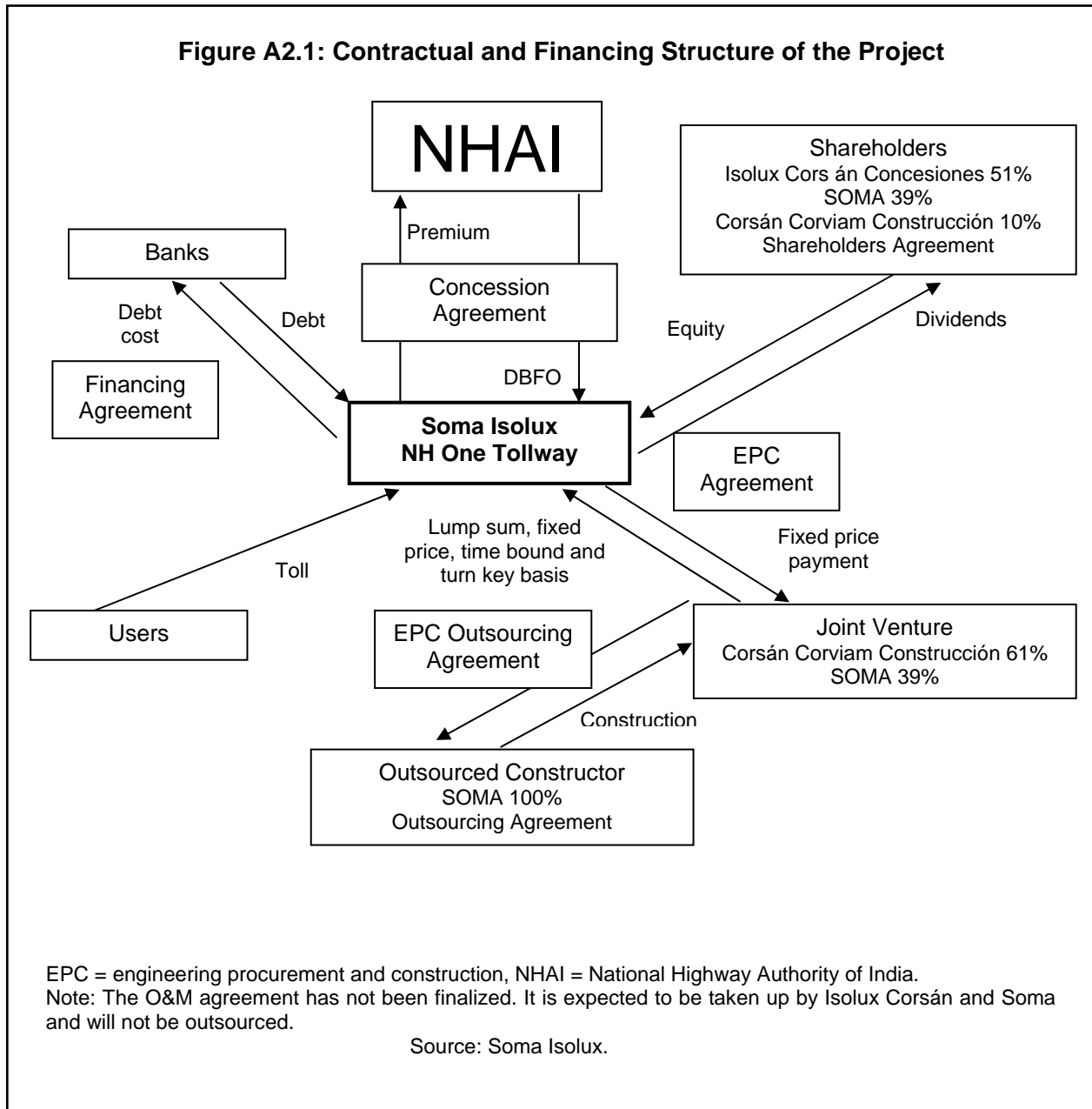
Table A1.2: Development Effectiveness Framework

Objective	Impact	Performance Targets	Measurement
Private Sector Development	<p>Project Impact</p> <ul style="list-style-type: none"> • Brings technical and operational skills to improve the construction and management of toll roads • Introduces the new modality of the DBFO structure with revenue-sharing for BOT projects <p>Beyond-Project Impact</p> <ul style="list-style-type: none"> • Demonstrates effectiveness of regulatory environment, concession structure, and private sector participation in the road transport sector 	<ul style="list-style-type: none"> • Timely achievement of construction and level of service targets • Replication of the DBFO with revenue-sharing model in BOT projects • Increased private sector participation in the transport sector 	<ul style="list-style-type: none"> • Project company's progress and annual reports • Statistics and information disclosed by MOSRTH and NHAI • Statistics and information disclosed by MOSRTH and NHAI
Business Success	<ul style="list-style-type: none"> • Financially profitable and sustainable operations 	<ul style="list-style-type: none"> • Timely repayment of debt • Satisfactory financial internal rate of return (greater than weighted average cost of capital) 	<ul style="list-style-type: none"> • Financial ratios • Project company's financial reports
Economic Sustainability	<ul style="list-style-type: none"> • Contributes to economic growth through a more efficient transportation system by increasing and improving the capacity of the transport sector 	<ul style="list-style-type: none"> • Economic internal rate of return greater than 12% • Increase in toll road usage 	<ul style="list-style-type: none"> • Economic rate of return • Traffic counts

BOT = build–operate–transfer; DBFO = design–build–finance–operate; MOSRTH = Ministry of Shipping, Road Transport and Highways; NHAI = National Highways Authority of India.

