PROJECT APPRAISAL DOCUMENT
ON A PROPOSED LOAN
IN THE AMOUNT OF US$470.49 MILLION
AND TWO PROPOSED CREDITS
IN THE TOTAL AMOUNT OF SDR 90.20 MILLION
(US$143.01 MILLION EQUIVALENT)
TO THE
SOCIALIST REPUBLIC OF VIETNAM
FOR THE
DA NANG – QUANG NGAI EXPRESSWAY DEVELOPMENT PROJECT

April 28, 2011
CURRENCY EQUIVALENTS

Exchange Rate Effective March 31, 2011

Currency Unit = Vietnamese Dong (VND)
20,857 = US$1
US$ 1.5855 = SDR 1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ADB Asian Development Bank
AMT Aligned Monitoring Tool
BP Bank Procedure
CPS Country Partnership Strategy
CRC Commune Resettlement Committee
DER Debt to Equity Ratio
DOF Department of Finance
DONRE Department of Natural Resource and Environment
DP Displaced Person
DPI Department of Planning and Investment
DIR Detailed Implementation Review
DQE Da Nang-Quang Expressway
DQEP Da Nang-Quang Expressway Project
EASIN East Asia and Pacific Infrastructure Unit
EIA Environmental Impact Assessment
ENPV Economic Net Present Value
EIRR Economic Internal Rate of Return
EMP Environmental Management Plan
EPC Engineering, Procurement and Construction
EMC Environmental Monitoring Consultant
FM Financial Management
FIS Financial Information System
IDA International Development Association
ITS Intelligent Transport System
IBRD International Bank for Reconstruction and Development
IFRS International Financial Reporting Standards
IFR Interim Financial Report
IMA Independent Monitoring Agency
ICR Implementation Completion and Results Report
GDP Gross Domestic Project
GoV Government of Vietnam
GRC Grievance Redress Committee

HCMC Ho Chi Minh City
JICA Japan International Cooperation Agency
NGO Non-governmental Organization
NH National Highway
MoT Ministry of Transport
MoF Ministry of Finance
OP Operational Policy
O&M Operations and Maintenance
PDO Project Development Objective
PMU Project Management Unit
PPP Public Private Partnership
POM Project Operations Manual
PPC Provincial People’s Committee
PRC Provincial Resettlement Committee
PIB Public Information Booklet
PCU Passenger Car Unit
RCS Replacement Cost Survey
RS Resettlement Site
RAP Resettlement Action Plan
RTP2 Rural Transport Project 2
RNP Road Network Improvement Project
SEDPO Socio Economic Development Plan
SIA Social Impact Assessment
SIL Specific Investment Loan
SOE Statement of Expenses
TA Technical Assistance
TOR Terms of Reference
VDIC Vietnam Development Information Center
VEA Vietnamese Expressway Administration
VEC Vietnam Expressway Corporation
VEMA Vietnam Expressway Management Administration
VOC Vehicle Operating Costs

Regional Vice President: James W. Adams
Country Director: Victoria Kwakwa
Sector Director: John Roome
Sector Manager: Jennifer Sara
Task Team Leader: Paul Vallely
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IBRD Map No. VNM38199  

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### Project Financing Data:

**Proposed terms:**

**IBRD:** Variable spread loan repayable over 25 years, including a grace period of 10 years.

**IDA:** IDA standard (Blend) and Hard Term Lending terms of total maturity of 35 years, including a grace period of 10 years. The proposed operation would be in the amount of SDR 90.20 million (US$143.01 million equivalent), of which SDR 46.10 million (US$ 73.09 million equivalent) would be on standard (Blend) terms and SDR44.10 million (US$ 69.92 million equivalent) would be in Hard Term Lending terms. Of the amount on standard (Blend) terms, SDR8.47 (US$ 13.43 million equivalent) would be recommitted from a partial cancellation of the Vietnam Mekong Transport and Flood Protection Project (Credit 3448-VN) and SDR 3.41 million (US$5.40 million equivalent) would be recommitted from a partial cancellation of the Vietnam Mekong Transport and Flood Protection Additional Financing (Credit 3448-1-VN), for a total of SDR 11.88 (US$18.84 million equivalent) in recommitted IDA funds.

<table>
<thead>
<tr>
<th>Source</th>
<th>Total Amount (US$M)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Project Cost:</strong></td>
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<tr>
<td>Cofinancing: JICA</td>
<td>673.60</td>
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<tr>
<td>Borrower:</td>
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<td><strong>Total Bank Financing:</strong></td>
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<tr>
<td>IBRD</td>
<td>470.49</td>
</tr>
<tr>
<td>IDA (standard and hard term)</td>
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<tr>
<td><strong>New</strong></td>
<td></td>
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<tr>
<td><strong>Recommitted</strong></td>
<td>124.17</td>
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<tr>
<td><strong>Total</strong></td>
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<tr>
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<th>Credit</th>
<th>Grant</th>
<th>Guarantee</th>
<th>Other:</th>
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<tr>
<td>[x]</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Source

- Total Amount (US$M)
- 1,403.70
- 673.60
- 116.60
- 470.49
- 124.17
- 18.84
Borrower: Socialist Republic of Vietnam  
Responsible Agency: Vietnam Expressway Corporation  
Linh Nam Street, Honag Mai District, Hanoi, Vietnam  
Contact Person: Mr. Tran Xuan Sanh, General Director  
Telephone No.: (84-4) 36434-0275  
Fax No.: (84-4) 3643-0266  
Telephone no.: (84-4) 3 6430 266  
Email: duongcaotoc@vnn.vn and phungminhmo63@yahoo.com

| Estimated Disbursements (Bank FY/US$ m) |
|------|-----|-----|-----|-----|-----|-----|-----|
| Annual | 0   | 10.0| 60.0| 60.0| 125.0| 140.0| 155.0| 63.5|
| Cumulative | 0   | 10.0| 70.0| 130.0| 255.0| 395.0| 550.0| 613.5|

Project Implementation Period: October 31, 2011 – October 31, 2018  
Expected effectiveness date: October 31, 2011  
Expected closing date: October 31, 2018

Does the project depart from the CAS in content or other significant respects? ○ Yes X No

If yes, please explain:

Does the project require any exceptions from Bank policies? ○ Yes X No
Have these been approved/endorsed (as appropriate by Bank management)? ○ Yes ○ No
Is approval for any policy exception sought from the Board? ○ Yes X No

If yes, please explain:

Does the project meet the Regional criteria for readiness for implementation? ○ Yes X No

If no, please explain:

By Negotiation: Bidding Documents for civil works and goods for about 30% of Bank funds are available. The detailed design contract is under procurement and expected to commence in early 2011. Civil works contracts should be ready for award by late-2012.

Project Development Objective:

The project’s development objectives are to construct an expressway that will enhance efficiency and safety for road users travelling between Da Nang city and Quang Ngai province and build institutional capacity for expressway development in Vietnam’s Ministry of Transport.
Project Description:

1. **Da Nang – Quang Ngai Expressway**

   (a) Construction of a four-lane expressway from National Highway 1A, to the south of Da Nang city, to Quang Ngai province, including construction of a main carriageway, bridges, viaducts, and culverts, a tunnel, connection and service roads, and intersections, and related maintenance and rehabilitation of the local road network, in two parts: (i) from Da Nang city to Tam Ky city in Quang Nam province; and (ii) from Tam Ky city to Quang Ngai province.

   (b) Construction of a two-lane highway, including bridges, from the southern end of such expressway to National Highway 1A, in Quang Ngai province.

   (c) Compensation, resettlement, and rehabilitation, including livelihood restoration, of Project Affected Persons.

   (d) Establishment of an integrated traffic management and toll collection facilities system, and design, installation, and commissioning of an intelligent transport system for the operation, management, and maintenance of such expressway.

2. **Project Implementation Support and Institutional Strengthening**

   (a) Provision of technical assistance to the Vietnam Expressway Corporation in relation to: (i) Project implementation, including: (A) construction supervision; (B) integrated review and monitoring; (C) financial auditing; and (D) implementation of the Governance, Transparency, and Anti-Corruption Plan; and (ii) capacity building for financial management.

   (b) Capacity building of: (i) and provision of policy support to the Ministry of Transport in relation to: (A) expressway planning and network management, including establishment and operationalization of an expressway planning and network management entity; and (B) operationalization of said Ministry’s public-private partnerships cell; and (ii) the Inspectorate Department in relation to its mandate of governance and anti-corruption, including implementation of the Anti-Corruption Action Plan.

<table>
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<tr>
<th>Safeguard policies triggered?</th>
<th>Yes</th>
<th>No</th>
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<tr>
<td>Environmental Assessment (OP/BP 4.01)</td>
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<td>○</td>
</tr>
<tr>
<td>Natural Habitats (OP/BP 4.04)</td>
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<td>x</td>
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<tr>
<td>Forests (OP/BP 4.36)</td>
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<td>x</td>
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<tr>
<td>Pest Management (OP 4.09)</td>
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<tr>
<td>Physical Cultural Resources (OP/BP 4.11)</td>
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<td>Indigenous Peoples (OP/BP 4.10)</td>
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<td>Involuntary Resettlement (OP/BP 4.12)</td>
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<td>Safety of Dams (OP/BP 4.37)</td>
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<tr>
<td>Projects on International Waters (OP/BP 7.50)</td>
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<tr>
<td>Projects in Disputed Areas (OP/BP 7.60)</td>
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### Conditions and Legal Covenants:

<table>
<thead>
<tr>
<th>Financing Agreement Reference</th>
<th>Description of Condition/Covenant</th>
<th>Date Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article V, Clause 5.02</td>
<td>The following non-standard conditions of effectiveness are included in the loan agreement:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(i) The Subsidiary Loan Agreements have been executed on behalf of the Ministry of Finance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and the Vietnam Expressway Corporation (VEC).</td>
<td></td>
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<tr>
<td></td>
<td>(ii) The Co-financing Agreement with Japan International Cooperation Agency (JICA) has been</td>
<td></td>
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<td></td>
<td>executed and is effective.</td>
<td></td>
</tr>
<tr>
<td>Section II.D.6 of Schedule 2</td>
<td>The following non-standard covenants are to be included in the loan agreement:</td>
<td></td>
</tr>
<tr>
<td>(and Section 2.D.6 of the</td>
<td>(i) The government will provide a sustainability guarantee to VEC in the form of an annual</td>
<td>From the end of the construction period onwards.</td>
</tr>
<tr>
<td>Project Agreements)</td>
<td>payment to cover any deficit between project revenues and debt repayments. Project revenues</td>
<td></td>
</tr>
<tr>
<td>Section II.D.4 of Schedule 2</td>
<td>will be adjusted to reflect project expenses required to operate and maintain the expressway</td>
<td>For the year ending December 31, 2016, onwards.</td>
</tr>
<tr>
<td>(and Section 2.D.5 of the</td>
<td>facility.</td>
<td></td>
</tr>
<tr>
<td>Project Agreements)</td>
<td>(ii) VEC will provide the Bank with annual consolidated financial statements prepared to</td>
<td></td>
</tr>
<tr>
<td>Section V of Schedule 2</td>
<td>International Financial Reporting Standards, including comparatives for previous year.</td>
<td></td>
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<tr>
<td></td>
<td>(iii) VEC’s and Project Management Unit 1 Procurement staff will have undergone training on</td>
<td>No later than three months after the Effective Date,</td>
</tr>
<tr>
<td></td>
<td>procurement aspects of the Project under terms of reference satisfactory to the Bank.</td>
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</tbody>
</table>
I. Strategic Context

A. Country Context

1. Vietnam’s economic trajectory has been impressive over the past twenty years. Comprehensive economic reforms, sound macroeconomic management and significant investment in infrastructure have led to rapid economic growth. Real GDP grew at an annual rate of about 6 percent between 1994 and 2010; and real GDP per capita income increased by a factor of 2.5 between 1994 and 2010. Exports continued their rapid growth, reaching two thirds of GDP in 2009 (US$57 billion); and foreign direct investment inflows remain among the highest in the world relative to the size of the economy.\(^1\) This remarkable economic performance over the past two decades has propelled Vietnam into the ranks of lower middle income countries.

2. A major catalyst for this economic progress has been Vietnam’s strategic investment in infrastructure. Vietnam has been among the world’s leaders in infrastructure investment with recent annual expenditures reaching 9-10 percent of GDP, about half of which is in transport. Investment in infrastructure will continue for many years to come not only to avoid current infrastructure bottlenecks but to support the country’s economic growth and poverty alleviation targets. This will require further expansion of the road, rail, and waterway transport networks and an improvement in quality to meet increasing needs.

3. The Central region lags behind the Northern and Southern regions in economic growth and poverty alleviation. Despite the economic growth in the Central region, it still lags well behind the Northern and Southern regions of the country. In 2008, the Central region’s per capita income and poverty level stood at VND10.1 million (about US$612 at the average market exchange rate) and 14.7 percent, respectively. Comparable levels for income and poverty in the Northern region are VND12.6 million (about US$760) and 8.7 percent; and for the Southern region VND19.8 million (about US$1,196) and 3.7 percent.\(^2\) Interventions that enhance the connectivity between the Central region and the more economically dynamic Northern and Southern regions can be particularly effective in reducing the interregional gap in standards of living.

B. Sectoral and Institutional Context

4. Sustained high economic growth has been accompanied by a rapid rise in transport demand. Road transport demand has grown, and continues to grow, rapidly. Between 1995 and 2007, transport volume for passenger travel (measured in passenger-km) and freight (measured in ton-km) increased at an annual average rate of 9.4 percent and 12.3 percent, respectively. These rates were considerably higher than the average rate of real GDP growth over the same period (7.4 percent). The rise in transport demand is also illustrated by a fast expansion in vehicle ownership: from 1995 to 2008, the number of registered vehicles increased from about 4

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2 General Statistics Office of Vietnam, *Result of the Survey on Household Living Standards 2008*. The government-defined income poverty line for 2008 was VND3.48 million per person per year for rural areas and VND4.44 million per person per year for urban areas.
million to 27 million. Going forward, sustained growth in per capita income will continue to drive increases in auto ownership, with the latter expected to grow fourfold by 2020.

5. **Vietnam faces high overall logistics costs.** Logistics costs have been estimated at about 25 percent of GDP, a considerably higher ratio than that of other countries in the region, such as China (at 15 percent). Inadequate infrastructure is one of the main determinants of Vietnam’s costly logistics and a recurrent concern for foreign investors. The Logistics Performance Index (LPI), as estimated by the World Bank in 2010, shows that Vietnam attains its lowest score among the various index components in the infrastructure quality and reliability indicator, where it ranks 66th out of 155 countries (Vietnam ranks 53rd on the composite LPI\(^3\)). However as Vietnam has transitioned to Middle Income status, the country will require more reliable and higher quality logistics systems to meet the demand of new industries.

6. **In 2005 Vietnam formally adopted a medium- to long-term expressway strategy through 2020.** Updated twice since (most recently in 2009, which included a vision to 2030), the strategy comprises two broad development pillars: (i) the building of a national expressway network, where priority will be given to sections along the trunk North-South system; and (ii) the development of the institutional infrastructure necessary to plan, fund, operate, and regulate the expressway sector. The priority North-South corridor, about 1,800 km in length, connects the country’s Northern, Central, and Southern Regions, which are anchored in the Hanoi, Da Nang, and Ho Chi Minh City (HCMC) metropolitan area markets, respectively, and are designated as the country’s Focal Economic Zones. The expressway strategy’s focus in the early stages has been on the Northern and Southern Regions (where Hanoi and HCMC alone account for close to a third of Vietnam’s GDP), and is gradually expanding to include key sections of the Central Region.

7. **The transport sector is crucial for better economic integration of the Central region with the rest of the country.** Future travel demand for passenger and freight between the Central region and Vietnam’s largest cities is expected to grow rapidly. Specifically, travel demand for both passengers and freight between Da Nang and either HCMC or Hanoi is expected to increase fivefold by 2030. In the Central region, National Highway 1 (NH1) is the sole continuous north-south highway, but has only one traffic lane in each direction in the high priority corridor between Da Nang and Quang Ngai. The highway serves both local and long-distance traffic, with 40 percent of vehicles traveling the full length of the corridor. In addition to NH1, major transport infrastructure in the Central region includes Da Nang port (the country’s third largest), the oil port of Dung Quat (100 km south of Da Nang), a section of the 1,730 km long single-track railway line between Hanoi and HCMC, and the coastal waterways running along Vietnam’s shoreline. Adding an expressway facility in Central Vietnam would provide the necessary capacity for future growth, help reduce road accidents, and facilitate both domestic and international trade through regional integration.