ORGANIZATIONAL AND CONTRACTUAL STRUCTURE

Figure A2.1: Contractual and Financing Structure of the Project



EPC = engineering procurement and construction, NHAH = National Highway Authority of India.
 Note: The O&M agreement has not been finalized. It is expected to be taken up by Isolux Corsán and Soma and will not be outsourced.
 Source: Soma Isolux.

Figure A2.2: Organization Structure of Soma Isolux

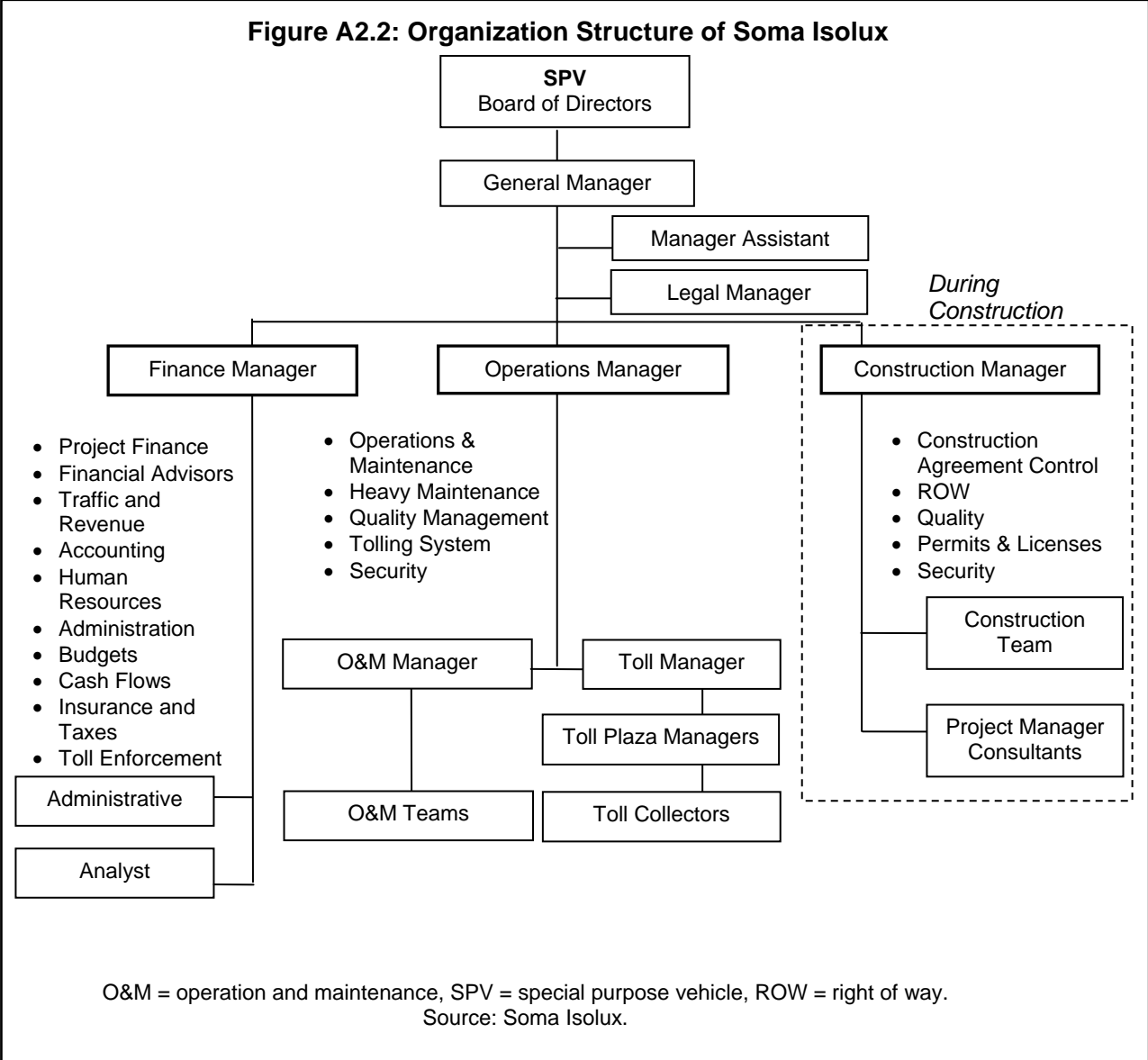
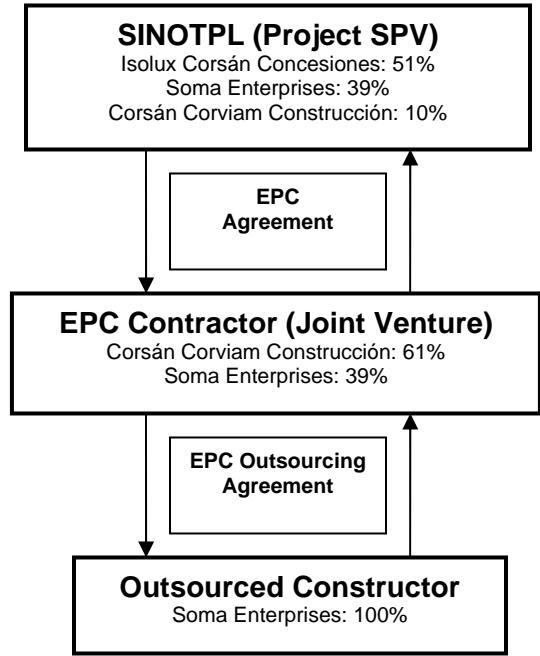


Figure A2.3: Construction Contractual Structure



EPC = engineering procurement and construction, SPV = special purpose vehicle.
Source: Soma Isolux.

ADB ASSISTANCE TO THE ROAD SECTOR IN INDIA

Table A3.1: Asian Development Bank Assistance to the Road Sector in India

No.	Project Name	Type	Amount (\$'000)	Date Approved
1.	Technical Assistance			
0955	Road Improvement	PPTA	75	24 Feb 1988
1058	Pavement Management	ADTA	490	3 Jan 1989
1059	Expressway System Planning	ADTA	260	3 Jan 1989
1164	Second Road	PPTA	100	9 Jun 1999
1325	Vadodara–Bombay Expressway	PPTA	600	15 Jun 1990
1402	Pavement Management for National Highways	ADTA	760	30 Oct 1990
1403	Private Sector Participation in Expressway Financing, Construction, And Operation	ADTA	500	30 Oct 1990
1404	Road Construction Industry	ADTA	340	30 Oct 1990
1325	Vadodara–Bombay Expressway (Supplementary)	PPTA	250	19 Mar 1991
1678	Third Road	PPTA	250	26 Mar 1992
1942	Faridabad–Noida–Ghaziabad Expressway	PPTA	550	27 Aug 1993
1951	Bombay–Vadodara Expressway TA Project Environmental Impact Assessment	PPTA	90	10 Sep 1993
2001	Road Safety	ADTA	210	29 Nov 1993
2002	Environmental Management of Road Projects	ADTA	240	29 Nov 1993
2003	Technical Standards of Highway Concrete Structures	ADTA	350	29 Nov 1993
2986	Western Transport Corridor: Facilitating Private Participation	PPTA	1,000	9 Feb 1998
3142	North–South Corridor Development in West Bengal	PPTA	1,000	23 Dec 1998
3361	Capacity Building for Contract Supervision and Management in the National Highways Authority of India	ADTA	600	22 Dec 1999
3365	Capacity Building for Social Development	ADTA	800	23 Dec 1999
3445	Establishing a Public–Private Joint Venture for the West Bengal North–South Economic Corridor Development	ADTA	150	25 May 2000
3538	Preliminary Engineering for the West Bengal Corridor Development	PPTA	150	13 Nov 2000
3539	Resettlement and Environmental Assessment for the West Bengal Corridor Development	PPTA	150	13 Nov 2000
3540	Economic and Poverty Analysis for the West Bengal Corridor Development Project	PPTA	150	13 Nov 2000
3724	Enhancing the Corporate Finance Capability of National Highways Authority of India	ADTA	700	20 Sep 2001
3751	Madhya Pradesh State Road Sector Development	PPTA	600	29 Oct 2001
3752	National Highway Corridor and Public–Private Partnership	PPTA	700	29 Oct 2001
3845	Madhya Pradesh State Road Project	PPTA	1,000	14 Mar 2002
3914	Economic Studies for the Rural Roads Sector Development	PPTA	150	3 Sep 2002
3915	Engineering Studies for the Rural Roads Sector Development	PPTA	150	3 Sep 2002
3916	Environmental Analysis for the Rural Roads Sector Development	PPTA	100	3 Sep 2002
3917	Institutional and Policy Development Studies for the Rural Roads Sector Development	PPTA	150	3 Sep 2002
3918	Social Analysis for the Rural Roads Sector Development	PPTA	150	3 Sep 2002
3995	Chhattisgarh State Roads Sector Development	PPTA	800	21 Nov 2002
4013	Institutional Strengthening and Capacity Building for Madhya Pradesh State Road Sector	ADTA	1,500	5 Dec 2002
4036	National Highway Corridor (Sector)	PPTA	500	16 Dec 2002
4152	National Highway Sector II	PPTA	300	21 Jul 2003
4220	Rural Roads Sector II	PPTA	1,000	20 Nov 2003
4271	Development of High-Density Corridors under the Public–Private Partnership	ADTA	700	18 Dec 2003
4355	High-Priority National Highways	PPTA	1,000	8 Jul 2004
4378	Northeastern State Roads	PPTA	800	23 Aug 2004
4013	Institutional Strengthening and Capacity Building for Madhya Pradesh State Road Sector (Supplementary)	ADTA	600	29 Apr 2005
4697	Development of Road Agencies in the North Eastern States	ADTA	900	23 Nov 2005
4814	TA Cluster for Project Processing and Capacity Development		15,000	30 Jun 2006

No.	Project Name	Type	Amount (\$'000)	Date Approved
2.	Loans from Ordinary Capital Resources			
0918	Road Improvement		198.00	10 Nov 1988
1041	Second Road		250.00	30 Oct 1990
1274	National Highways		245.00	29 Nov 1993
1747	Surat–Manor Tollway Project		180.00	27 Jul 2000
1839	Western Transport Corridor		240.00	20 Sep 2001
1870	West Bengal Corridor Development		210.00	11 Dec 2001
1944	East–West Corridor		320.00	26 Nov 2002
1958	Madhya Pradesh State Roads Sector Development (Program Loan)		30.00	5 Dec 2002
1959	Madhya Pradesh State Roads Sector Development (Project Loan)		150.00	5 Dec 2002
2018	Rural Roads Sector I		400.00	20 Nov 2003
2029	National Highway Corridor (Sector) 1		400.00	4 Dec 2003
2050	Chhattisgarh State Roads Development Sector		180.00	15 Dec 2003
2154	National Highway Sector II		400.00	21 Dec 2004
MFF	Rural Roads Sector II Investment Program		750.00	20 Dec 2005
2248	Rural Roads Sector II Investment Program-Project 1		180.00	31 Jul 2006
MFF	Uttaranchal State Road		550.00	27 Nov 2006
2330	Madhya Pradesh State Roads Sector Project		320.00	31 May 2007

Source: Asian Development Bank.