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\(^3\) Based on a structured survey of multinational freight forwarders and express carriers, the LPI measures a country’s logistics performance across six dimensions: (i) efficiency of the customs clearance process; (ii) quality of trade- and transport-related infrastructure; (iii) ease of arranging competitively priced shipments; (iv) competence and quality of logistics services; (v) ability to track and trace consignments; and (vi) frequency with which shipments reach the consignee within the scheduled or expected time. The index is produced by the World Bank biannually, and is presented as a composite metric (i.e., as a single, overarching measure of logistics performance), as well as for each of the six logistics dimensions individually.
8. Implementation of the expressway strategy has been carried out so far by the Vietnam Expressway Corporation (VEC). VEC was established in late 2004 as a separate legal entity owned by the Ministry of Transport (MoT) with a mandate which includes investment in expressway construction, management, maintenance and toll collection, construction and operation of related facilities, and the planning, appraisal, design, and supervision of construction. VEC is expected to be financially independent from the Government in that its revenues, expenditures, assets, and liabilities are recorded and accounted for on a separate basis. VEC is presently responsible for the development of six expressway projects (including the proposed project), of which three are now under construction. The investment costs associated with these six projects, which would complete 807 km of expressway, is estimated at $7.2 billion. More information on VEC can be found in Annex 9.

9. Institutional arrangements for the development, management, and administration of the expressway network need to be further clarified and operationalized. The Government has proposed reforming the administration of Vietnam’s expressway program by establishing a dedicated administrative department within MoT (provisionally called the “Vietnamese Expressway Administration” or “VEA”) to coordinate the overall planning, investment, and management of an integrated national expressway network. The establishment of VEA will allow VEC to shed the role of being the ‘owner’ of the network and focus on being a developer. The development of the expressway system is a significant physical and financial commitment for the country, funding requirements will be in excess of $20 billion for the program to 2020. This program cannot be funded from government budget alone. Thus, MoT proposes to use public private partnership (PPP) modalities to fund the construction of selected sections. To build MoT’s capacity to maximize the use of PPP modalities in expressway development, MoT is proposing to establish a specialized division within MoT’s Department of Planning and Investment (DPI) to advise on structuring, implementing, and managing PPP contracts (the “PPP Cell”). Planning for the new VEA and a PPP cell for MoT has been completed, and these plans now need to be put into effect. The intent of the above changes in institutional arrangements is to improve service provision but to do so will require a number of changes to laws, regulations, institutions, and the management of network operations.

C. Higher Level Objectives to which the Project Contributes

10. Contribution to the SEDP/CPS priorities. The expressway will contribute to the sustainable economic growth and inclusive development of the Central Region in Vietnam by enhancing the efficiency and safety of transport infrastructure. The Project will support the four main pillars of the Government’s Socio-Economic Development Plan (SEDP) 2006-2010 (which are in turn the organizing principles of the Bank’s Vietnam CPS FY07-FY11): improve the business environment, strengthen social inclusion, strengthen natural resource and environmental management, and improve governance. It is also consistent with the upcoming SEDP for 2011-2015, which highlights infrastructure development, including large-scale projects, as a priority area to enhance competitiveness and contribute to attaining the government’s economic growth targets.
11. **Contribution to the economic integration of Central Vietnam.** The expressway will help strengthen the economic linkages of Central Vietnam with the Northern and the Southern parts of the country and contribute to the Government of Vietnam’s (GoV’s) efforts to reduce regional development gaps. The expressway is also expected to contribute to the development of Da Nang as a regional gateway to international markets through the East-West Economic Corridor (connecting Da Nang to Lao PDR and Thailand).

12. **By supporting the development of a high capacity, robust expressway, the project is also consistent with the World Bank strategy for promoting safe, clean, and affordable transport.** The investment will provide the country with a more sustainable and resilient road infrastructure in the face of potential climate change impacts, while seeking to reduce transport emissions to protect air quality by reducing congestion on NH1. The expressway program will require significant financial resources to which the Bank will contribute. In addition, the Bank will use its global knowledge to support the government in establishing a sound institutional framework for highway and expressway development.

II. **Project Development Objectives**

13. **The project’s development objectives are** to construct an expressway that will enhance efficiency and safety for road users travelling between Da Nang city and Quang Ngai province and build institutional capacity for expressway development in Vietnam’s Ministry of Transport.

   (i) **Project Beneficiaries**

14. **Direct** project beneficiaries include users of both the DQE and the parallel sections of NH1/1A. Users of cars and other modes of personal transport, as well as public transport users on DQE and NH1/1A, will benefit due to the reduction in travel time, travel time uncertainty and number of traffic accidents. Users of NH1/1A will also benefit due to the reduction in vehicle operation costs.

15. **Indirect** beneficiaries include consumers and producers of freight travelling on the expressway. Local residents along NH1/1A will also benefit from the reduction in pollution from vehicle emissions and noise, and increased road safety.

16. Expressway users will also benefit from the institutional strengthening that will lead to the more efficient management, administration, and overall governance of the expressway system. MoT and VEC staff will also benefit directly from the institutional strengthening activities.

   (ii) **PDO Level Results Indicators**

17. Monitoring of achievement at the PDO level will use the following indicators:

   - Travel time for 10-ton freight vehicles between Da Nang and Quang Ngai;
   - Travel time for passenger vehicles between Da Nang and Quang Ngai;
- Coefficient of variation of travel time for freight vehicles along the DQE corridor between Da Nang and Quang Ngai;
- Coefficient of variation of travel time for passenger vehicles along the DQE corridor between Da Nang and Quang Ngai;
- Number of fatalities due to traffic accidents in the DQE corridor; and
- Adoption of a strategic plan for expressway network management.

A results framework and monitoring table is presented in Annex 1. The table sets out indicators for the PDO and intermediate results.

III. Project Description

A. Project Components

18. Component 1: Da Nang – Quang Ngai Expressway

(a) Construction of a four-lane expressway from National Highway 1A, to the south of Da Nang city, to Quang Ngai province, including construction of a main carriageway, bridges, viaducts, and culverts, a tunnel, connection and service roads, and intersections, and related maintenance and rehabilitation of the local road network, in two parts: (i) from Da Nang city to Tam Ky city in Quang Nam province; and (ii) from Tam Ky city to Quang Ngai province.

(b) Construction of a two-lane highway, including bridges, from the southern end of such expressway to National Highway 1A, in Quang Ngai province.

(c) Compensation, resettlement, and rehabilitation, including livelihood restoration, of Project Affected Persons.

(d) Establishment of an integrated traffic management and toll collection facilities system, and design, installation, and commissioning of an intelligent transport system for the operation, management, and maintenance of such expressway.

19. Component 2: Project Implementation Support and Institutional Strengthening

(a) Provision of technical assistance to VEC in relation to (i) Project implementation, including: (A) construction supervision; (B) integrated review and monitoring; (C) financial auditing; and (D) implementation of the Governance, Transparency, and Anti-Corruption Plan; and (ii) capacity building for financial management.

(b) Capacity building of: (i) and provision of policy support to the Ministry of Transport in relation to: (A) expressway planning and network management, including establishment and operationalization of an expressway planning and network management entity; and (B) operationalization of said Ministry’s public-private partnerships cell; and (ii) the Inspectorate Department in relation to its mandate of governance and anti-corruption, including implementation of the Anti-Corruption Action Plan.
B. Project Financing

i) Lending Instrument

20. The project will be partially financed by a Specific Investment Loan (SIL) amounting to US$613.50 million equivalent (43.7% of project costs) in the form of (i) an IBRD Loan for US$470.49 million, and (ii) an IDA Credit for SDR90.20 million (US$143.01 million equivalent). SILs are the most appropriate instrument for a project such as the DQEP, which has a defined set of investments/expenditures.

21. The IBRD loan will be for a variable spread loan repayable over 25 years, including a grace period of 10 years. The IDA Credit will be for a total maturity of 35 years, including a grace period of 10 years. For the IDA credit portion of the SIL, SDR 46.10 million (US$73.09 million equivalent) would be on standard (Blend) terms and SDR44.10 million (US$69.92 million equivalent) would be in Hard Term Lending terms. Of the amount on standard (Blend) terms, SDR8.47 (US$13.43 million equivalent) would be recommitted from a partial cancellation of the Vietnam Mekong Transport and Flood Protection Project (Credit 3448-VN) and SDR 3.41 million (US$5.40 million equivalent) would be recommitted from a partial cancellation of the Vietnam Mekong Transport and Flood Protection Additional Financing (Credit 3448-1-VN), for a total of SDR 11.88 million (US$18.84 million equivalent) in recommitted IDA funds.

22. The government also requested a loan of ¥86.773 billion (about US$1,052.5 million equivalent) from the Government of Japan through JICA. The loan will have a 30-year term, including a grace period of 10 years and an interest rate of 1.2% for the construction loan and 0.01% for consulting services. The JICA funds will be provided using a time-slice modality whereby the funds are allocated annually based on projected expenses for the year. The JICA loan agreement was to be signed in March 2011 but signing has been delayed due to the disaster in Japan.

ii) Project Cost and Financing

23. Total project financing requirements are estimated to be US$1,403.7 million, inclusive of price and physical contingencies, financing costs, and taxes. JICA will finance 48.0 percent of the project (US$673.6 million). JICA will finance civil works for the Da Nang – Tam Ky section (64.6 km), including an Intelligent Transport System (ITS) for the entire project, and consulting supervision services for the JICA funded civil works. The government will provide counterpart funding in the amount of US$116.6 million equivalent. These funds will be applied to expenses for: (i) land acquisition and resettlement costs necessary to construct the expressway; (ii) project management costs incurred by VEC; and (iii) taxes, duties, and other

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4 The discrepancy between the Bank’s estimate of costs for the activities to be funded by JICA and JICA’s estimate is due to different treatments of contingencies, particularly price contingency (whereas JICA’s price contingencies are based on recent historical inflation rates, which were high, Bank estimates are based on future inflation projections). Base costs before contingencies are the same.

5 Based on a yen/$ exchange rate of ¥82.445/$1 on January 17, 2011, at the time of completion of loan negotiations for the project between JICA and the Government of Vietnam.
expenses on the JICA funded work that are ineligible for JICA funding. Eligible expenses under the IDA Credit will include interest during construction.\textsuperscript{6} Funds from the Bank’s IDA Credit, the IBRD Loan and the JICA loan will be applied as set out in the table below (in any one category, IDA funds will be disbursed first and only when IDA is exhausted will IBRD funds be disbursed):

<table>
<thead>
<tr>
<th>Project Components</th>
<th>Project cost ($ millions)</th>
<th>JICA Financing</th>
<th>Bank Financing</th>
<th>Counterpart fund</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>($ millions)</td>
<td>% of cost</td>
<td>($ millions)</td>
<td>% of costs</td>
</tr>
<tr>
<td>Component 1: Da Nang – Quang Ngai Expressway</td>
<td>1,064.86</td>
<td>527.42 49.5%</td>
<td>85.80 40.6%</td>
<td>346.81 41.2%</td>
</tr>
<tr>
<td>Component 2: Project Implementation Support and Institutional Strengthening</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Component 2(a): Project Implementation Support for VEC</td>
<td>43.21</td>
<td>18.44 42.7%</td>
<td>21.26 - 49.2%</td>
<td>- 8.1%</td>
</tr>
<tr>
<td>Component 2(b): Institutional Strengthening for MoT</td>
<td>5.30</td>
<td>- 0.0%</td>
<td>5.30 - 100.0%</td>
<td>- 0.0%</td>
</tr>
<tr>
<td><strong>Total Base Costs</strong></td>
<td><strong>1,113.36</strong></td>
<td><strong>545.85 49.0%</strong></td>
<td><strong>112.36 41.2%</strong></td>
<td><strong>346.81</strong></td>
</tr>
<tr>
<td>Physical contingencies</td>
<td>85.84</td>
<td>42.14 49.1%</td>
<td>8.67 41.3%</td>
<td>26.78 49.6%</td>
</tr>
<tr>
<td>Price contingencies</td>
<td>123.61</td>
<td>62.44 50.5%</td>
<td>14.99 49.6%</td>
<td>46.28 - 0.0%</td>
</tr>
<tr>
<td><strong>Total Project Costs</strong></td>
<td><strong>1,322.81</strong></td>
<td><strong>650.43 49.2%</strong></td>
<td><strong>136.02 42.0%</strong></td>
<td><strong>419.87</strong></td>
</tr>
<tr>
<td>Interest During Implementation</td>
<td>75.13</td>
<td>20.49 27.3%</td>
<td>5.32 49.3%</td>
<td>49.31 72.7%</td>
</tr>
<tr>
<td>Front-End Fees, Commitment Fees, and Service Charges</td>
<td>5.66</td>
<td>2.68 47.4%</td>
<td>1.67 52.6%</td>
<td>1.31 - 0.0%</td>
</tr>
<tr>
<td><strong>Total Financing Required</strong></td>
<td><strong>1,403.60</strong></td>
<td><strong>673.60 48.0%</strong></td>
<td><strong>143.01 43.7%</strong></td>
<td><strong>470.49</strong></td>
</tr>
</tbody>
</table>

C. Lessons Learned and Reflected in the Project Design

24. Preparation and timing. The inclusion of detailed design and civil works procurement in investment projects in Vietnam has usually resulted in low disbursements over the initial 2-3 years of implementation. For the DQEP, consulting services to assist the government in the detailed design and civil works procurement are being funded from the Road Network Improvement Project (RNIP). Contract award is planned for June 2011, which could result in the avoidance of up to 2 years of disbursement delays when compared to previous projects.

25. Implementation of Resettlement Plans. Project design reflects lessons learned from the implementation of resettlement plans in transport projects in Vietnam: (i) establishment of Independent Grievance Redress Committees (GRCs) that include members from civil society and representatives of the affected households; (ii) use of an independent land valuation study, to determine prevalent market rates for different types of affected land assets; and (iii) provision of assistance during detailed design for the preparation of detailed resettlement action plans, and during construction, to support the implementation and monitoring of resettlement plans.

\textsuperscript{6} The requirements of OP 6.00 have been met with respect to including these as eligible expenses under the IDA credit. There are no special requirements for IBRD funds.
26. **Packaging of Civil Works Contracts.** The road sector construction industry in Vietnam is dominated by State Owned Enterprises (SOEs), most of which are either owned or controlled by MoT. As such, they are ineligible for Bank-funded projects. Although private sector owned contractors are beginning to develop, they are limited by resources and experience to relatively small contracts. To ensure that an adequate number of qualified, eligible contractors engage in the bidding for civil works packages on the project, the packages need to be sufficiently large to draw interest from international contractors. Based on recent experience from other donor funded expressway projects, contracts have been packaged at a minimum of $75 million.

27. **Effective Implementation Supervision.** As the DQEP work will be confined to three provinces in Central Vietnam, and will be implemented under a small number of large civil works contracts with responsibility for all procurement and management being with VEC, the project will avoid the implementation difficulties faced by some Bank Vietnam Transport projects with a large number of small contracts stretched over a large geographic area with many implementation agencies.

IV. Implementation

A. Institutional and Implementation Arrangements

28. The **Ministry of Transport** will be the ‘Line Agency’ for the project and will have the overall responsibility for overseeing the implementation of the Project, reporting to GoV, and fulfilling the requirements of IDA and IBRD.

29. The **Vietnam Expressway Corporation** will be the ‘Project Owner’ for all components except for Component 2(b) (Institutional Support Services to the Ministry of Transport). VEC will also be responsible for the recruitment and supervision of the detail design consulting services for the Project. VEC will be responsible for key approvals and for processing project funding arrangement documents through GoV. VEA, the proposed Vietnamese Expressway Authority, would not have any role in the implementation of this project during the construction stage; however, during the project’s operations and maintenance stage VEA will likely be responsible for regulatory oversight.

30. Under VEC, **PMU1 and PMU85** (the PMUs) will be the ‘Implementation Units’ for the Project, responsible, respectively, for the Bank funded section of the expressway (from Tam Ky to Quang Ngai) and for the JICA funded section (from Da Nang to Tam Ky). Specialized agencies of MoT, PMU1 and PMU85 have extensive experience working with and implementing Bank and JICA projects, respectively.

31. The **MoT’s Department for Planning and Investment (DPI)** will be the ‘Project Owner’ for Component 2(b) (Institutional Support Services to the Ministry of Transport). DPI will be responsible for approving, coordinating, and monitoring works plans and quality for all work undertaken under Component 2(b). PMU1 will be the ‘Implementation Agency’ with

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7 DQEP is one of six expressway projects under VEC’s management (see Paragraph 8 of this section and Annex 9 for details on VEC).
responsibility for the recruitment and contract administration for consultants engaged under this Component.

32. The City People’s Committee of Da Nang and the Provincial People’s Committees (PPCs) of Quang Nam, and Quang Ngai will be responsible for the implementation of all activities under the project RAPs in their respective provinces.

B. Results Monitoring and Evaluation

33. The main PDO indicators for the project, as well as the intermediate indicators for each component, are provided in Annex 1. VEC will be responsible for the regular collection of data required to monitor and evaluate outcomes and results. Regular progress reports will include physical progress and financial progress, as well as information on compliance with safeguards and institutional strengthening. The monitoring system will be augmented, tested, and revised as necessary, with the support of the Integrated Project Review and Monitoring Services. Annual independent audits of the special accounts will be carried out, and an Implementation Completion and Results Report (ICR) will be prepared within six months of the project’s closing date.

C. Sustainability

34. Physical Sustainability. The overall road design is considered physically sustainable as the proposed design standards are generally consistent with international standards. The expressway alignment is a reasonable compromise between the optimum technical alignment and one which minimizes social and environmental impacts. Interchange layouts are consistent with an optimized tolling arrangement with all traffic being brought to a single toll plaza. Maintenance of the completed facility will be undertaken by Vietnam Expressway Management Administration (VEMA), which has been established, but is not yet operating, under VEC as a specialist subsidiary to provide operation and maintenance services for expressways for which VEC is responsible. JICA funding for the project includes a package for maintenance facilities and equipment, which will be operated by VEMA under contract to VEC with funding from toll revenues. Under a separate project, JICA is also providing funding for technical assistance to MoT and VEC to establish national maintenance standards for the expressway network and to provide capacity building, including training, for VEMA.

35. Financial Sustainability. Sustainability of DQEP requires VEC to have the necessary financial resources for the expressway’s operation and maintenance and debt servicing. At this stage of its development VEC cannot generate sufficient revenues from this project or its other projects to cover the financial obligations of DQEP, let alone the obligations of its other expressway projects. Consequently, clear mechanisms have been developed to ensure that VEC has the capacity to meet the financial obligations of DQEP, and technical assistance will be provided through the project to help VEC better manage its financial situation with regard to all current and planned projects under its mandate. These are discussed in paragraphs 36-37 below.
V. Key Risks and Mitigation Measures

36. **Financial sustainability of DQEP due to initial low level of revenues.** The financial appraisal of the DQEP (next section) shows that the project revenues are insufficient to cover O&M costs, capital costs, and debt servicing. While this is normal, as explained above, there is a need to safeguard the project’s financial sustainability. This is being addressed in the design of the Project through the provision of a financial sustainability guarantee by the government that ensures that VEC receives the necessary funds, on an annual basis, to cover any deficit between the project’s financial receipts, principally from toll revenues, and project expenditures. Allowable expenditures will include all project-specific expenditures to operate and maintain the facility and to cover debt servicing requirements. Debt servicing requirements will be based on the on-lending terms on which VEC receives the project funds from the Ministry of Finance (MoF). These terms will in turn depend on the terms of lending by IDA/IBRD/JICA to MoF.

37. **Financial viability of VEC.** VEC does not have the financial capacity for the construction, operation, and management of the six expressways under its mandate without financial support from the government for possibly up to 10 years. This is not unexpected given the early stage of Vietnam’s expressway development, where a number of expressways are being developed at a large capital cost (primarily funded with debt), while revenues have not materialized and will start at a relatively low base. VEC currently has a high debt to equity ratio (81 percent) which limits its capacity to further borrow (see financial appraisal below). VEC’s debt to equity ratio would be expected to increase to over 95 percent with DQEP. To deal with VEC’s financial health question, the project design includes the provision for technical assistance to VEC to build capacity for financial planning and management, including debt planning, management, and strategies. This is a longer term process that requires an engagement over a number of years. While the proposed TA is expected to significantly strengthen VEC’s financial performance, further strengthening is envisioned through a continued engagement with MoT and VEC over a series of expressway projects. Financial projections of VEC as a whole carried out by the Bank utilizing data provided by VEC show that the corporation should be able to generate positive net cash surpluses beginning in 2018, meet all its debt obligations, and remain financially viable over the medium term (through 2020). The analysis provides clear assurance, as indeed experience indicates, that the financial support to VEC will not be open ended.

38. **VEC’s limited capacity to implement and supervise DQE.** At what is still the early stage of the expressway program in Vietnam, the limited capacity within VEC for expressway management and project implementation could be exacerbated by the fact that VEC is currently implementing six expressways. For DQEP VEC needs to manage project implementation so as to meet the requirements of both the Bank and JICA. This will require, for example, the application of different procurement and financial management guidelines depending on the source of funds for a particular contract. Common safeguards instruments, to Bank standards, will be used but both VEC and the project provinces have limited experience with Bank requirements. Extensive assistance will be provided by the Bank for capacity building and consulting services, aimed to support VEC.

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8 Key assumptions used in the financial model are explained in Annex 9.
39. Governance risks, including fraud and corruption at the sectoral and implementing agency level, should be carefully monitored. As Vietnam is transitioning towards more transparency and accountability in its public service delivery, and as public officials are not always familiar with Bank procedures, project implementation will require a special effort to conform to international standards. The approach adopted has been an incremental one taking into account experience of measures included in recent Bank funded projects in Vietnam. The project has adopted a Governance, Transparency, and Anti-Corruption Plan (GTAP) that includes enhanced process controls, monitoring and oversight, complaints mechanisms, and training for staff to increase awareness, transparency, and disclosure. The GTAP has already been presented and discussed with stakeholders, and a summary is provided in Annex 8. Civil works contracts have been packaged as large contracts that will be subject to the Bank’s highest level of scrutiny. The project includes technical assistance to VEC to establish an internal audit function and to build capacity at the MoT Inspectorate to handle complaints and undertake investigations.

VI. Appraisal Summary

A. Economic and Financial Analysis

40. The results of the economic analysis of the project show that the economic returns are robust under different assumptions of GDP growth and toll rates. In the Base case (defined as the Expected GDP growth scenario and a toll rate of VND800/km), the Economic Net Present Value (ENPV) is estimated at VND43 trillion (US$2.2 billion) and the Economic Internal Rate of Return (EIRR) at 25 percent.

41. The results also proved to be robust in the event of cost overruns or lower traffic realization. In the event of a 25 percent cost overrun and a reduction in user benefits of 25 percent, the ENPV is US$1.3 billion for the Base case and US$0.6 billion for the Low GDP growth case. At a toll rate of VND1,200/km, the ENPV for the Low GDP growth case is US$1.1 billion. Further details of the economic analysis are presented in Annex 7.

42. The financial case for the DQE is much less robust. The Financial Internal Rate of Return (FIRR) was calculated based on the project’s capital cost, traffic forecasts, and the level of toll rates. In the Base case, the FIRR is 2.6 percent. While this clearly indicates that the project is not commercially viable, the FIRR is in fact slightly higher than the Project’s weighted average cost of capital (2.5 percent) which is low given the project’s sources of funds.

43. The more critical problem is the relatively low net cash flows of the project for the first 15 years of operation. Aside from the Project’s low FIRR, its net cash flows indicate that there will be significant deficits over the first 15 years of operation. While toll revenues grow rapidly and the project generates healthy net cash flows in the later years of operation, the project will need financial support during this initial period. It was therefore necessary to design the financial sustainability guarantee as discussed in paragraph 35, above.

44. The Base case toll rate of VND800/km, or about US$4 cents, is consistent with average per-km rates throughout the developing world and the region. According to 2008
data from the multi-donor PPPIAF (Public-Private Infrastructure Advisory Facility), toll roads in India, China, Brazil, and Colombia charge average rates between US$2 cents/km and US$6 cents/km. A 2010 report by Forbes placed the average Chinese toll rate somewhat higher, at about US$7 cents/km, or 75 percent above DQE’s Base case toll rate. When accounting for differences in the relative cost of living among countries, DQE’s Base case toll appears to be even more in line with those of other countries. Measured in Purchasing Power Parity terms, which account for differences in the relative cost of living among countries, DQE’s Base case toll appears to be as “affordable” as average rates for Chinese toll roads. Specifically, the VND800/km rate is equivalent to PPP$11 cents at the current IMF implied PPP conversion rate, compared to a range of PPP$8 cents to PPP$12 cents corresponding to the lower bound (US$4.5 cents) and upper bound (US$7 cents) estimates of China’s per-km toll rates at market exchange rates.

45. Preliminary results of the analysis of the financial viability of VEC as a whole show that VEC’s financial capacity to carry out the DQEP is limited. VEC’s capital structure has rapidly become highly leveraged as it has relied much more heavily on debt than on equity to fund its capital investments. The debt to equity ratio (DER) increased from 35:65 at the end of 2007 to 81:19 by the end of 2009. As a result, VEC faces difficulty in accessing new debt, not least because it does not yet have the operating revenue needed to service the existing debt. VEC has sought to mitigate this concern by borrowing with a Government guarantee. However, even with the guarantee, VEC has not so far been able to secure the required amount of debt. Over the short and medium term, government capital contributions will be required to reduce the DER to support the additional borrowing that VEC needs to undertake (see Annex 9).

B. Technical

46. The feasibility study for the DQEP was prepared over a number of iterations, initially with financing from JICA. The Bank provided support to the MoT team that prepared the final feasibility study and reviewed the final design for the expressway. The expressway design was prepared using Vietnamese standards; these are generally compatible with international standards. Rates used for cost estimates for civil works are consistent with rates used in road construction work in the project area. VEC has confirmed that the rates used are also consistent with rates on recent contracts awarded for other donor funded expressway projects in Vietnam.

47. The main design issue was ensuring that the vertical alignment of the expressway was consistent with appropriate flood levels. Extensive hydrological modelling was undertaken to confirm design flood levels. The final design includes significant lengths of bridges, viaducts, and embankments to carry the expressway over four major rivers and the associated flood plains. The final horizontal alignment was developed after consideration of numerous options and is considered to be an acceptable compromise between safety for the expressway users, minimizing social impacts on project affected people, and minimizing impacts on the environment. The capacity of the main expressway carriageway and access ramps at interchanges is consistent with traffic projections. Comments made by the Bank team on MoT’s proposed design were addressed in the final feasibility design. The detailed design for the expressway is being prepared using funds from the Bank funded Road Network Improvement Project.
C. Financial Management

48. The Financial Management Assessment has concluded that the project meets the minimum Bank financial management requirements, as stipulated in BP/OP 10.02. In the Financial Management Specialist’s opinion, the project will maintain adequate financial management arrangement acceptable to the Bank and, as part of the overall arrangements that the Borrower has in place for implementing the operation, provide reasonable assurance that the proceeds of the loan and credit will be used for the purposes for which the loan and credit were granted. The main actions required are: (i) development of a Project FM Manual (as part of the Project Operation Manual) describing the details of the roles and responsibilities of parties concerned and specifying the FM procedures and regulations of the project; (ii) acceptable FM staffing should be available, to whom necessary training on Bank FM requirements and disbursement procedures will be provided; and (iii) technical assistance to VEC on building the capability of financial reporting in compliance with International Financial Reporting Standards (IFRSs), building capacity of the Internal Audit function, and providing support to implement the Financial Information System. Refer to Annex 3 for more details.

D. Procurement

49. A procurement capacity assessment carried out by the World Bank concluded that the VEC and PMU1 have, in general, adequate institutional and technical capacity and sufficient procurement staffing. The main risk is that VEC’s procurement staff has limited prior experience with World Bank procurement. Although PMU1 does have experience with Bank-funded projects, procurement capacity could be further strengthened. These risks are to be mitigated by incorporating support for procurement and contract management into relevant consultant service packages, as well as through targeted training and capacity building for VEC and PMU1 staff. The Procurement Plan for the project has been reviewed by the World Bank and will be updated at least annually to reflect the actual project implementation needs. A summary of the procurement capacity assessment and the procurement arrangements are provided in Annex 3. The complete procurement capacity assessment is available in the project files.

E. Social

50. The project is expected to have positive social outcomes. Through the construction of the expressway, the project will bring direct economic benefits to the region in general, and the population living in the vicinity of the project areas in particular.

51. Nevertheless, the project will have substantial resettlement impacts due to the required land acquisition associated with the construction of the expressway. 6,194 households will be affected within 38 communes in 12 Districts within the three project provinces. VEC has prepared Resettlement Action Plans (RAPs) in compliance with the requirements of the Bank’s OP 4.12 on Involuntary Resettlement, which provide for mitigation measures to address adverse impacts on affected households. A separate RAP has been prepared for each of Da Nang city and the project provinces of Quang Nam and Quang Ngai; these RAPs will be updated during the initial stages of project implementation following the completion of detailed engineering designs and demarcation of affected areas by local authorities and VEC.
52. **There is a need for capacity building for the PMUs and agencies at provincial and district levels with regards to RAP implementation.** Each PMU will recruit at least two social staff and have them in place prior to the commencement of implementation of the RAPs. Key staff of the PMUs and representatives from 12 districts and 3 provinces who will implement the RAPs will be provided training.

53. **No ethnic minorities have been identified living within the project area** and the World Bank’s O.P. 4.10 Indigenous Peoples is not triggered.

**F. Environment**

54. According to both Vietnamese Environmental Assessment laws and regulations and the World Bank’s Operational Policy 4.01 on Environmental Assessment, the proposed project is **Category A for environmental assessment purposes**, due to the scale and significance of potential environmental and social impacts and the sensitivity of the project areas. Therefore, a full environmental assessment report has been prepared.

55. **The Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports**, are compliant with Bank requirements. VEC will be responsible for ensuring that the EMP is implemented during the construction of the expressway. Mitigation measures have been designed for the adverse impacts that were identified. An environmental management system involving environmental management and supervision organizations, environmental monitoring, institutional strengthening, and personnel training will be established to ensure the environmental performance of the Project. Two rounds of public consultations were carried out in the early and final stages of EIA preparation. The public consultation involved directly affected inhabitants and local authorities and took the form of public meetings, questionnaires, and interviews.

56. **In compliance with EIA process requirements of Vietnamese government and the World Bank**, the completed draft EIA and EMP reports were disclosed in places along the expressway that were accessible to the public. In addition, the EIA, EMP, and RAPs have been made available at the World Bank’s InfoShop.

**G. Other Safeguards Policies Triggered**

57. **The Bank’s policy on Physical Cultural Resources (OP 4.11) will be triggered.** The construction of the expressway will result in direct impacts on a group of four Champa archaeological ruins in Duy Xuyen District. Therefore, the Bank’s Operational Policy 4.11 on Physical Cultural Heritage is triggered. Of these four sites, the alignment directly passes through three, namely Trien Tranh, Go Gach, and Go Loi, and will pass within 500 m of the fourth site, Chua Vua. During preparation, qualified specialists from the Archeological Institute carried out a preliminary study of these sites. They recommended an actions plan which includes further

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9 The Kingdom of Champa was a predominantly seafaring, trade-intensive civilization established in what today is Central and Southern Vietnam from the 7th century AD until around the 1830s. Champa ruins located in the region include temples, towers, and well networks, the most important of which are protected by UNESCO’s World Heritage Fund. Some 70 to 80 thousand Cham descendants still live in Vietnam and parts of Cambodia.
overall study of the area, test excavation, and salvage of artifacts at the affected sites, which has been included in the Environmental Management Plan (EMP). The costs for all these activities are included in the cost table of the EMP.

58. Construction works also require relocation of 135 graves. Affected households will be paid for arranging the relocation consistent with local culture and customs. It is also possible that during construction, additional archaeological/cultural sites may be discovered. To protect such unknown archaeological/cultural sites that may be exposed during the construction phase, the EMP also includes a Chance Find Procedure which is in accordance with the Vietnamese Law on Cultural Heritage and the Bank’s requirements as specified in OP 4.11.
### Annex 1: Results Framework and Monitoring

**VIETNAM: Da Nang-Quang Ngai Expressway Development Project**

#### Results Framework

**Project Development Objective (PDO):**
The project’s development objectives are to construct an expressway that will enhance efficiency and safety for road users travelling between Da Nang city and Quang Ngai province and build institutional capacity for expressway development in Vietnam’s Ministry of Transport.