Table A3.2: Indicative Assistance Pipeline for Lending Products, 2009–2011, Bank Assistance to the Road Sector in India

Sector Project/Program Name	Targeting Classifi- cation	Thematic Priority	Division	Year of Project Preparatory Assistance	Cost (\$ million)							
					Total	ADB				Gov't.	Co- Financin g	
						OCR	ADF		Total			
							Loans	Grants				
Transport and Communications: 2009 Firm Loans												
1. Jharkhand State Roads Project (MFF)	GI	ECG/ CAD/ PSD	SATC	2006	tbd	200.0	0.0	0.0	200.0	tbd	tbd	
2. PPP Support for NHAI - I	GI	ECG/ PSD/ ENV	SATC	2009	tbd	100.0	0.0	0.0	100.0	tbd	tbd	
3. Railway Sector Improvement II (MFF)	GI	ECG/ CAD PSD	SATC	2007	tbd	500.0	0.0	0.0	500.0	tbd	tbd	
Subtotal					tbd	800.0	0.0	0.0	800.0	tbd	tbd	
Total (2009 Firm)												
Transport and Communications: 2010 Firm Loans												
1. Bihar State Roads II	GI	ECG/ PSD/ ENV	SATC		tbd	150.0	0.0	0.0	150.0	tbd	tbd	
2. North Eastern States Roads Investment Program (MFF)	GI	ECG/ CAD PSD	SATC	2005	tbd	200.0	0.0	0.0	200.0	tbd	tbd	
3. PPP Support for NHAI - II	GI	ECG/ PSD/ ENV	SATC		tbd	100.0	0.0	0.0	100.0	tbd	tbd	
4. Rural Roads Sector III (MFF)	GI	ECG/ CAD/ PSD	SATC	2008	tbd	600.0	0.0	0.0	600.0	tbd	tbd	
Subtotal					tbd	600.0	0.0	0.0	600.0	tbd	tbd	
Total (2010 Firm)												
Transport and Communications: 2011 Firm Loans												
1. MP State Roads III (MFF)	GI	ECG/ ENV/ CAD	SATC	2009	tbd	500.0	0.0	0.0	500.0	tbd	tbd	
2. North East National Highway Project	GI	ECG	SATC	2009	tbd	200.0	0.0	0.0	200.0	tbd	tbd	

Sector Project/Program Name	Targeting Classifi- cation	Thematic Priority	Division	Year of Project Preparatory Assistance	Cost (\$ million)						
					Total	OCR	ADB		Total	Gov't.	Co- Financin g
							ADF				
							Loans	Grants			
3. PPP Support for NHAI - III	GI	ECG/ PSD/ ENV	SATC		tbd	200.0	0.0	0.0	200.0	tbd	tbd
4. Urban Transport (MFF)	GI	ECG/ PSD/ CAD	SATC	2009	tbd	50.0	0.0	0.0	50.0	tbd	tbd
Subtotal					tbd	950.0	0.0	0.0	950.0	tbd	tbd
Total (2011 Firm)											

ADB = Asian Development Bank; ADF = Asian Development Fund; CAD = Capacity Development; ECG = sustainable economic growth; ENV = environmental sustainability; GI = general intervention; GOV = governance; Gov't = Government; ISD = inclusive social development; MFF = multitranches financing facility; OCR = ordinary capital resources; PSD = private sector development; SATC = South Asia Transport and Communications Division; tbd = to be determined.

Source: Asian Development Bank estimates.

IMPLEMENTATION ARRANGEMENTS

1. The Project will be implemented by Soma Isolux NH One Toll Way Private Limited (Soma Isolux). The contractual structure is in Appendix 2. Overall management control of the company will be through the board. The board will delegate the day-to-day work to the general manager, to whom the construction manager, finance manager, and operation and maintenance (O&M) manager—all with considerable experience in their fields—will report.

A. Construction

2. Soma Isolux will enter, on an arm's-length basis, into a lump-sum, fixed-price time-bound engineering procurement and construction (EPC) agreement on a turnkey basis, with a joint venture of Corsán-Corviam Construcción and Soma Enterprises (the EPC contractor). Corsán-Corviam Construcción will have a 61% share in this venture and Soma Enterprises will have a 39% share.

3. Design and quality control and the overall project management will be carried out by the EPC contractor. The project management team will comprise professionals with extensive experience in road management, construction, and operations. The EPC contractor will outsource construction work to a constructor through an EPC outsourcing agreement. The outsourced constructor will be 100% owned by Soma Enterprises. The construction contractual structure is in Appendix 2. The EPC contractors will be liable for all the obligations under the EPC agreement. Soma Enterprises has been given the chief responsibility to construct the Project because of its familiarity with local conditions, and extensive experience in implementing National Highways Authority of India (NHAI) projects. Corsán-Corviam Construcción will provide its input extensively during the design phase.

4. The organizational structure of the companies involved creates a natural check and balance for the contractual structure. Isolux Corsán Concesiones and Corsán-Corviam Construcción are run as two separate companies (Appendix 8) with their own separate profit and loss responsibility, and management and reporting structure. Isolux Corsán Concesiones has heavily negotiated the EPC contract with Corsán-Corviam Construcción and Soma Enterprises. Corsán-Corviam Construcción has extensively negotiated the construction outsourcing agreement with Soma Enterprises. The EPC costs will be reviewed independently by a third party.

5. The EPC contractor has appointed Intesca SPAN as the design coordinator; and Meltech Infrastructure Engineers, SPAN Consultants, and Feedback Ventures as the design consultants. Work has been divided among the design consultants in the following manner: Meltech Infrastructure Engineers: kilometer (km) 96 to km 196; SPAN Consultants: km 196 to km 287; and Feedback Ventures: km 287 to km 387.1. The design consultants have extensive experience and will be responsible for providing the design of the road, checking structural adequacy, and providing technical guidance until the end of execution.