<table>
<thead>
<tr>
<th>PDO Level Results Indicators*</th>
<th>Core</th>
<th>Unit of Measure</th>
<th>Baseline</th>
<th>Cumulative Target Values</th>
<th>Frequency</th>
<th>Data Source/Methodology</th>
<th>Responsibility for Data Collection</th>
<th>Description (indicator definition etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a. Travel time for 10-ton freight vehicles between Da Nang and Quang Ngai*</td>
<td>☐</td>
<td>Minutes</td>
<td>233</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Measured as the average time taken for sample representing all 4-wheel passenger vehicles</td>
</tr>
<tr>
<td>1b. Travel time for passenger vehicles between Da Nang and Quang Ngai</td>
<td>☐</td>
<td>Minutes</td>
<td>158</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Measured from sample representing all freight vehicles</td>
</tr>
<tr>
<td>2a. Coefficient of variation** of travel time for freight vehicles along the DQE corridor between Da Nang and Quang Ngai</td>
<td>☐</td>
<td>(unitless)</td>
<td>0.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Measured from sample representing all freight vehicles</td>
</tr>
<tr>
<td>2b. Coefficient of variation** of travel time for passenger vehicles along the DQE corridor between Da Nang and Quang Ngai</td>
<td>☐</td>
<td>(unitless)</td>
<td>0.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Measured from sample representing all 4-wheel passenger vehicles</td>
</tr>
<tr>
<td>3. Number of fatalities due to traffic accidents in the DQE corridor</td>
<td>☐</td>
<td>Number per year</td>
<td>185</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Senior staff appointed to the Vietnam Expressway Authority so that it becomes operational</td>
</tr>
<tr>
<td>4. Adoption of a strategic plan for expressway network management</td>
<td>☐</td>
<td>Yes (1)/ No (0)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
## INTERMEDIATE RESULTS

### Intermediate Result (Component 1: Construction of the Da Nang – Quang Ngai Expressway):

<table>
<thead>
<tr>
<th>PDO Level Results Indicators*</th>
<th>Core</th>
<th>Unit of Measure</th>
<th>Baseline</th>
<th>Cumulative Target Values</th>
<th>Frequency</th>
<th>Data Source/Methodology</th>
<th>Responsibility for Data Collection</th>
<th>Description (indicator definition etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads constructed (non-rural: expressways)**</td>
<td>☒</td>
<td>km</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>131.5</td>
</tr>
<tr>
<td>Roads constructed (non-rural: national)**</td>
<td>☒</td>
<td>km</td>
<td>4</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction work completed</td>
<td>(unitless)</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>25</td>
<td>55</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>Freight Tariff for a 10 ton truck between Da Nanag and Quang Ngai</td>
<td>☒</td>
<td>VND</td>
<td>1.74 million</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10% reduction</td>
</tr>
</tbody>
</table>

### Intermediate Result (Component 2: Institutional Strengthening):

| Establishment of a Vietnam Expressway Authority and Public Private Participation cell in MoT | ☐ | Yes (1)/ No (0) | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Once | MoT | MoT | Issue of Ministerial Decree |
| Adoption of a national strategy for tolling expressways | ☐ | Yes (1)/ No (0) | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Once | MoT | MoT | Issue of Ministerial Decree |
| Capacity building for MoT Inspectorate to handle complaints undertaken | ☐ | Yes (1)/ No (0) | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Yearly | MoT | MoT | Procedures for handling complaints and investigations of those complaints are developed and implemented |
| Capacity building for VEC to undertake internal audits and prepare accounts to IFRS standards | ☐ | Yes (1)/ No (0) | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Yearly | VEC | VEC | |

* Modified core indicator measuring the time by a 10 ton truck

** A measure of travel time uncertainty and reliability: measured as the standard deviation of a number of trips divided by the mean travel time
Annex 2: Detailed Project Description

A. Project Components

1. The project’s development objectives (PDO) are to construct an expressway that will enhance efficiency and safety for road users travelling between Da Nang city and Quang Ngai province and build institutional capacity for expressway development in Vietnam’s Ministry of Transport. The project components are described below.

Component 1: Da Nang – Quang Ngai Expressway

2. At the northern end the expressway will link into the existing Da Nang bypass. As such, the starting point for the expressway is defined by the end of the by-pass. At the southern end, the expressway finishes at a point west of Quang Ngai in an area between Quang Ngai and the foothills rising to the west. For this section of the expressway, and any future extension to the south, this is the only logical alignment.

3. The potential for future impacts on the project due to climate change were considered but it was concluded that no specific measures would be included in the proposed design. Within the range of projections for sea level rise this will not impact on the expressway, as the expressway will be constructed on an embankment. With respect to potential for flooding to worsen, there is no data available with sufficient accuracy to allow its use in engineering designs. Design flood levels used in the engineering design were determined on the basis of detailed hydrological analyses and are considered to be robust.

4. This component includes the construction of 131.5 km of 4-lane expressway on a new alignment from intersection with NH 14A at km 0.00, to the south of Da Nang, to the endpoint at km 131.5, in Quang Ngai Province. The main features of the expressway are as follows:

   a) **Main Carriageway.** The road has a total width of 26 m, which includes the median, 4 carriageways of 3.75 m each and 3 m wide shoulders. Design speed is 120 km/h. Due to frequent flooding the expressway will be constructed mostly on embankment with a minimum height of 0.5 m above the design flood level. A service road with a 3.5 m wide pavement will be constructed parallel to the expressway where required. For safety and security purposes the entire expressway will be fenced in. Traffic projections suggest that widening of the expressway from the initial 4 lanes (2 in each direction) will not be required within the economic life of the project (up to 2040). Given the above no provision has been made under the project for future widening.

   b) **Bridges and culverts.** Along the main expressway alignment, 128 bridges and 26 viaducts, amounting to a total length of about 11 km, will be constructed to cross rivers, waterways, local roads and flood prone areas. In addition, about 4 km of bridges will be constructed to cross the expressway at intersections and to carry local roads. A total of 107 box culverts will be constructed for drainage purposes as well as for use as underpasses for local roads for the local population. Four major bridges are required for river crossings: Ky Lam Bridge at km 17+700 with a total length of 962 m; Chiem Son
Bridge at km 20+200 with a total length of 410 m; Tra Bong Bridge at km 109+169 with total length of 452 m; and Tra Khuc Bridge at km 125+700 with a total length of 846 m.

c) **Tunnel.** A 540 m twin tube tunnel is proposed at km 22+656. Preliminary investigations indicate that the tunnel alignment goes through strata of heavily fractured rocks combined with sandstone and mudstone. Therefore, the tunnel will need reinforced concrete tube lining.

d) **Connection and Service roads.** Connections from intersections to the existing road network are included. Service roads will be constructed for operation and maintenance purposes parallel to the expressway. During construction, it is anticipated that the local road network will be damaged due to heavy loads from construction vehicles. The project includes provision for maintenance of these roads during construction and rehabilitation of the local road network at the end of the construction period.

e) **Intersections.** Nine intersections will be constructed to provide access to the expressway. Except for the first intersection in Da Nang, for which a clover-leaf layout is proposed, all others will be Trumpet style intersections. The trumpet layout is efficient for toll collection when only traffic leaving, or entering, the expressway must pass through a toll plaza.

5. **Connecting road from southern end of expressway to Quang Ngai (NH1A).** Construction of 8.02 km, Class III two-lane highway, comprising two lanes each 3.5 m wide and two shoulders 2.5m wide. This will include four bridges, with a total length of 609 m, crossing rivers, waterways, and the Thong Nhat railway.

6. **Additional Features.** The project will also include (i) traffic management and toll collection facilities designed as an integrated system that is consistent with the national standards adopted for expressways in Vietnam; and (ii) an EPC contract for the design, installation, and commissioning of an ITS (Intelligent Transport System). Operation, management and maintenance of the expressway will be through a control centre and a maintenance centre. The project includes the provision of equipment and facilities for maintenance of the expressway.

**Component 2: Project Implementation Support and Institutional Strengthening.** This component will comprise two sub-components as described below:

7. **Component 2(a): Project Implementation Support for VEC.** This sub-component will finance consulting services to VEC for: (i) construction supervision; (ii) integrated project review and monitoring; (iii) financial auditing; (iv) financial capacity building for VEC; and (v) training, workshops, and implementation of the project Governance, Transparency, and Anti-Corruption Plan. This sub-component also includes project management by VEC.

8. **Construction Supervision** services will provide assistance to VEC in the supervision of the construction of the expressway, and will be implemented through two contracts: one contract to cover the section from Da Nang to Tam Ky, procured under JICA procurement guidelines with funding from JICA, and the second contract to cover the Tam Ky – Quang Ngai section, procured under Bank procurement guidelines with funding from the Bank.
9. The Integrated Project Review and Monitoring Services will include (i) detailed design appraisal; (ii) traffic safety audit; (iii) technical review of contract packaging and procurement processes; (iv) quality control of civil works construction and supervision; (v) social safeguard external monitoring; (vi) environmental safeguard external monitoring; (vii) overall project monitoring and evaluation; (viii) expressway user information campaign; and (ix) HIV/AIDS prevention information, education, and communication (IEC) campaign.

10. The Project Financial Audit services will fund independent external auditors who will conduct annual project financial audits.

11. The Financial Capacity Building for VEC services will include assistance for: (i) capacity building for preparation of Accounting Standards to IFRS; (ii) assistance in the establishment of an Internal Audit Unit; (iii) financial planning and management; and (iv) debt planning, management and strategies.

Component 2(b): Institutional Strengthening for MoT. This sub-component will finance the activities described below.

12. Capacity building and Policy Support for (i) Expressway Planning and Network Management, and (ii) a PPP Cell. Ongoing technical assistance at MoT for the Institutional, Regulatory, and Legal Support for Expressway Development is supporting (i) the establishment of an entity for expressway planning and network management at MoT, and (ii) the establishment of PPP Cell in MoT for developing transport public private partnerships (PPPs), including expressways PPPs. This subcomponent will take forward the work completed under the above TA to assist MoT to bring the expressway management entity to an operational state and complete the expressway management institutional framework. It will assist MoT to operationalize the PPP cell and finance a PPP advisor to support the PPP Cell during the preparation of the first PPP transaction by providing on the job support and training.

13. Capacity building for MoT Inspectorate. MoT’s State Inspectorate has been designated as the department to lead the ministry’s governance and anticorruption efforts. The aim of this sub-component is to strengthen the Inspectorate’s capacity in carrying out its role at both the ministerial and project levels.

14. Training and Workshops. This subcomponent will focus on providing training and workshops relating to: (i) different aspects of expressway development and management, as required to meet the needs of officials from MoT, its attached training institutes and its modal administrations; and (ii) implementation of MoT’s anti-corruption Action Plan, as required to meet the needs of officials from various agencies under MoT, particularly the MoT Inspectorate.

B. Financing Sources for Project Activities

15. The allocation of project funds from each of the financing sources is set out in the Contract Financing Plan below.
## Contract Financing Plan

<table>
<thead>
<tr>
<th>Project Components</th>
<th>Project cost ($ million)</th>
<th>JICA Financing ($ million)</th>
<th>% of cost</th>
<th>IDA ($ million)</th>
<th>IBRD ($ million)</th>
<th>% of cost</th>
<th>GoV Financing ($ million)</th>
<th>% of cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component 1: Da Nang – Quang Ngai Expressway</strong></td>
<td>1,064.86</td>
<td>527.42</td>
<td>49.5%</td>
<td>85.80</td>
<td>346.81</td>
<td>40.6%</td>
<td>104.83</td>
<td>9.8%</td>
</tr>
<tr>
<td>1. Civil Works: Da Nang - Tam Ky</td>
<td>472.62</td>
<td></td>
<td>99.7%</td>
<td></td>
<td></td>
<td></td>
<td>1.36</td>
<td>0.3%</td>
</tr>
<tr>
<td>2. Civil Works: Tam Ky - Quang Ngai</td>
<td></td>
<td></td>
<td></td>
<td>85.80</td>
<td>346.81</td>
<td>100.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. ITS and O&amp;M Equipment</td>
<td>54.80</td>
<td></td>
<td>99.7%</td>
<td></td>
<td></td>
<td></td>
<td>0.16</td>
<td>0.3%</td>
</tr>
<tr>
<td>4. Land Acquisition and Resettlement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>103.31</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Component 2: Project Implementation Support and Institutional Strengthening</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Component 2(a): Project Implementation Support for VEC</strong></td>
<td>43.21</td>
<td>18.44</td>
<td>42.7%</td>
<td>21.26</td>
<td>-</td>
<td>49.2%</td>
<td>3.52</td>
<td>8.1%</td>
</tr>
<tr>
<td>1. Construction Supervision: Dan Nang - Tam Ky</td>
<td>18.44</td>
<td></td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Construction Supervision: Tam Ky - Quang Ngai</td>
<td></td>
<td></td>
<td></td>
<td>17.56</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Integrated Project Review and Monitoring Services</td>
<td></td>
<td></td>
<td></td>
<td>1.90</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Financial Audit</td>
<td></td>
<td></td>
<td></td>
<td>0.60</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Financial Capacity Building for VEC</td>
<td></td>
<td></td>
<td></td>
<td>0.70</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Training, Workshops, and Implementation of GTAP*</td>
<td></td>
<td></td>
<td></td>
<td>0.50</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Project Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.52</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Component 2(b): Institutional Strengthening for MoT</strong></td>
<td>5.30</td>
<td>-</td>
<td>0.0%</td>
<td>5.30</td>
<td>-</td>
<td>100.0%</td>
<td>-</td>
<td>0.0%</td>
</tr>
<tr>
<td>1. Capacity building for Expressway Planning and Network Management</td>
<td></td>
<td></td>
<td></td>
<td>1.50</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Capacity building and Policy Support for PPP Cell</td>
<td></td>
<td></td>
<td></td>
<td>2.50</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Capacity building for MOT Inspectorate</td>
<td></td>
<td></td>
<td></td>
<td>0.80</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Training and Workshops**</td>
<td></td>
<td></td>
<td></td>
<td>0.50</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Baseline Costs</strong></td>
<td>1,113.36</td>
<td>545.85</td>
<td>49.0%</td>
<td>112.36</td>
<td>346.81</td>
<td>41.2%</td>
<td>108.35</td>
<td>9.7%</td>
</tr>
</tbody>
</table>

* Includes for national and international training, rental of workshop and meeting facilities, preparation and printing of materials for training or disclosure, recruitment of national individual consultants to assist in training and workshops, travel expenses.

** Includes for national and international training, rental of workshop facilities, preparation and printing of materials for training, recruitment of national individual consultants to assist in training and workshops, travel expenses.
Annex 3: Implementation Arrangements

A. Project Administration Mechanisms

1. The **Ministry of Transport** will be the ‘Line Agency’ for the project and will have the overall responsibility for overseeing the implementation of the Project, reporting to GoV and fulfilling the requirements of IDA and IBRD. MoT is also responsible for the approval of the overall Feasibility Study/Construction Investment Report and overall procurement plan. MoT has delegated to the project owners the approval of bidding documents, bid evaluation, bid results, and contracts.

2. The **Vietnam Expressway Corporation** will be the ‘Project Owner’ for all components, except for Component 2(b) Institutional Support Services to the Ministry of Transport. VEC will be responsible for key approvals and for processing documents through GoV procedures to put in place funding arrangements for the project. VEC will: (i) approve annual work plans for the project and all project implementation documentation, including survey methodology/plans, detail engineering design, and cost estimates; (ii) be responsible for all procurement activities for civil works packages and recruitment for consulting services packages; (iii) approve prequalification documents, bidding documents for civil works, request for proposals for consulting services, and bid evaluation results for civil works packages; (iv) sign all contracts for works, supply of goods, and provision of consulting services for the project; (v) approve interim payment certificates and acceptance of completed works; (vi) sign withdrawal application documentation for all project funds; and (vii) issue periodic reports on the status of project implementation. VEC will directly supervise consulting services contracts for the Integrated Project Review and Monitoring Services, independent financial audit, and financial capacity building for VEC. In addition, VEC will be responsible for the recruitment and supervision of the detail design consulting services for the Project.

3. VEC will be responsible for ensuring that the requirements of the Bank’s safeguards policies are met and that all measures set out in the project Environmental Management Plans and Resettlement Action Plans (RAPs) are carried out. As part of supervision duties, the PMUs will be responsible for coordination with, and for providing specific implementation support to, the Provincial People’s Committees (PPCs) in carrying out project environmental and social safeguards, including land acquisition and resettlement activities.

4. VEC will delegate supervision of civil works to Project Management Unit No. 1 (PMU1) and Project Management Unit No. 85 (PMU85). PMU1 will be responsible for the Bank funded section of the expressway (from Tam Ky to Quang Ngai) and PMU85 for the JICA funded section (from Da Nang to Tam Ky). Overall project management, monitoring progress on implementation, and coordination of the Project’s activities at construction sites will be the responsibility of the PMUs. The PMUs will: (i) supervise and monitor the Project’s physical and financial progress; (ii) coordinate reviews for all project reports; and (iii) coordinate and liaise between Line Agencies, Project Owners, Implementation Agencies, and other Ministries. The PMUs will prepare and submit to VEC, as required for approval, studies, detailed designs, cost estimates, prequalification documents, bidding documents, and requests for proposals.
Their responsibilities include the coordination of the review of, and submittal to VEC, all technical and financial audit reports, social and environmental monitoring reports, project evaluation and monitoring reports, and other project related studies and reports.