6. For the purpose of smooth execution, construction management, timely execution, and risk management, the Project has been divided into five separate construction packages. These packages will be independent of each other—with their own management, labor, material, and equipment—and work will be executed simultaneously on all five packages.

7. The implementation schedule has been defined under the concession agreement, with construction to be completed within 30 months and intermediate project milestones to be met at regular intervals. Failure to meet any milestones will lead to liquidated damages. Monthly progress reports will be provided, and the road will have to pass several tests and inspections before a project completion certificate is issued. The EPC agreement's implementation schedule is structured so that completion should occur 6 months ahead of schedule.

B. Operation and Maintenance

8. During the construction and operation periods, Soma Isolux will be responsible for operating and maintaining the project highway in accordance with the concession agreement, which lays out the standards and requirements. Details of the O&M are yet to be finalized but it is expected that sponsors will undertake this activity directly and not outsource it, given their experience. The O&M standards have been developed by the Indian Roads Congress and are based on best practice.

9. The corridor control department will patrol the Project routinely from designated start points and will ensure that project safety levels are maintained. This department will also assist motorists as required, and will form part of the incident management team, which will manage incidents in a manner that ensures the road is returned to normal operations as soon as is safely possible. The corridor control team will respond with ambulances at the scene of accidents as required.

10. The routine road maintenance department will ensure that highway maintenance is carried out in a professional manner and the quality of the road is maintained. It will be responsible for inspection, maintenance, and repair of the Project and the facilities. The Project has been divided into three sections, each with a dedicated on-site engineer reporting to the routine road maintenance manager.

11. The central control center will be responsible for monitoring the emergency telephone booths along the route as well as the dispatch and control of emergency response vehicles and police as required. The central control center will also be the center for all routine road maintenance coordination that takes place on the route. This will ensure an integrated flow of information, which will make it possible to convey information to motorists about any incident on the facility or regarding maintenance work taking place at a certain location. The motorists will be prewarned via the variable message signs located along the project highway, making the highway safer for its users.

C. Monitoring and Supervision

12. Monitoring and supervision of construction, operation, and maintenance will be undertaken through an independent engineer who will be selected by NHAI from its panel of qualified firms. The independent engineer will be remunerated through NHAI rather than the concessionaire, to ensure its independence. The process of appointing the independent engineer has already been initiated and one should be appointed very soon. A lenders' independent engineer will also be appointed to assist the lenders.

13. The independent engineer plays a critical role in the Project. The broad role and functions of the independent engineer include (i) review of the drawings and documents during the development period; (ii) review, inspection, and monitoring of construction works during the

construction period; (iii) conducting tests on completion of construction and issuing completion certificates; (iv) review, inspection, and monitoring of O&M during the construction operation periods; (v) determining the costs of any works or service and/or their reasonableness; and (vi) assisting the parties in resolution of disputes.

14. The concessionaire will maintain a book of accounts recording all toll receipts. As it shares the revenue with the concessionaire, NHAI is highly motivated to ensure that all toll revenues are collected correctly. A reputed statutory auditor will be selected by the concessionaire from the panel of auditors approved by NHAI, and will audit the traffic count for each category of vehicle and the payment of fee. NHAI can appoint an additional auditor if required.

KEY FEATURES OF THE CONCESSION AGREEMENT

A. Project Development and Operations

1. In accordance with the provisions of the concession agreement, an independent engineer is to be appointed by the National Highway Authority of India (NHAI). The concession agreement stipulates that the commercial operations will commence only after Soma Isolux receives the completion or provisional completion certificate from the independent engineer. The independent engineer will monitor the construction and operation of the Project, and will submit regular periodic reports (at least once a month) to the NHAI.

2. The NHAI has the right to change the scope of the Project. However, any costs arising from a change in scope order issued during the construction period and in excess of a ceiling of 0.25% of the Total Project Costs, will be reimbursed by the NHAI. The concession agreement also stipulates the damages payable by the NHAI and Soma Isolux if the site is unavailable and if construction is not completed within the stipulated schedule.

B. Escrow Account

3. In accordance with the provisions of the concession agreement, the concessionaire, NHAI, escrow bank, and senior lenders have to execute an escrow agreement. The escrow account needs to be opened by the concessionaire prior to the date of financial close and date the concessionaire takes over the project from NHAI (appointed date). In accordance with the concession agreement requirement, all proceeds of financial package, all toll fees relating to the project highway, all payments by the NHAI, insurance proceeds, have to be deposited by the concessionaire in the escrow account.

4. The agreement specifies the following order for appropriation of deposits in the escrow account:

- (i) all taxes due and payable by the concessionaire;
- (ii) all payments relating to construction of the project highway, subject to and in accordance with the conditions, if any, set forth in the financing agreements;
- (iii) O&M expenses, subject to the ceiling, if any, set forth in the financing agreements;
- (iv) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the agreement, and certified by the NHAI as due and payable to it;
- (v) concession fee due and payable to the NHAI;
- (vi) monthly proportionate provision of debt service due in an accounting year;
- (vii) premium due and payable to the NHAI;
- (viii) all payments and damages certified by the NHAI as due and payable to it by the concessionaire, including repayment of revenue shortfall loan;
- (ix) debt service in respect of subordinated debt;
- (x) any reserve requirements set forth in the financing agreements; and
- (xi) balance, if any, in accordance with the instructions of the concessionaire.