5. The MoT’s **Department for Planning and Investment (DPI)** will be the ‘Project Owner’ for Component 2(b) Institutional Support Services to the Ministry of Transport. DPI will be responsible for approving, coordinating, and monitoring work plans and quality for all work undertaken under Component 2(b). DPI will delegate responsibility to PMU1 for the recruitment and contract administration for consultants engaged under this Component. Under the direction of DPI, PMU1 will prepare, evaluate, negotiate, and sign contracts for consulting services under Component 2(b). PMU1 will: (i) supervise and monitor the physical and financial progress of work; (ii) coordinate reviews for all project reports; and (iii) coordinate and liaise between Line Agencies, Project Owners, Implementation Agencies, and other Ministries.

6. The **City People’s Committee of Da Nang and the Provincial People’s Committees (PPCs) of Quang Nam, and Quang Ngai** will be responsible for the implementation of all activities under the project RAPs in their respective provinces. Their responsibilities will include the preparation of detailed RAPs that take into account detailed designs for the construction of the expressway and detailed surveys of assets to be acquired.

**B. Financial Management, Disbursements, and Procurement**

7. **Financial Management.** A Financial Management Assessment identified the following key risks associated with the project: (i) existing internal control procedures are not comprehensive and formally documented; (ii) the supervisory board may not have sufficient knowledge and skills of internal audit; and (iii) FM staff at VEC lack relevant experience. A “substantial” FM risk rating was assigned to the project at the appraisal stage. The main actions required are: (i) development of a Project FM Manual as a part of the Project Operation Manual describing the details of the roles and responsibilities of parties concerned and specifying the FM procedures and regulations of the project; (ii) acceptable FM staffing should be available to whom necessary training on Bank FM requirements and disbursement procedures will be provided; and (iii) technical assistance related to building capacity to conduct financial reporting in compliance with International Financial Reporting Standards (IFRSs), building capacity of the Internal Audit function, and supporting the implementation of the Financial Information System.

8. **Project staffing:** VEC and PMU1 will assign FM staff responsible for the project with acceptable accounting qualifications and experience. Training on Bank FM requirements and disbursement procedures should also be provided to relevant FM personnel at VEC and PMU1.

9. **Budgeting and counterpart funding arrangement:** A Financial Information System (FIS) which integrates a budgeting module to improve the linkage is being developed. Budgeting procedures, including roles and responsibilities of each position within VEC and PMU1, the budgeting process, and the link between procurement plan, physical plan, financial plan, and disbursement plan will be provided in the Project FM Manual.
10. **Accounting system**: For the Project, the accounting system (including accounting policies and procedures) follows the Accounting System for Investment Projects, based on Decision 214 of the Ministry of Finance (MoF). For the entity, the accounting system follows the Accounting System for entity, based on Decision 15 of MoF. Technical assistance will be provided to VEC to build their capability to prepare financial statements complying with International Financial Reporting Standards.

11. The computerized accounting system used by VEC is an application called “Effect” which can track expenditures in terms of sources of funds, category, component, project, contract, and contractor, which is adequate. Support may also be provided under the project to enable the link between the Effect accounting system and the Financial Information System which is being developed.

12. **Internal controls**: Internal control procedures will be established in the Project FM Manual.

13. **Internal audit**: Under the Project, technical assistance will be provided to VEC to build an internal audit function, which will eventually carry out internal audits for VEC and for the project.

14. **Financial reporting**: Quarterly Interim Financial Reports (IFRs): VEC and PMU1 will prepare quarterly Interim Financial Reports (IFRs). The project IFRs will cover all project activities, including counterpart funding. The IFRs will be based on the Aligned Monitoring Tool (AMT), which is regulated under the Decision 803 of the Ministry of Planning and Investment, and sent to the Bank within 45 days of the quarter end.

15. **Annual Project Financial Statements**: VEC and PMU1 will prepare annual financial statements covering the project components and activities for which they are responsible. The annual project financial statements are required to be audited and submitted to the Bank within 6 months of the end of each financial year.

16. **Annual entity financial statements**: Under this project the entity’s annual financial statements must be prepared in accordance with IFRS, audited, and submitted to the Bank within six months of the end of the financial year. Financial statements prepared on the basis of Vietnam Accounting Standards will be acceptable up until the year ending December 31, 2015. All the financial reports are to be published.

17. **External Auditing**: VEC will appoint independent auditors acceptable to the Bank. The project financial statements and the entity’s financial statements will be audited annually in accordance with international auditing standards and acceptable terms of reference. The auditors’ reports will be made available to the Bank within six months of the close of the fiscal year.
C. Disbursements

18. Two Designated Accounts for IDA will be opened at a commercial bank with terms and conditions satisfactory to IDA. The IDA Designated Accounts will have an authorized allocation as stated in the Disbursement Letter. One IDA Designated Account will be used by VEC for eligible activities under Components 1 and 2(a); the second will be used by PMU1 for eligible activities under Component 2(b). Funds from the IDA Credit and the IBRD loan will be allocated as follows:

a. All eligible expenses under Component 2 will be funded from the IDA credit. For Component 2(b) IDA on standard (Blend) terms will be applied first. The remaining IDA on standard (Blend) terms will be applied to Component 2(a) with the balance from IDA on Hard Term Lending terms. The remaining balance of the IDA Credit will be applied to works under Component 1. IBRD funds will be applied to eligible expenses under Component 1.

b. When an eligible expense can be funded from either the IDA credit or the IBRD loan then the expense will be funded from the IDA Credit until all funds have been disbursed. IDA on standard (Blend) terms will be disbursed before IDA on Hard Term Lending terms. Once IDA funds have been fully disbursed under a particular category then IBRD funds will be applied.

<table>
<thead>
<tr>
<th>Financing Allocation</th>
<th>Loan (US$ million)</th>
<th>Credit A (Std Blend)* (US$ million)</th>
<th>Credit B (Hard)* (US$ million)</th>
<th>Total (US$ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Goods, non-consulting services, works, consultants’ services (including for audits), Training, and Operating Costs for the Component 2(b)</td>
<td>-</td>
<td>5.30</td>
<td>-</td>
<td>5.30</td>
</tr>
<tr>
<td>(2) Goods, non-consulting services, works, consultants’ services (including for audits), Training, and Operating Costs for Components 1(a) and (b) and 2(a)</td>
<td>419.89</td>
<td>66.94</td>
<td>63.78</td>
<td>550.61</td>
</tr>
<tr>
<td>(3) Front-end fee on Loan</td>
<td>1.18</td>
<td></td>
<td></td>
<td>1.18</td>
</tr>
<tr>
<td>(4) (a) Interest during construction on the Loan</td>
<td>49.42</td>
<td></td>
<td></td>
<td>49.42</td>
</tr>
<tr>
<td>(b) Commitment and Service Charges during Construction on Credits A and B</td>
<td>0.85</td>
<td>0.82</td>
<td></td>
<td>1.67</td>
</tr>
<tr>
<td>(c) Interest during construction on Credit B</td>
<td></td>
<td>5.32</td>
<td></td>
<td>5.32</td>
</tr>
<tr>
<td>Total</td>
<td>470.49</td>
<td>73.09</td>
<td>69.92</td>
<td>613.50</td>
</tr>
</tbody>
</table>

* To be expressed in SDR in financing agreement.
D. Procurement

19. Procurement for the proposed project will be carried out in accordance with the World Bank’s “Guidelines: Procurement Under IBRD Loans and IDA Credits” dated May 2004, revised in October 2006 and May 2010; and “Guidelines: Selection and Employment of Consultants by World Bank Borrowers” dated May 2004 revised in October 2006, and May 2010, as well as the specific provisions stipulated in the Financing Agreement.

20. The Vietnam Expressway Corporation (VEC) will be responsible for procurement of contracts under Component 1, comprising about 5 ICB contracts, all subject to bidder pre-qualification and estimated to cost approximately US$75 to US$86 million each; and Component 2(a), which consists of a major consulting services contract of about US$17.5 million, and 3 other smaller consulting services contracts of about US$0.6 to US$1.9 million each. Component 2(b) will be carried out by PMU1, where procurement includes several consulting services contracts of about US$1.0 to US$2.5 million each.

21. **Procurement Issues:** The 2002 Country Procurement Assessment Report reviewed the country’s public procurement system and evaluated the system as being high risk. A project procurement capacity assessment carried out by the Bank identified several risks that could arise during project implementation. These relate to VEC staff’s level of experience, the timing and efficiency of processing, and the potential for fraud and corruption. Although VEC and PMU1 have good institutional and technical capacity and adequate procurement staffing, VEC and its procurement staff have little prior experience with World Bank procurement, and only limited experience in management of large contracts using international terms and conditions. While PMU1 has experience with Bank funded projects, limited procurement capacity remains a risk and additional support will be necessary.

22. In view of the above, and the Vietnam transport sector’s past performance under similar projects, the procurement risk for this project is rated “High.” Procurement risk mitigation measures include incorporating procurement support and contract management activities into relevant consultant service packages, as well as through targeted training and capacity building of VEC and PMU1 staff. After these measures are implemented, the residual risk will lessen to “Substantial.”

23. **Procurement Plan:** The Borrower has prepared an acceptable Procurement Plan, which will be updated annually or as needed throughout the duration of the project (see Summarized Procurement Plan table below). Advanced contracting will be applied to consulting services contracts.

24. **Prior-review thresholds and Procurement supervision:** Prior-review thresholds of Bank-financed contracts will be:

   (i) each contract for works estimated to cost US$500,000 equivalent or more;
   (ii) each contract for goods estimated to cost US$150,000 equivalent or more;
   (iii) each contract with consulting firms estimated to cost US$100,000 equivalent or more;
(iv) all contracts with individual consultants for long-term technical assistance, advisory services, and procurement support;
(v) all contracts procured and awarded under Single Source Selection procedures; and
(vi) terms-of-reference of all consulting services, regardless of value.

25. Contracts below these prior review thresholds will be subject to Bank post review. Such post-reviews will cover at least 20% of the post-review contracts: The Bank will carry out procurement supervision on a frequency of every twelve months.

**Summarized Procurement Plan**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Contract Description</th>
<th>Est. Costs (US$ million equiv.)</th>
<th>Procurement Method</th>
<th>Contract Implementation Completion mm/yy</th>
<th>Agency Responsible for Procurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>GOODS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>None</td>
<td></td>
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</tr>
<tr>
<td>B</td>
<td>CIVIL WORKS</td>
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<tr>
<td>Component 1: Da Nang – Quang Ngai Expressway: Tam Ky - Quang Ngai</td>
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</tr>
<tr>
<td>CW1</td>
<td>Package A1 (Km65–Km81+500)</td>
<td>82.15</td>
<td>ICB</td>
<td>1/2015</td>
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<tr>
<td>CW2</td>
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<tr>
<td>CW3</td>
<td>Package A3 (Km100 – Km111)</td>
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<tr>
<td>CW4</td>
<td>Package A4 (Km 111 – Km 125)</td>
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<tr>
<td>CW5</td>
<td>Package A5 (Km 125 – Km 131+500) and 8.02 Km section (Km131+500 – Km139+520) connecting to NH 1A)</td>
<td>84.77</td>
<td>ICB</td>
<td>3/2015</td>
<td>VEC</td>
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<tr>
<td>C</td>
<td>CONSULTANTS</td>
<td></td>
<td></td>
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<tr>
<td>Component 2: Project Implementation Support and Institutional Strengthening</td>
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<tr>
<td>Component 2(a): Project Implementation Support for VEC</td>
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<tr>
<td>CSV1</td>
<td>Supervision Consulting services</td>
<td>17.56</td>
<td>QCBS</td>
<td>1/2017</td>
<td>VEC</td>
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<tr>
<td>CSV2</td>
<td>Integrated Project Performance Review and Monitoring Services</td>
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<td>VEC</td>
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<tr>
<td>CSV3</td>
<td>Financial Audit consultant</td>
<td>0.60</td>
<td>QCBS</td>
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<tr>
<td>CSV4</td>
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<td>Component 2(b): Institutional Strengthening for MoT</td>
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<tr>
<td>CSM1</td>
<td>Capacity building for Expressway Planning and Network Management</td>
<td>1.50</td>
<td>QCBS</td>
<td>6/2014</td>
<td>PMU1</td>
</tr>
<tr>
<td>CSM2</td>
<td>Capacity building and Policy Support for PPP Cell</td>
<td>2.50</td>
<td>QCBS</td>
<td>6/2015</td>
<td>PMU1</td>
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<tr>
<td>CSM3</td>
<td>Capacity building for MOT Inspectorate</td>
<td>0.80</td>
<td>QCBS</td>
<td>6/2013</td>
<td>PMU1</td>
</tr>
</tbody>
</table>

10 The cost of civil work packages and Consulting Services exclude other costs, contingencies, and VAT. The contract value will be estimated accurately in the Detailed Design implementation.
11 All civil works ICB packages are subject to bidder prequalification.
E. Governance

26. A Project specific website will be established and updated regularly after Loan Effectiveness. Electronic copies will be uploaded of available Resettlement Action Plans, Environmental Implementation Assessment, Project Operations Manual, Governance Transparency Action Plan, approved annual procurement plans, bidding documents and bid evaluation reports, signed contracts and progress reports, and technical and financial audits. Information related to compensation rates, including establishment of the Resettlement Compensation Board, decisions related to land acquisition, and implementation progress and external monitoring reports will also be available on-line and at the project office.

27. In accordance with Vietnamese laws (Procurement Law regulations 72 and 73; and Decree 85/2009/ND-CP terms 60, 61, and 62), a complaint handling mechanism will be established with multiple channels (telephone, fax numbers, email address and mail box), and VEC will be responsible for maintaining a project complaint log-book, which documents the follow up status of each complaint and records the outcomes of decisions related to such complaints. This mechanism will be incorporated into all bidding documents. All complaints shall be addressed by VEC within 7 days of receipt, with copy to the Bank and related governmental agencies within two days of the result.

28. In accordance with Government Decision 80/2005/QD-TTG (dated 18 April, 2005), Community Supervision Boards will be established by local Fatherland Fronts representing project affected communities. These boards will provide civil society oversight in the supervision of project implementation. The project will train and instruct members of Community Supervision Boards on both World Bank and government procurement guidelines.

29. The resettlement plan proposes establishing Grievance Redress Committees at the provincial, district and commune/ward levels. The members of these committees will include, inter alia, members chosen from mass organizations, civil society (including the Lawyers Association) and DPs representatives.

F. Social and Environment (including safeguards)

1. Social

30. Social Safeguards documents prepared for the project include: A Resettlement Plan for each of Da Nang city and the provinces of Quang Nam and Quang Ngai; and Social Impact Assessment.

31. Resettlement Plan. The project will bring direct economic benefits to the region in general, and the population living in the vicinity of the project areas in particular. However, the project will also cause adverse social impacts on households due to the acquisition of private assets and loss of businesses and employment. VEC has prepared Resettlement Action Plans (RAPs) in compliance with the requirements of the Bank’s OP 4.12 on Involuntary Resettlement. The RAPs were prepared based on the proposed alignment of the expressway at feasibility stage, and will be updated during the initial stages of project implementation, following the completion
of detailed engineering designs and demarcation of affected areas. The final updated RAPs will be submitted to the Bank.

32. **Resettlement Policy and Entitlements.** The RAPs are developed based on the laws of the GoV, regulations of the respective provinces, and the World Bank Policy on Involuntary Resettlement (OP 4.12- December 2001). A comparative analysis of the Vietnamese policies and regulations with the provisions of the O.P. 4.12 is included in the RAPs which take into account the differences between the Bank’s policy requirements with those of the Government of Vietnam. As provided for in Decree No. 131/2006/ND-CP, in case of discrepancies between the National laws, regulations, and procedures and Bank policies and requirements, Bank policies and requirements will prevail.

33. Specific mitigation measures include:

(i) Consulting DPs about feasible measures for compensation and resettlement;
(ii) Providing DPs with options for resettlement and recovery;
(iii) Offering DPs opportunities to participate in and choose options for relocation;
(iv) Compensating at full replacement costs for losses attributable to the project;
(v) Equipping the resettlement locations with basic infrastructure and services at least equivalent to those existing at DPs’ previous residential areas;
(vi) Providing DPs with allowances, support, vocational training and income assistance to facilitate their relocation and livelihood restoration;
(vii) Identifying vulnerable groups and providing them with special assistance; and
(viii) Setting up an institutional structure and organization to ensure the compensation and resettlement process is carried out efficiently.