5. Given the presence of revenues from the first day of the concession period, the escrow agreement requires that all fee and any other revenues from the project highway until COD be transferred to an escrow sub-account. Up to the COD of the deposits received in the sub-account, the money available to Soma Isolux for use would be subject to the following:

- (i) Equity of up to 10% of total project costs has been expended by Soma Isolux.
- (ii) The disbursement from the sub-account will be the lower of (i) 50% of each debt tranche disbursed by the senior lenders, and (ii) funds available in the sub-account.
- (iii) If Soma Isolux is in default in meeting a project milestone, then the fee being collected and deposited subsequent to the date of such project milestone, will be held in a separate sub-account (withheld amount account) for each day's delay thereafter.
- (iv) If Soma Isolux is in default in meeting the project milestone immediately following the defaulted milestone, the withheld amount available in the escrow sub-account will not be released until the defaulted milestones have been achieved and the project milestone immediately after the latest defaulted milestone, is achieved in time.
- (v) If Soma Isolux, as certified by the independent engineer to the escrow bank, achieves the defaulted milestone and also achieves the immediately following project milestone on schedule, the withheld amount will be disbursed by the escrow bank to the construction period fee escrow sub-account.
- (vi) If the COD, as certified by the independent engineer to the escrow bank, occurs after the scheduled six-laning date solely because of concessionaire default, then the withheld amount and the fee deposited (including interest on both) during the period between the scheduled six-laning date and the COD will belong to and be disbursed to the NHAI, and the concessionaire will not be entitled to the same despite anything to the contrary contained in the agreement.

C. Equity Dilution

6. In accordance with the concession agreement, the concessionaire will not undertake any change in ownership without the prior approval of the NHAI. The concession agreement states that the aggregate holding of the existing promoters consortium members will

- (i) not decline below 51% during the construction period;
- (ii) not decline below 33% during a period of 3 years following COD; and
- (iii) be at least 26% or any lower proportion permitted by the NHAI thereafter until the end of the concession period.

7. The concession agreement also states that any transfer of ownership leading to acquisition of more than 15% of total equity of the appointed concessionaire or the company holding directly or through one or more companies the equity of the concessionaire, would require the NHAI approval from the national security perspective.

D. Project Milestones

8. The concession agreement specifies that the following project milestones need to be achieved by Soma Isolux:

- (i) **Project Milestone I.** By project milestone I, on the 365th day from the appointed date, Soma Isolux should have commenced construction of the project highway and expended at least 25% of the total capital cost.
- (ii) **Project Milestone II.** By project milestone II, on the 730th day from the appointed date, Soma Isolux should have commenced construction of all

bridges and expended at least 65% of the total capital cost.

- (iii) **Scheduled Six-Laning Date.** Soma Isolux should have completed six-laning in accordance with the concession agreement on the 912th day from the appointed date.

9. In accordance with the concession agreement, if any of the above project milestones are not met within 90 days from the date set forth, unless such failure has occurred because of force majeure or for reasons solely attributable to the NHAI, Soma Isolux shall pay damages to the NHAI in a sum calculated at the rate of 0.1% of the amount of performance security for delay of each day until the milestone is achieved.

10. However, if the project completion date is achieved on or before the scheduled six-laning date, the damages paid will be refunded by the NHAI to the concessionaire, but without any interest.

E. Provisions Protecting the Interests of the Concessionaire in case Traffic is Reduced because an Additional Tollway or Competing Road is Built

11. The concession agreement contains provisions to protect the interests of the concessionaire in traffic is reduced because an additional tollway or competing road is laid.

- (i) Neither the NHAI nor any government agency will at any time before the 10th anniversary of the appointed date, construct or cause to be constructed any competing road, provided that the average traffic on the project highway in any year does not exceed 90% of the designed capacity.
- (ii) Neither the NHAI nor any government instrumentality will construct or cause to be constructed, any expressway or other toll road between, among others, km 96.00 and km 387.10 for use by traffic at any time before the 10th anniversary of the appointed date. Here, additional tollway does not include any expressway 20% longer than the existing route comprising the project highway.
- (iii) In case such an additional tollway or competing road is constructed, the concession agreement provides that the user fee collected from any vehicle on the additional tollway will at no time be less than 25% higher than the fee levied and collected from similar vehicles using the project highway.
- (iv) In case an additional tollway is opened to traffic between the 10th anniversary of the appointed date and the end of the concession period, the concessionaire will be entitled to an additional concession period, which shall be equal in duration to the period between the opening of the additional tollway and the end of the concession period.
- (v) The NHAI will pay compensation to the concessionaire in a sum equal to the difference between the realizable fee and the projected daily fee until the breach caused by construction of the additional tollway is cured.

F. Target Traffic

12. The concession agreement provides for increase or decrease of the concession period based on the actual traffic on the project highways, compared with the projected traffic, on a particular date.

- (i) The concession agreement provides that the projected traffic on the project highway on 1 January 2018 (“target date”) will be 69,443 passenger car units

(PCU) per day (“target traffic”), and any variations will lead to modifications in the duration of the concession period as follows:

- (ii) For every 1% shortfall, the concession period will be increased by 1.5%, up to 20% of the concession period.
- (iii) For every 1% in excess, the concession period will be decreased by 0.75%, up to 10% of the concession period.

G. Design Capacity

13. If the average daily traffic of PCUs in any accounting year exceeds the designed capacity of 90,000 PCUs on the project highway, and continues to exceed this designed capacity for 3 accounting years thereafter, an indirect political event will be deemed to have occurred and the NHAI at its discretion may terminate the concession agreement by making a termination payment in accordance with the provision of the concession agreement.

H. Traffic Cap

14. If the average daily traffic of PCUs in any accounting year reaches a level equivalent to 120% of the designed capacity, the fee levied and collected from the traffic exceeding the traffic cap will be deemed to be due and payable to the NHAI.