34. The provisions of the RAPs are calibrated to align with the nature of the project and to incorporate good practice examples based on the lessons learned and feedback from resettlement implementation in several ongoing projects in Vietnam. Specific provisions include:

- Both the registered and non-registered affected businesses are provided compensation equivalent to average monthly income for 3 months;
- Independent **Grievance Redress Committees** (GRCs) at the Da Nang city PC, provincial districts and commune/ward level would be established with committee members, in addition to the PRC/DRC/CRC and VEC, and civil society, including Lawyers Union/associations, NGOs, and representatives of affected households. In parallel, an informal community level conflict resolution mechanism would be established to resolve grievances through an informal consultative process;
- VEC will appoint a professional appraiser at the initial stages of the resettlement implementation to conduct a **Replacement Cost Survey** (RCS) to determine prevalent market prices for different types of assets in each province for comparison with the compensation rates established by the provinces to ensure that compensation for all types of affected assets is paid at replacement cost; and
- VEC will contract an experienced Independent Monitoring Agency (IMA) for external monitoring of resettlement implementation. The IMA will submit its bi-annual report to the PMU with a copy to the Bank. The IMA will also conduct an evaluation of resettlement implementation 6-12 months after the completion of all resettlement activities to assess whether or not the severely affected DPs have been able to restore their livelihood and incomes at pre-project levels. If this evaluation indicates that severely DPs have not recovered their lives according to the Project objectives, additional assistance would be provided to the DPs to achieve the project objectives.

35. **Project Impacts.** An analysis of census and inventory data collected during RAP preparation indicated that more than 632 households (HH) are likely to be affected by the project and may need to be physically relocated. Additionally, about 4,200 households (HH), mostly located in Quang Nam and Quang Ngai provinces would be affected by a loss of productive land to the extent that their remaining land would no longer be economically viable. In addition over 60 HHs would have their business affected. A preliminary assessment indicated that about 959 ha of land will be acquired for the project development. Of this, about 434 ha is agriculture land, 73 ha is residential land, 184 ha is cultivated forest/wood land and 269 ha are used for other purposes.

36. **Relocation Requirements.** All three provinces traversed by the proposed expressway have very limited public agricultural land. Therefore, it would not be feasible to provide suitable replacement agricultural land to the DPs severely affected by loss of agricultural land. The DPs left with unviable remaining land, or no land, would be provided with a plot of residential land at the resettlement sites in addition to compensation for lost land at replacement cost. Additionally, all the DPs affected by loss of productive land, irrespective of the degree of loss, would be entitled to income rehabilitation assistance.

37. **Resettlement Cost.** The estimated resettlement cost for compensation, allowances, and other assistance, resettlement site development, external monitoring, RCS, and resettlement implementation management for the three provinces is estimated at VND2,014,475 million, or about US$103.3 million.

38. **Public Consultation and Participation.** Extensive consultations were carried out with the communities that will be affected by the proposed expressway project during the preparation of RAPs. Information on the project’s objectives and likely impacts, and salient features of the compensation and resettlement policy were disseminated. A similar participatory approach will be pursued during project implementation to ensure that the key stakeholders are fully aware of the compensation policy provisions and their entitlements. A Public Information Booklet (PIB) containing key information about the project, entitlements to compensation and other assistance, and grievance redress mechanisms will be distributed to all DPs. Further consultations with local civil society organizations will be held during RAP implementation, especially in planning and designing rehabilitation assistance strategies for severely affected households.

39. **Disclosure.** VEC has disclosed the final RAPs in each of the provinces. The Vietnamese version of the entitlement matrix from each of the RAPs will be provided to the DPs and other key stakeholders. Vietnamese versions of the RAPs have also been made available at the district
and commune level, as well as at DONRE and DOF offices of the three provinces. The RAPs have been disclosed at the Bank’s Infoshop and Hanoi office.

2. Environmental

40. According to the Bank’s Operational Policy 4.01 Environmental Assessment, the proposed project is Category A for environmental assessment purposes, due to the scale and significance of potential environmental and social impacts and the sensitivity of the project areas. A full Environmental Assessment (EA) was carried out following the Vietnamese environmental assessment laws/regulations as well as the World Bank safeguards policies. Of the ten World Bank safeguards policies, the following are triggered: (a) Environmental Assessment; (b) Involuntary Resettlement; and (c) Physical Cultural Resources.

41. The EMP includes: (i) environmental specifications for contractors, including performance standards for each construction activity; (ii) a Cultural Resources Management plan, including chance find procedures; (iii) support to strengthen the management of the Phu Ninh forest reserve; (iv) terms of reference for environmental supervision of construction; (v) monitoring framework; and (vi) reporting requirements.

42. Monitoring and audit will be carried out by an Independent Environmental Monitoring Consultant (EMC) appointed by VEC, and will be part of an Integrated Project Performance Review and Monitoring Services package that will also include design review and quality control of technical, social, procurement, and environmental issues. The selected Environmental Monitoring Consultant will conduct the monitoring and furnish reports of the monitoring results to PMU on a quarterly basis during the construction phase and twice a year during the operation phase.

43. The EIA and EMP reports cover the DQ Expressway roadway, service areas, tolls, and all construction related infrastructure such as access roads, workers’ camps, borrow pits, and disposal sites. All EIAs and EMP comply with Bank policy guidelines regarding environmental and social issues. All above reports have been made available in Vietnam and in the Bank’s Public Information Center (InfoShop) in Washington.

44. Comprehensive environmental monitoring programs have been designed for both the construction and operation phases. Monitoring includes water quality, noise, hydrology, and construction dust, as well as soil erosion and vegetation restoration. The PMU will be in charge of environmental monitoring during the construction and operation phases. The EMP includes a comprehensive environmental compliance monitoring framework based on environmental supervision during construction and a system of penalties for non-compliance. During construction, environmental supervision shall be carried out by a qualified supervision unit reporting to the PMU. Each Supervision Engineer company will be required by contract to assign at least one Environmental Supervision Engineer.

45. All personnel of the Project Office Environment Protection Section and construction workers will receive environmental training at least once before commencement of construction.
Key environmental administrative and monitoring personnel will also go through technical training provided by the project.

G. Monitoring and Evaluation

46. VEC and the PMUs will collect the data required for monitoring and evaluation as part of their day-to-day work routines. Indicators pertaining to the Component 1, the Da Nang – Quang Ngai Expressway, and Component 2(a), Project Implementation Support for VEC, will be reviewed by VEC. Indicators for Component 2(b), Institutional Strengthening for MoT, will be reviewed by DPI and MoT as the bodies responsible for transport policies and the direct beneficiaries of this component. The results will be assessed by the respective authorities and discussed with relevant stakeholders. When necessary, corrective action will be taken.

47. Implementation will be monitored through the Quarterly Interim Financial Reports (IFR), and biannual supervision reports prepared by the implementing agencies and brought together in a consolidated progress report by VEC. Periodic progress reports will be prepared by all technical assistance consultants carrying out their respective assignments. The reports will follow the format of the Aligned Monitoring Tool (AMT) which has been developed by MPI in collaboration with the World Bank, JBIC, ADB, KfW and AfD, under the Vietnam-Australia Monitoring and Evaluation Strengthening Project (VAMESP) to provide a simplified, harmonized and aligned monitoring format. AMT has been institutionalized in the last quarter of 2006. These reports once reviewed and approved by the line agencies/project owners as appropriate, will be submitted to the Bank.

48. The Bank will conduct Supervision Missions every six months, and will conduct two enhanced supervision missions after 18 and 42 months of implementation. The Bank will work closely with VEC and DPI to review the performance of technical assistance consultants.

H. Role of Partners

49. In addition to Bank funds, the project will be co-financed through a loan from JICA. The co-financing will be on a parallel basis and funds will not be co-mingled, i.e. no contracts will be jointly financed. A single set of safeguards instruments, complying with Bank requirements, will be applied to all components of the project, regardless of the source of funds. Procurement for contracts funded by JICA will be procured based on JICA procurement guidelines.
Annex 4: Operational Risk Assessment Framework (ORAF)

Project Development Objective(s)

The project’s development objectives are to construct an expressway that will enhance efficiency and safety for road users travelling between Da Nang city and Quang Ngai province and build institutional capacity for expressway development in Vietnam’s Ministry of Transport.

PDO Level Results

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a.</td>
<td>Travel time for 10 ton freight vehicles between Da Nang and Quang Ngai.</td>
</tr>
<tr>
<td>1b.</td>
<td>Travel time for passenger vehicles between Da Nang and Quang Ngai.</td>
</tr>
<tr>
<td>2a.</td>
<td>Coefficient of variation of travel time for freight vehicles along the DQEP corridor between Da Nang and Quang Ngai.</td>
</tr>
<tr>
<td>2b.</td>
<td>Coefficient of variation of travel time for passenger vehicles along the DQEP corridor between Da Nang and Quang Ngai.</td>
</tr>
<tr>
<td>3.</td>
<td>Number of fatalities due to traffic accidents in the DQEP corridor.</td>
</tr>
<tr>
<td>4.</td>
<td>Adoption of a strategic plan for expressway network management.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Risk Rating</th>
<th>Risk Description</th>
<th>Proposed Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Stakeholder Risks</td>
<td>Low</td>
<td>• Opposition to project on environmental grounds could materialize. Potential concerns include impacts of climate change on sustainability of the constructed asset and greenhouse gas emissions arising from users.</td>
<td>▪ Promote the project’s expected and actual environmental impact via electronic and other media. Specifically, the construction of the expressway is expected to reduce projected congestion levels and fuel consumption on National Highway 1. In addition, the project is more resilient to flooding risk than National Highway 1.</td>
</tr>
<tr>
<td>Implementing Agency Risks</td>
<td>Medium-I</td>
<td>• VEC may not remain financially viable over the medium- to long-term.</td>
<td>▪ The project’s TA component for VEC will address the agency’s financial management and debt planning capacity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• VEC’s limited capacity to comply with Bank Financial Management and Procurement policies and requirements may result in delays.</td>
<td>▪ TA support will be provided to VEC in order to address capacity limitations with regards to fiduciary compliance.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The distinct roles and responsibilities of VEC, PMU1, and PMU/85 may remain partially undefined going into project implementation.</td>
<td>▪ Roles of VEC and the PMUs during implementation will be defined on a contractual basis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Delivery quality may suffer due to (a) the co-financing arrangement with JICA and (b) corruption allegations that have surfaced in the past in the transport sector in Vietnam.</td>
<td>▪ The project has adopted, and will implement, a Governance, Transparency, and Anti-Corruption Plan (GTAP); it will be supported by Integrated Project Review and Monitoring Services and will provide staff training. The MoT State Inspectorate will coordinate and monitor the GTAP implementation.</td>
</tr>
<tr>
<td>Project Risks</td>
<td>Low</td>
<td>• Project may need to carry out additional work due to unexpected changes in scope and/or unforeseen ground conditions.</td>
<td>▪ Quality of survey and design will be strengthened by providing close supervision of survey and engineering design work.</td>
</tr>
</tbody>
</table>

33
<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Risk Rating</th>
<th>Risk Description</th>
<th>Proposed Mitigation Measures</th>
</tr>
</thead>
</table>
| Social and Environmental | Medium-I   | • Project safeguards documents (including RAPs and EMP) may not be implemented to Bank standards due to VEC- and provincial-level capacity limitations. This poses a reputational risk to the Bank.  
• JICA safeguard standards are perceived as lower than the Bank’s.  
• VEC has limited authority to require provinces to implement agreed project safeguards plans, particularly with regards to resettlements. This could lead to gaps in implementation.  
• Disbursement of counterpart funds (which primarily address land acquisition and resettlement) may suffer delays if there are gaps in inter-agency coordination or procedural requirements become protracted. | • The Bank, JICA, and VEC have agreed that a single set of safeguards documents consistent with Bank polices will be applied apply to the entire project.  
• A matrix of differences between Bank resettlement polices and Government policies has been approved by the PM to the effect that Bank requirements will apply.  
• Detailed Design Consultant will provide assistance to provinces to prepare full Resettlement Plans that include full Detailed Measurement Survey results. These shall be submitted prior to award of civil works contracts.  
• During preparation, the Bank mission met with each of the three project provinces to sensitize them to the need to implement agreed RAPs.  
• Project includes support and oversight to mitigate implementation risks at the provincial level.  
• Task Team will coordinate closely with all agencies to ensure that budgets are defined and that requests for counterpart funds are submitted in a timely manner. |
| Program and Donor    | Medium-I   | • The Bank will have limited oversight of the implementation of the JICA funded section of the project, which could lead to uneven implementation quality between the Bank and JICA sections. | • The Bank and JICA have agreed with MoT, VEC, PMU1, and PMU85 on the roles and responsibilities and coordination mechanisms.  
• The Integrated Project Review and Monitoring Services will conduct general oversight and provide a mechanism to assess coordination of progress on both the Bank- and JICA-funded sections.  
• Proactive monitoring efforts at the task team level will be put in place, including (i) regular interaction between the Bank and JICA task teams, (ii) Bank and JICA teams participating in one another’s mission concluding wrap-up sessions and sharing Aide Memoires and key project documents, and (iii) an emphasis on open and proactive discussion and resolution of issues as they arise. |
<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Risk Rating</th>
<th>Risk Description</th>
<th>Proposed Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery Quality</td>
<td>Medium-I</td>
<td>DQEP will not remain financially viable if adequate funds are not available for the operation and maintenance of the expressway.</td>
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<td>VEC’s project implementation capacity, given its responsibility to implement 6 expressways, may be overstretched.</td>
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<td></td>
<td>M&amp;E may not monitor progress towards attaining the PDOs.</td>
<td>The project design includes the provision of a sustainability guarantee from the GoV that will ensure that VEC is provided with funds, on an annual basis, to cover any deficit, on a cash basis, between project revenues, principally from tolls, and project expenses, including debt servicing requirements.</td>
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<td>The project’s VEC capacity building component [2(a)] includes consulting services specifically designed to both make VEC’s work burden more manageable and to strengthen the agency’s ability to plan, fund, implement, and operate expressway projects (including contract management) more effectively. These consulting services include:</td>
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<td>- Construction supervision services</td>
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<td></td>
<td>- Integrated Project Review and Monitoring Services</td>
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<td></td>
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<td>- Project Financial Audit services</td>
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<td></td>
<td>- Capacity building services on financial reporting, internal auditing, financial planning and management, and debt planning, management, and strategy.</td>
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<td></td>
<td>VEC has engaged additional capacity by contracting services from PMU1 and PMU85 to assist them in supervision of construction works.</td>
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<tr>
<td></td>
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<td></td>
<td>Consulting services financed by the project include capacity building for VEC in project and PDO M&amp;E.</td>
</tr>
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<table>
<thead>
<tr>
<th>Overall Risk Rating at Preparation</th>
<th>Overall Risk Rating During Implementation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-I</td>
<td>M-I</td>
<td>M-I: Low Likelihood – High Impact.</td>
</tr>
</tbody>
</table>

M-I: Low Likelihood – High Impact.
Annex 5: Implementation Support Plan

A. Implementation Strategy

1. The Bank’s Implementation Support (IS) strategy lays out the activities that the Bank team will implement, as well as the project design and monitoring features that it will adopt, in order to mitigate the most significant risks identified in the Operational Risk Assessment Framework (ORAF). Such risks relate to: (i) VEC’s and the Project’s financial sustainability; (ii) VEC’s lack of prior experience implementing Bank processes and procedures, including those that apply to procurement, financial management, and social and environmental safeguards; and (iii) the relatively fragile governance and anti-corruption environment in Vietnam’s transport sector. The IS strategy relies on project design features and a technical assistance program as enabling tools for risk mitigation. The IS for mitigating the three key risks is addressed below.

2. VEC’s and the Project’s financial sustainability. The Bank will follow a two-prong strategy to deal with VEC’s current weak financial position. The first ensures the project’s financial sustainability; the second addresses weakness in financial management at VEC. To ensure the project’s financial sustainability, the project design has established a well defined (and transparently disclosed) financing mechanism by GoV to support VEC over the medium term. This mechanism is a firm government commitment to cover any financial deficits relating to the operations, maintenance, and debt obligations of DQE. To meet the second objective, the Project includes a technical assistance package to help build VEC’s capacity for financial management, including debt management. As part of this TA, the team will build on the detailed financial analysis that it has carried out and will continue the dialogue that started over the past year with the various stakeholders involved (MoT, MoF, VEC) in order to ensure that solvency risk at VEC is reasonably assessed.

3. VEC’s capacity to implement Bank policies and procedures. Given’s VEC’s lack of exposure to Bank procurement, financial management, and social and environmental safeguards, which could create implementation delays or undermine the achievement of the PDO, the Bank will undertake standard mitigation actions as well as implement enhanced mitigation measures. Standard mitigation actions include: (i) strengthening the capacity of VEC staff in Bank procurement, financial management, and safeguards procedures through training workshops and just-in-time support; (ii) the development of a detailed Project Operations Manual addressing all major policies and procedures with regards to fiduciary and social protection issues; and (iii) periodic project monitoring and supervision. The enhanced measures include: (i) retaining an international procurement specialist who, as a member of the detail design consulting services team, will provide support during the procurement of contracts; (ii) providing support to VEC on contract administration through the Construction Supervision consulting team; and (iii) conducting independent oversight of operations through the Integrated Project Review and Monitoring Services, which will, inter alia, monitor social and environmental safeguards, review contract packaging and procurement procedures, and provide guidance and feedback to VEC on strengthening its supervision performance.
4. **Fragile governance and anticorruption environment.** Given the weaknesses in control and transparency in the road sector, the team has adopted several measures to strengthen the project’s governance and anticorruption (GAC) dimensions. First, the project design finances technical assistance to develop the capacity of MoT’s Inspectorate Department to deliver on its mandate as MoT’s GAC arm. Specifically, the technical assistance will target the Inspectorate’s capacity to monitor and investigate allegations of fraud and corruption and to coordinate the implementation of the project’s Governance, Transparency, and Anti-Corruption Plan (GTAP), which is the second GAC risk mitigation measure. The GTAP is a multi-module plan (see Annex 8) that has been fully endorsed by MoT at both the sectoral and project levels. Among its salient elements is the establishment of grievance redress and complaint handling mechanisms. The third measure involves technical assistance at VEC focused on enabling the agency to (i) produce financial statements that are compliant with international financial reporting standards, and (ii) carry out internal audits (and report and follow-up on findings). The Integrated Project Review and Monitoring Services (mentioned under “VEC’s capacity to implement Bank procedures” above) will contribute to mitigating the governance risks.

**B. Implementation Support Staffing Resource Plan (ISP)**

5. The Bank’s implementation strategy is supported by a series of technical reviews and capacity building activities, which are projected to require approximately 60 staff-weeks in resources. In addition to periodic reviews by the task team and inputs (monitoring, training) from procurement, financial management, and safeguards specialists, the ISP calls for the critical feedback of highway and infrastructure engineers with regards to engineering designs, bidding documents, and construction supervision.

6. In addition to these Bank resources, the TA packages will entail the engagement of several resources. These include, among others: (i) Finance specialist to address VEC’s and the Project’s financial sustainability, (ii) the Integrated Project Review and Monitoring Services, (iii) advisors to the MoT Inspectorate, and (iv) procurement specialist to guide VEC during contract procurement.

<table>
<thead>
<tr>
<th>Time</th>
<th>Focus</th>
<th>Skills Needed</th>
<th>Resource Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 18 months</td>
<td>Team Leadership</td>
<td>Expressway Design Specialist</td>
<td>6 SW</td>
</tr>
<tr>
<td></td>
<td>Technical Review of Detailed Design Reports and bidding documents for</td>
<td>Highway Engineer</td>
<td>5 SW</td>
</tr>
<tr>
<td></td>
<td>Expressway</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Financial Management (FM) training</td>
<td>FM Specialist</td>
<td>2 SW</td>
</tr>
<tr>
<td></td>
<td>Procurement Review of Bidding Documents and Training (as needed)</td>
<td>Procurement Specialist</td>
<td>2 - 4 SW</td>
</tr>
<tr>
<td></td>
<td>Land Acquisition and Resettlement Compensation</td>
<td>Resettlement Specialist</td>
<td>2 - 4 SW</td>
</tr>
<tr>
<td></td>
<td>Environmental Training</td>
<td>Environmental Specialist</td>
<td>1 - 2 SW</td>
</tr>
<tr>
<td>Time</td>
<td>Focus</td>
<td>Skills Needed</td>
<td>Resource Estimate</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------</td>
<td>------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>18-48 months</td>
<td>Team Leadership</td>
<td>Expressway Project Management Specialist</td>
<td>6 SW</td>
</tr>
<tr>
<td></td>
<td>Technical Review of Procurement Support for Expressway component, oversight of construction supervision</td>
<td>Highway/Bridge Engineers</td>
<td>6 SW</td>
</tr>
<tr>
<td></td>
<td>Land Acquisition and Resettlement Compensation</td>
<td>Resettlement Specialist</td>
<td>2 - 4 SW</td>
</tr>
<tr>
<td></td>
<td>Environmental Monitoring</td>
<td>Environmental Specialist</td>
<td>2 - 4 SW</td>
</tr>
<tr>
<td></td>
<td>Financial Management reviews</td>
<td>FM Specialist</td>
<td>1 SW</td>
</tr>
<tr>
<td></td>
<td>Procurement Review of Bidding Documents</td>
<td>Procurement Specialist</td>
<td>4 SW</td>
</tr>
<tr>
<td>48-72 months</td>
<td>Team Leadership</td>
<td>Expressway Project Management Specialist</td>
<td>6 SW</td>
</tr>
<tr>
<td></td>
<td>Technical oversight of construction supervision</td>
<td>Highway/Bridge Engineers</td>
<td>4 SW</td>
</tr>
<tr>
<td></td>
<td>Environmental Monitoring</td>
<td>Environmental Specialist</td>
<td>2 - 4 SW</td>
</tr>
<tr>
<td></td>
<td>Financial Management reviews</td>
<td>FM Specialist</td>
<td>1 SW</td>
</tr>
</tbody>
</table>
Annex 6: Team Composition

World Bank staff and consultants who worked on the project:

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul Vallely</td>
<td>Task Team Leader</td>
<td>EASVS</td>
</tr>
<tr>
<td>Baher El-Hifnawi</td>
<td>Lead Transport Economist</td>
<td>EASIN</td>
</tr>
<tr>
<td>Cung Van Pham</td>
<td>Senior Financial Management Specialist</td>
<td>EAPFM</td>
</tr>
<tr>
<td>Dan O'Hearn</td>
<td>Financial Analyst</td>
<td>EASIN</td>
</tr>
<tr>
<td>Dung Anh Hoang</td>
<td>Senior Transport Specialist</td>
<td>EASVS</td>
</tr>
<tr>
<td>Fei Deng</td>
<td>Senior Transport Specialist</td>
<td>EASIN</td>
</tr>
<tr>
<td>Hoa Thi Mong Pham</td>
<td>Senior Social Development Specialist</td>
<td>EASVS</td>
</tr>
<tr>
<td>Juan D. Quintero</td>
<td>Environment Specialist</td>
<td>EASVS</td>
</tr>
<tr>
<td>Luis Blancas</td>
<td>Young Professional</td>
<td>EASIN</td>
</tr>
<tr>
<td>Ly Thi Dieu Vu</td>
<td>Operations Analyst</td>
<td>EASVS</td>
</tr>
<tr>
<td>Pramod Agrawal</td>
<td>Social Development Specialist</td>
<td>EASIN</td>
</tr>
<tr>
<td>Reda Hamedoun</td>
<td>Transport Specialist</td>
<td>EASVS</td>
</tr>
<tr>
<td>Sameena Dost</td>
<td>Senior Counsel</td>
<td>LEGES</td>
</tr>
<tr>
<td>Thang Chien Nguyen</td>
<td>Senior Procurement Specialist</td>
<td>EAPPR</td>
</tr>
<tr>
<td>Teri Velilla</td>
<td>Program Assistant</td>
<td>EASIN</td>
</tr>
<tr>
<td>Thao Le Nguyen</td>
<td>Senior Finance Officer</td>
<td>CTRFC</td>
</tr>
<tr>
<td>Thao Phuong Tuong</td>
<td>Team Assistant</td>
<td>EASVS</td>
</tr>
</tbody>
</table>
Annex 7: Economic and Financial Analysis

A. Introduction

1. This annex presents the methodology, assumptions and results of the financial and economic analyses of the DQEP.\footnote{The economic and financial analyses were carried out by CPCS Transcom Limited in association with Investment Environmental Protection Consultation Company in 2010 based on a 2008 feasibility study funded by the Japan External Trade Organization (JETRO) and a 2009 update by Nippon Koei.} The economic analysis was carried out to assess the economic viability of the proposed Project. The financial analysis was carried out to determine the levels of operating subsidies that would be required for the sustainability of the Project. An analysis of the financial capacity of the Vietnam Expressway Corporation (VEC), the owner of the DQE, was also carried out to ensure VEC’s ability to meet its debt obligations and make the necessary project payments.

2. There are two direct links between the financial and economic analyses. The first reflects the relationship between toll rate regimes and the traffic flows. A reduction in toll rates generally results in higher economic benefits but adversely affects the financial position of the Project and would require higher levels of financial support. Consequently the selected toll rates need to balance economic viability and the level of financial support. The second link reflects the relationship between the financial costs of the Project and their economic costs. While the former include all taxes, tariffs and other transfer payments, the economic costs reflect true resource costs and exclude all transfer payments.

3. Section B below presents the assumptions and results for the economic and stakeholder analyses of the Project and Section C presents the financial analysis.

B. Economic Analysis

B1. Summary

4. The summary table below shows that the economic results of the project are robust under different assumptions of GDP growth and toll rates used. A detailed presentation and analysis is provided below.

<table>
<thead>
<tr>
<th>GDP Growth</th>
<th>Low GDP Growth Case</th>
<th>Expected GDP Growth Case</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>800</td>
<td>1,200</td>
</tr>
<tr>
<td></td>
<td>800</td>
<td>1,200</td>
</tr>
<tr>
<td>Toll Rate (VND/km)*</td>
<td><strong>800</strong></td>
<td><strong>1,200</strong></td>
</tr>
<tr>
<td>NPV @ 11%</td>
<td>VND billions</td>
<td>23,229 22,071</td>
</tr>
<tr>
<td></td>
<td>42,769 40,957</td>
<td></td>
</tr>
<tr>
<td>USD billions</td>
<td>1.19</td>
<td>1.13</td>
</tr>
<tr>
<td>EIRR</td>
<td>20.7% 20.3%</td>
<td>25.4% 25.0%</td>
</tr>
</tbody>
</table>
B2. **Methodology and Assumptions**

5. Standard project appraisal methodology using discounted resource flow statements was used to carry out the economic analysis; and the economic net present value (ENPV) and the economic internal rate of return (EIRR) were estimated. The analysis is based on actual and projected traffic volumes, vehicle operating costs (VOC), cost and time savings for users, reduction in accidents, and the project’s economic costs.

6. Three development alternatives were considered:

   A. The do-nothing alternative which entails standard maintenance for National Highway 1 (NH1) with no expansion or upgrading;
   
   B. The NH1-widening alternative which entails a one lane widening of NH1 in each direction (a total of two lanes) starting operation in 2020 when NH1 becomes more congested; and
   
   C. The DQE alternative which entails construction of a 131.5 km two-by-two lane expressway plus an 8 km link to NH1.

7. The high levels of congestion projected in the case of a do-nothing alternative (Alternative A) led to the elimination of this alternative from consideration. So the two alternatives considered were the construction of the DQE (Alternative C) and the widening of NH1 (Alternative B).

**Estimation of Economic Benefits**

8. The economic benefits of the construction of the DQE can be grouped in five categories:

   (i) **Time savings to expressway (and NH1) users.** The higher speeds on the expressway (design speed—120 kph) than on NH1 (design speed—80 kph) are expected to result in significant time savings for expressway users. Moreover, the construction of the expressway is expected to relieve congestion on NH1 resulting in time savings for NH1 users as well. Table A7.1 shows the vehicle occupancy and value of time per mode.

   **Table A7.1:** Vehicle Occupancy and Average Values of Time in 2009 (2010 Prices)

<table>
<thead>
<tr>
<th>Year</th>
<th>Car</th>
<th>Mini Bus</th>
<th>Large Bus</th>
<th>Truck 2 Axles</th>
<th>Truck 3 Axles</th>
<th>Truck &gt;3 Axles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupancy</td>
<td>3.2</td>
<td>12.6</td>
<td>30.1</td>
<td>1.7</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>VND/hour</td>
<td>21,600</td>
<td>10,900</td>
<td>9,700</td>
<td>21,000</td>
<td>25,000</td>
<td>25,000</td>
</tr>
</tbody>
</table>

   (ii) **Vehicle operating cost (VOC) savings (increases) to Expressway and NH1 users.** The VOC-speed function indicates that VOCs are high at low speeds, reach their lowest levels at 60 kph and then start increasing again. Whether expressway users enjoy gains or losses in VOCs will depend on the speed that they would have been traveling on NH1. For example, if the average speed on a section of the expressway is 75 kph whereas it would have been 45 kph on NH1, expressway users would gain VND20/km. If average travel speeds on NH1 and the DQE
are 60 kph and 100 kph respectively, expressway users would face an increase in VOC. NH1 users on the other hand would expect a gain as speeds increase to approach the 80 kph design speed. The net outcome will depend on the speeds on the expressway and NH1.

(iii) Motorway bonus to expressway users. Experience suggests that road users have a preference for using expressways for reasons other than higher speeds such as safety, reliability ride quality. These characteristics are captured as a motorway bonus. The bonus is presented as a percentage of the motorway travel time. Table A7.2 presents the motorway bonus for the different types of vehicles. The bonus for trucks is lower than that for cars as experience shows that they are less sensitive to ride quality.

<table>
<thead>
<tr>
<th></th>
<th>Car</th>
<th>Mini Bus</th>
<th>Large Bus</th>
<th>LGV</th>
<th>Truck 2 Axles</th>
<th>Truck 3 Axles</th>
<th>Truck &gt;3 Axles</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of motorway travel time</td>
<td>-15%</td>
<td>-10%</td>
<td>-10%</td>
<td>-5%</td>
<td>-5%</td>
<td>-5%</td>
<td>-5%</td>
</tr>
</tbody>
</table>

(iv) Improved Road Safety. The Expressway is expected to provide improved traffic safety and thus generate reduced rates of accidents and fatalities. There were an average of 200 accidents per year on NH1 involving 102 fatalities and 230 injured casualties between 2005 and 2007. Using 2009 base year traffic, accident rates for NH1 were calculated and are presented in Table A7.3.

<table>
<thead>
<tr>
<th></th>
<th>Accident</th>
<th>Fatality</th>
<th>Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Value USD</td>
<td>N.A.</td>
<td>18,956</td>
<td>620</td>
</tr>
<tr>
<td>NH1 Rate per million veh-km</td>
<td>0.498</td>
<td>0.254</td>
<td>0.573</td>
</tr>
</tbody>
</table>

(v) Flood Damage Mitigation Benefits: Historical data on flooding along the NH1 corridor suggests that there is a 50-percent probability of flooding resulting in road closure of 6-10 hours (i.e., every other year) and a five-percent chance of severe flooding resulting in road closure of 24-36 hours (i.e., once every 20 years). It was assumed that the disrupted road traffic would take twice as long to disperse resulting in further delay. This would be avoided with the construction of the DQE.

Travel Demand

9. The estimation of the Project’s benefits was based on travel demand forecasts. An Excel-based spreadsheet traffic model was developed for the analysis and consisted of the road network, zones, a set of trip matrices, and a set of route choice parameters. Traffic forecasts were based on GDP growth rates and expected traffic-to-GDP multipliers.

10. The Road Network: The road network includes NH1 from Hoa Cam in the north to La Ha in the south. It also includes the east west road from Phu Hoa to Hoa Cam which will serve as a link road to junction 1 of the DQE as well as other east-west roads acting as links to the DQE. Each of the NH1 and DQE connecting road links is assigned a speed/flow function and carrying capacity.
11. Traffic forecasts were generated for two different GDP growth scenarios, an Expected Growth case (Expected Case) and a Low Growth case (Low Case) (see Table A7.4). An auto toll rate of VND800 per km was used for both GDP growth cases.