I. Additional revenue

15. In accordance with the concession agreement, the concessionaire can collect additional revenue from the commercial advertising, display or hoarding at the toll plazas, rest areas, bus shelters and telephone booths located on the project highway if the advertising thereon does not violate the guidelines of Ministry of Shipping, Road Transport and Highways.

J. Change in Law

16. The concession agreement provisions for change in law which means the following,:

- (i) the enactment of any new Indian law;
- (ii) the repeal, modification, or reenactment of any existing Indian law;
- (iii) the commencement of any Indian law that has not entered into effect until the date of bid;
- (iv) a change in the interpretation or application of any Indian law by a judgment of a court of record which has become final, conclusive, and binding, compared to such interpretation or application by a court of record prior to the date of bid; or
- (v) any change in the rates of any of the taxes that have a direct effect on the Project.

17. In accordance with the concession agreement, if the concessionaire suffers an increase in costs or reduction in net after-tax return or other financial burden because of a change in law, the aggregate financial effect of which exceeds the higher of Rs10 million and 0.5% of the realizable fee in any accounting year, the concessionaire can notify the NHAI and propose amendments to the agreement so as to place the concessionaire in the same financial position it would have enjoyed if there had been no change in law.

K. Force Majeure

18. The force majeure events under the concession are classified into three categories—nonpolitical force majeure events, indirect political force majeure events, and political force majeure events.

L. Nonpolitical Event

19. A nonpolitical event shall mean one or more of the following acts or events:

- (i) act of God, epidemic or plague, extremely adverse weather conditions, lightning, earthquake, landslide, cyclone, flood, volcanic eruption, chemical or radioactive contamination or ionizing radiation, fire or explosion (to the extent of contamination or radiation or fire or explosion originating from a source external to the site);
- (ii) strikes or boycotts (other than those involving the concessionaire, contractors, or their respective employees or representatives, or attributable to any act or omission of any of them) interrupting supplies and services to the project highway for a continuous period of 24 hours and an aggregate period exceeding 7 days in an accounting year, and not being an indirect political event;
- (iii) any failure or delay of a contractor but only to the extent caused by another nonpolitical event and which does not result in any offsetting compensation being payable to the concessionaire by or on behalf of such contractor;
- (iv) any judgment or order of any court of competent jurisdiction or statutory NHAJ made against the concessionaire in any proceedings for reasons other than (a) failure of the concessionaire to comply with any applicable law or applicable permit, or (b) on account of breach of any applicable law or applicable permit or of any contract, or (c) enforcement of this agreement, or (d) exercise of any of its rights under this agreement by the NHAJ;
- (v) the discovery of geological conditions, toxic contamination, or archaeological remains on the site that could not reasonably have been expected to be discovered through a site inspection; or
- (vi) any event or circumstances of a nature analogous to any of the foregoing.

20. In case of termination caused by a nonpolitical event, the NHAJ will make a termination payment to the concessionaire in an amount equal to 90% of the debt due less insurance cover.

M. Indirect Political Event

21. An indirect political event shall mean one or more of the following acts or events:

- (i) an act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion, or politically motivated sabotage;
- (ii) industry-wide or state-wide strikes or industrial action for a continuous period of 24 hours and exceeding an aggregate period of 7 days in an accounting year;
- (iii) any civil commotion, boycott, or political agitation that prevents collection of fee by the concessionaire for an aggregate period exceeding 7 days in an accounting year;

- (iv) any failure or delay of a contractor to the extent caused by any indirect political event and which does not result in any offsetting compensation being payable to the concessionaire by or on behalf of such contractor;
- (v) any indirect political event that causes a nonpolitical event; or
- (vi) any event or circumstances of a nature analogous to any of the foregoing.

22. In case of termination caused by an indirect political event, the NHAI will make a termination payment to the concessionaire in an amount equal to

- (i) debt due less insurance cover, provided that if any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of debt due; and
- (ii) 110% of the adjusted equity.

N. Political Event

23. A political event shall mean one or more of the following acts or events by or on account of any government agency:

- (i) change in law, only if consequences thereof cannot be dealt with under and in accordance with the provisions of the concession agreement;
- (ii) expropriation or compulsory acquisition of any project assets or rights of the concessionaire or of the contractors;
- (iii) unlawful or unauthorized or without jurisdiction revocation of, or refusal to renew or grant without valid cause, any clearance, license, permit, authorization, no-objection certificate, consent, approval, or exemption required by the concessionaire or any of the contractors to perform their respective obligations under this agreement and the project agreements, provided that such delay, modification, denial, refusal, or revocation did not result from the concessionaire's or any contractor's inability or failure to comply with any condition relating to grant, maintenance or renewal of such clearance, license, authorization, no-objection certificate, exemption, consent, approval, or permit;
- (iv) any failure or delay of a contractor but only to the extent caused by another political event and which does not result in any offsetting compensation being payable to the concessionaire by or on behalf of such contractor; or
- (v) any event or circumstance of a nature analogous to any of the foregoing.

24. In the event of a termination caused by a political event, the NHAI shall pay to the concessionaire, by way of termination payment, an amount equal to

- (i) debt due; and
- (ii) 150% of the adjusted equity.

O. Events of Default and Termination Provisions

25. The concession agreement provides for the following compensation provisions on termination of the concession agreement under various events of termination (Table A5).

Table A5: Termination Provisions and Event of Default

Event of Default	During Construction (after financial closure)	During Operations
Soma Isolux event of default	No payment	Payment equal to 90% of debt due as on date of termination less insurance claims, if any.
The NHAI event of default	The NHAI shall pay to the concessionaire, by way of termination payment, an amount equal to: <ul style="list-style-type: none"> ▪ debt due; and ▪ 150% of the adjusted equity. 	

Source: Concession Agreement.

P. Substitution Agreement

26. The lenders' representative, on behalf of senior lenders, may exercise the right to substitute the concessionaire in accordance with the agreement for substitution of the concessionaire (the "substitution agreement") to be entered into among the concessionaire, the NHAI, and the lenders' representative, on behalf of senior lenders. The substitution agreement protects the interests of the lenders, and in the case of default by the special purpose vehicle (SPV), allows the lenders to substitute the existing SPV by a selectee (new SPV) for the residual period of the concession agreement on the terms, conditions, and covenants provided in the agreement.

TOLL RATE STRUCTURE

1. The toll rates applicable to the various users of the project highway are specified in the concession agreement which stipulates the rate of base fees (as applicable on 1 June 1997) to be used to recover charges from the users of national highway (NH)1 from kilometer (km) 96.000 to km 387.10 upon crossing any of the toll plazas.

Table A7: Toll Rates
(Rs per km)

Category of Revenue	Rate of Base Fees per Vehicle per One-Way Trip	
	Applicable as on 1 June 1997	Applicable as on 2005–2006
Car, Passenger Van, or Jeep	0.40	0.60
Light Commercial Vehicle	0.70	1.04
Truck / Bus	1.40	2.08
Multi-Axle Vehicle (>2 axle)	2.25	3.34

Source: Isolux Corsán and NHA1.

2. The amount of fee to be charged for a particular year (from 1 September to 31 August) will be adjusted annually to reflect changes in the wholesale price index (WPI) from 31 March 1997 onward. The toll fee will be revised once a year as follows:

Base Fee x (WPI-B/ WPI-A) x km for one-way journey

WPI-B = the average wholesale price index available for the year ending 31 March preceding the fee revision date

WPI-A = the wholesale price index on June 1997 (131.4%)

3. **Local Traffic.** This traffic is subdivided into the following categories:

(i) **Car or Jeep or Van.** Two subcategories of users:

a. **Category 1.** Residents of villages or towns or cities, industrial units, establishments, and self-employed persons with workplace within a radius of 10 km of the fee collection booth—monthly pass of Rs150 stipulated by the concession agreement.

b. **Category 2.** Residents of villages or towns or cities, industrial units, establishments, and self-employed persons with workplace within a radius of more than 10 km but up to 20 km of the fee collection booth—a monthly pass of Rs300 stipulated by the concession agreement.

(ii) **School Bus.** Monthly rate of Rs1,000 stipulated by the concession agreement.

(iii) **Light Commercial Vehicle or Trucks.** For plying within 20 km of the toll plaza, the concession agreement stipulates a concessional fee of Rs25 per entry for trucks and Rs15 per entry for LCV.

4. If a vehicle has to cross this stretch of national highway more than once a day, the concession agreement provides that the user will have the option to take a daily pass by paying 1.5 times the corresponding rates computed from Table A7 for a one-way journey. If the vehicle has to use the stretch continuously for the entire month, the concession agreement states that the user may have a monthly pass upon payment of charges equal to 30 times those applicable for a single trip.

ECONOMIC EVALUATION

A. Introduction

1. This analysis assesses the economic viability of the expansion and improvement of the national highway (NH) 1 toll road in India. The evaluation covers the widening of the existing four-lane road to a six-lane road, construction of service roads, provision of crossover facilities, overpasses, bridges, and other infrastructure necessary to promote the continuous flow of traffic and improve safety. The vehicle operating costs (VOCs) were analyzed using the highway design and maintenance (HDM) model.

2. Resource costs and benefits are valued in constant 2008 prices, in Indian rupees. The comparison of with- and without-project scenarios over the project life determined the costs and benefits.

B. Project Costs and Benefits

3. The time horizon of the analysis is the concession period, which is expected to begin in November 2008 and end in October 2023. Construction is expected to take about 2.5 years.

C. Valuation of Costs and Benefits

1. Costs

4. The costs included are capital costs, incremental operation and maintenance (O&M) costs, pre-operating costs, resettlement costs, and environmental mitigation costs. Capital costs exclude price escalation, interest during construction, and taxes. Incremental costs for O&M were the difference between the O&M costs expected during the project life, and the estimated O&M costs if the Project had not materialized. The analysis assumes that without-project O&M costs are 67% of the with-project O&M costs. Resettlement and environmental mitigation costs are figures taken from the social and environmental impact assessment reports, adjusted to 2008 price levels.

2. Benefits

5. The Project will relieve congestion in 114 intersections through overpasses and vehicular underpasses, allowing traffic to flow more continuously. In addition, two additional lanes will expand the capacity of the highway, and roughness will be reduced from 3.45 m/km to 2.0 m/km. The main effect of this decongestion, expansion, and improvement will be faster traffic flow.

6. The benefits incurred from normal and generated traffic volumes are valued separately. Normal traffic is traffic that will use the existing highway with or without the Project. Generated traffic is additional traffic that will occur only with the Project. Generated traffic is conservatively estimated at 20% of annual traffic growth.

7. Surveys were conducted to determine the current level of traffic on the highway accurately. From the baseline figures, future traffic levels were estimated using the expected population growth, per capita income growth, and the growth of net state domestic products as inputs.

8. Savings in VOCs and savings in the value of passenger time are the quantified benefits from this Project. Other benefits, such as reduced number of accidents, are not quantified. The HDM model was used to estimate savings in VOCs for seven vehicle classes. Passenger time costs assume that the value of each hour spent on the road is the average income per hour in the area. Passenger time costs were calculated only for cars, minibuses, and buses.