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected GDP Case</td>
<td>6.5%</td>
<td>7.0%</td>
<td>7.5%</td>
<td>7.0%</td>
<td>6.5%</td>
<td>6.0%</td>
<td>5.5%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Low GDP Case</td>
<td>6.5%</td>
<td>6.5%</td>
<td>6.5%</td>
<td>6.0%</td>
<td>5.5%</td>
<td>5.0%</td>
<td>4.5%</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

12. Toll Rate. The project’s traffic forecasts are directly influenced by the toll rate. The setting of toll rates is a factor of cost (both physical wear and tear and congestion) as well as affordability. The toll rate proposed for the DQE is VND800/km for autos rising across the different classes of vehicles to a maximum of VND2,400/km for heavy trucks. A comparison of the proposed toll rates for the DQE to those in other developing countries generally indicates that these rates are in line with those of other countries, particularly when taking affordability into consideration.

13. According to 2008 data from the Public-Private Infrastructure Advisory Facility (PPIAF), average per-km toll rates in India (US$2.2 cents), China (US$3 cents to US$6 cents), Brazil (US$3.5 cents), and Colombia ($3.6 cents, Bogotá-Cartagena line only) roughly fall between US$2 cents and US$6 cents. The DQE Base case toll of VND800 per km, equivalent to about US$4 cents, falls in the middle of this range. A further analysis of Chinese toll rates by a 2003 Bank study indicated that the average toll rate per km was US$4.5 cents (still consistent with the more recent PPIAF interval) while a more recent 2010 Forbes article reported the rate at US$7 cents. This would suggest that, at US$4 cents per km, the DQE Base case rate appears roughly in line with lower bound estimates of Chinese average toll rates.

14. When assessing rate affordability, rates can be expressed in Purchasing Power Parity terms, which have the advantage of both normalizing rates (in this case by converting them to international dollars) and accounting for differences in the cost of living across countries. By that measure, the DQE Base case rate, equivalent to PPP$11 cents (per the current IMF implied PPP conversion rate), falls between the lower bound (PPP$8 cents) and upper bound (PPP$12 cents) estimates of the Chinese toll rates (corresponding to US$4.5 cents and US$7 cents, respectively, at market exchange rates). This finding has two implications: (i) the DQE Base case toll rate appears to be roughly as “affordable” as Chinese toll rates; and (ii) because the DQE Base case toll rate is closer to the upper bound estimate of the average Chinese toll rates in PPP terms, there is very little maneuvering room, from an affordability standpoint, to set the DQE toll rate much higher than VND 800 per km. It should also be noted that both the DQE Base case rate and the average Chinese toll rates, in PPP terms, are substantially less affordable than the average rate charged in U.S. toll roads (US$6 cents), which further confirms the low likelihood of setting the toll rates in Vietnam higher than VND800/km.

15. Traffic grew at high rates between 2003 and 2009 on NH1 along the planned route of DQE. The highest growth rates were for autos/vans averaging 35-40 percent per annum, about
five times as fast as GDP. Table A7.5 shows the projected traffic growth multiples by mode. In the Expected GDP growth case, it is projected that car travel will grow 18-fold over a 30 year period, an average annual growth rate of 9.8 percent. While this growth rate appears relatively high, vehicle ownership in China grew at an average annual rate of 9.8 percent between 1962 and 2002, and at 8.7 percent over the same period in Thailand.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Car</td>
<td>3.0</td>
<td>2.0</td>
<td>1.75</td>
<td>1.5</td>
<td>1.35</td>
<td>1.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Bus</td>
<td>1.75</td>
<td>1.5</td>
<td>1.4</td>
<td>1.3</td>
<td>1.2</td>
<td>1.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Truck</td>
<td>1.0</td>
<td>1.0</td>
<td>1.05</td>
<td>1.1</td>
<td>1.1</td>
<td>1.05</td>
<td>1.0</td>
</tr>
</tbody>
</table>

16. **Diversion from NH1:** It was assumed that the traffic levels on DQE would take 5 years to reach the projected levels with the balance remaining on NH1. In 2009, the average annual daily traffic (AADT) on the sections of NH1 that run parallel to the proposed DQE is about 8500 (15,500 PCU), 60 percent of which is trucks. In the Base Case scenario, the projected AADT on DQE in 2020 is 12,000 while that assumed to remain on NH1 has been estimated at 11,500. By 2030, the AADT on the DQE is projected to reach 35,000.

**Estimation of Economic Costs**

17. The financial capital, and operating and management costs were converted into economic costs by excluding all transfer payments. Transfer payments such as taxes and financing costs (loan and loan repayments) were excluded from the economic analysis because they do not represent economic resource costs. Foreign financing was considered not to be incremental to the Vietnamese economy and hence there was no need for any foreign exchange adjustments to reflect the economic cost of foreign exchange associated with the loans and credits.

18. Price contingency provisions (included to finance cost increases resulting from rises in the general price level) were excluded from the economic costs as the economic analysis is carried out in real prices.

19. The 10 percent value added tax on all inputs was excluded from the base capital costs. In line with estimates for other projects in Vietnam, a conversion factor of 0.95 was used for construction costs to capture labor and other indirect taxes that some components are subject to. A conversion factor of 0.97 was used for project preparation and supervision which is largely professional services for detailed design, project management, surveys, quality assurance, legal permits and surveys.

20. Since the construction of the DQE is being compared to the NH1-widening alternative, to determine the incremental economic benefits, the capital costs for the NH1 widening project were estimated as were the operating and maintenance costs for both the DQE and NH1 widening projects. The latter would be saved in the case of the construction of the DQE.

21. **Residual Values:** The expressway is constructed on a high embankment that is expected to be intact for at least 25 years. Total pavement cost including base and sub-base is about 16 percent of the total construction cost. Full rehabilitation including strengthening or replacement
of base course and new bituminous layers should, in the worst case, not come up to more than 70 percent of this cost. Bridges and culverts represent about 38 percent of total construction cost. Their design life is 100 years; rehabilitation work after 25 years is estimated to cost 20-30 percent of the initial cost. Total costs for all rehabilitation works are estimated to be 20-40 percent of the initial cost. Adding the cost of rehabilitation of service roads, fence, and slope protection etc., the residual value of the DQE was estimated at 50 percent of the total cost and that of NH1 at 30 percent.

B3. Results

22. **Base Case:** The Base case is defined as the scenario with the Expected GDP growth and an auto Toll Rate of VND800. Net benefits and costs are estimated by comparing the case of DQE to that of the NH1 widening. Summary results are also presented for the Low GDP growth case and a toll rate of 1,200 VND.

**Time savings to Expressway and NH1 Users**

23. Table A7.6 shows that the modeled journey times in 2009 between Da Nang and Quang Ngai via NH1 and the DQE, are respectively about 158 and 100 minutes. This indicates that if the DQE were available now, DQE users would be able to reduce their travel time by about an hour. Without the DQE, travel time via NH1 would increase to more than six hours by 2020 when NH1 would reach capacity if not widened. With NH1 widening in 2021, NH1 travel time will fall but will again increase through time.

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH1*</td>
<td>158</td>
<td>275</td>
<td>381</td>
<td>300</td>
<td>382</td>
</tr>
<tr>
<td>DQE</td>
<td>100</td>
<td>103</td>
<td>105</td>
<td>108</td>
<td>128</td>
</tr>
<tr>
<td>Saving</td>
<td>58</td>
<td>172</td>
<td>277</td>
<td>191</td>
<td>253</td>
</tr>
</tbody>
</table>

* Existing 2x1-lane NH1 to 2020 and thereafter 2x2-lane NH1.

24. Table A7.7 presents the estimated values of time savings for the Base case. It shows that the DQE would yield an initial travel time savings of VND 5.9 trillion in 2020 increasing to about VND 38 trillion in 2040. This increase in value of travel time savings is driven by a combination of the increase in traffic on the DQE and the real increase in the value of time. A certain proportion of these benefits accrue to the users of NH1 who benefit from faster travel due to the diversion of some traffic to the DQE.

<table>
<thead>
<tr>
<th>Year</th>
<th>Car</th>
<th>Mini Bus</th>
<th>Large Bus</th>
<th>LGV</th>
<th>Truck 2 Axes</th>
<th>Truck 3 Axes</th>
<th>Truck &gt;3 Axes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>1,508,884</td>
<td>840,826</td>
<td>2,153,987</td>
<td>506,717</td>
<td>353,472</td>
<td>232,072</td>
<td>293,856</td>
<td>5,889,814</td>
</tr>
<tr>
<td>2025</td>
<td>2,197,235</td>
<td>1,257,632</td>
<td>3,022,602</td>
<td>681,600</td>
<td>515,737</td>
<td>300,446</td>
<td>385,061</td>
<td>8,360,314</td>
</tr>
<tr>
<td>2030</td>
<td>5,490,888</td>
<td>2,951,398</td>
<td>7,154,775</td>
<td>1,657,184</td>
<td>1,228,526</td>
<td>686,296</td>
<td>859,531</td>
<td>20,028,598</td>
</tr>
<tr>
<td>2035</td>
<td>8,228,792</td>
<td>4,209,526</td>
<td>10,430,888</td>
<td>2,409,036</td>
<td>1,783,661</td>
<td>984,703</td>
<td>1,222,865</td>
<td>29,269,471</td>
</tr>
<tr>
<td>2040</td>
<td>10,879,962</td>
<td>5,176,145</td>
<td>13,382,727</td>
<td>3,111,231</td>
<td>2,292,858</td>
<td>1,274,041</td>
<td>1,581,318</td>
<td>37,698,282</td>
</tr>
</tbody>
</table>
25. Table A7.8 shows the annual values of motorway bonus benefits for the Base case. The bonus is VND 119 billion in 2020 and grows to VND 2.6 trillion by 2040. As with the travel time savings, the increase in motorway bonus benefits is driven by a combination of the increase in traffic on the DQE and the real increase in the value of time.

Table A7.8: Annual Motorway Bonus Benefits for the Base Case in VND 2010 millions

<table>
<thead>
<tr>
<th>Year</th>
<th>Car</th>
<th>Mini Bus</th>
<th>Large Bus</th>
<th>LGV</th>
<th>Truck 2 Axles</th>
<th>Truck 3 Axles</th>
<th>Truck &gt;3 Axles</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>52,403</td>
<td>9,364</td>
<td>47,555</td>
<td></td>
<td>2,665</td>
<td>348</td>
<td>3,102</td>
<td>3,973</td>
</tr>
<tr>
<td>2025</td>
<td>85,218</td>
<td>18,313</td>
<td>93,001</td>
<td></td>
<td>1,826</td>
<td>201</td>
<td>5,712</td>
<td>7,315</td>
</tr>
<tr>
<td>2030</td>
<td>237,753</td>
<td>38,761</td>
<td>195,355</td>
<td></td>
<td>9,861</td>
<td>3,631</td>
<td>11,730</td>
<td>15,270</td>
</tr>
<tr>
<td>2035</td>
<td>625,555</td>
<td>89,502</td>
<td>448,998</td>
<td></td>
<td>32,258</td>
<td>14,918</td>
<td>26,701</td>
<td>34,781</td>
</tr>
<tr>
<td>2040</td>
<td>1,340,906</td>
<td>174,983</td>
<td>878,421</td>
<td></td>
<td>99,520</td>
<td>32,258</td>
<td>40,168</td>
<td>67,685</td>
</tr>
</tbody>
</table>

26. Table A7.9 shows the net annual savings in VOC to the DQE and NH1 users for the Base case. Most of the benefits in VOC in fact accrue to the users of NH1 who increase their speeds to less fuel consuming speeds.

Table A7.9: Annual Vehicle Operating Cost Benefits (VND 2010 millions; Car Toll VND 800/km and Equivalent)

<table>
<thead>
<tr>
<th>Year</th>
<th>Car</th>
<th>Mini Bus</th>
<th>Large Bus</th>
<th>LGV</th>
<th>Truck 2 axles</th>
<th>Truck 3 axles</th>
<th>Truck &gt;3 axles</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>48,289</td>
<td>65,113</td>
<td>19,465</td>
<td>184,468</td>
<td>368,413</td>
<td>34,996</td>
<td>40,065</td>
<td>760,808</td>
</tr>
<tr>
<td>2025</td>
<td>92,541</td>
<td>81,573</td>
<td>-6,147</td>
<td>298,597</td>
<td>538,643</td>
<td>6,896</td>
<td>9,685</td>
<td>1,021,789</td>
</tr>
<tr>
<td>2030</td>
<td>281,307</td>
<td>184,124</td>
<td>124,900</td>
<td>446,608</td>
<td>761,501</td>
<td>149,045</td>
<td>188,878</td>
<td>2,136,363</td>
</tr>
<tr>
<td>2035</td>
<td>484,990</td>
<td>234,684</td>
<td>237,299</td>
<td>540,241</td>
<td>864,950</td>
<td>269,400</td>
<td>331,667</td>
<td>2,963,231</td>
</tr>
<tr>
<td>2040</td>
<td>546,220</td>
<td>207,282</td>
<td>268,214</td>
<td>530,831</td>
<td>792,553</td>
<td>307,434</td>
<td>376,171</td>
<td>3,028,705</td>
</tr>
</tbody>
</table>

Source: CPCS Team’s analysis.

27. Tables A7.10 and A7.11 present the estimated road safety benefits and the benefits from mitigating the impacts of floods respectively in the Base case.

Table A7.10: Annual Road Safety Benefits (VND 2010 millions; Car Toll VND 800/km and Equivalent)

<table>
<thead>
<tr>
<th>Year</th>
<th>Car</th>
<th>Mini Bus</th>
<th>Large Bus</th>
<th>LGV</th>
<th>Truck 2 axles</th>
<th>Truck 3 axles</th>
<th>Truck &gt;3 axles</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>32,560</td>
<td>4,566</td>
<td>10,973</td>
<td>4,853</td>
<td>1,446</td>
<td>7,419</td>
<td>9,383</td>
<td>71,200</td>
</tr>
<tr>
<td>2025</td>
<td>53,799</td>
<td>8,929</td>
<td>21,459</td>
<td>3,685</td>
<td>988</td>
<td>13,660</td>
<td>17,277</td>
<td>119,797</td>
</tr>
<tr>
<td>2030</td>
<td>281,307</td>
<td>184,124</td>
<td>124,900</td>
<td>446,608</td>
<td>761,501</td>
<td>149,045</td>
<td>188,878</td>
<td>2,136,363</td>
</tr>
<tr>
<td>2035</td>
<td>484,990</td>
<td>234,684</td>
<td>237,299</td>
<td>540,241</td>
<td>864,950</td>
<td>269,400</td>
<td>331,667</td>
<td>2,963,231</td>
</tr>
<tr>
<td>2040</td>
<td>546,220</td>
<td>207,282</td>
<td>268,214</td>
<td>530,831</td>
<td>792,553</td>
<td>307,434</td>
<td>376,171</td>
<td>3,028,705</td>
</tr>
</tbody>
</table>

28. The expected economic returns for the Base case are robust, yielding a healthy Economic Net Present Value (ENPV) of VND 42,769 billion in 2010 prices (US$2.2 billion) and Economic Internal Rate of Return (EIRR) of 20.3 percent. The benefits from time savings account for about 86 percent of total user benefits. VOC is a distant second contributing about 9 percent of the total. Benefits attributed to the motorway bonus and road safety account for three percent and one percent respectively of the user benefits. The present value of the net benefits to bus users on both DQE and NH1 are about VND27 trillion; while those accruing to car and personal
transport users are VND14 trillion. Given the competitive nature of the trucking industry in Vietnam, any financial savings due to the reduction in travel times and spoilage will be passed on to the freight owners in the form of lower freight tariffs. These indirect benefits are estimated at VND14 trillion.

Table A7.11: Annual Flooding Mitigation Benefits
(VND 2010 millions; Car Toll VND 800/km and Equivalent)

<table>
<thead>
<tr>
<th>Year</th>
<th>Car</th>
<th>Mini Bus</th>
<th>Large Bus</th>
<th>LGV</th>
<th>Truck 2 Axles</th>
<th>Truck 3 Axles</th>
<th>Truck &gt;3 Axles</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>2,241</td>
<td>1,471</td>
<td>3,166</td>
<td>895</td>
<td>696</td>
<td>320</td>
<td>410</td>
<td>9,198</td>
</tr>
<tr>
<td>2025</td>
<td>3,708</td>
<td>2,283</td>
<td>4,889</td>
<td>1,305</td>
<td>1,019</td>
<td>467</td>
<td>605</td>
<td>14,277</td>
</tr>
<tr>
<td>2030</td>
<td>8,750</td>
<td>5,193</td>
<td>11,173</td>
<td>2,886</td>
<td>2,249</td>
<td>1,034</td>
<td>1,323</td>
<td>32,609</td>
</tr>
<tr>
<td>2035</td>
<td>15,500</td>
<td>8,868</td>
<td>19,117</td>
<td>4,856</td>
<td>3,777</td>
<td>1,739</td>
<td>2,220</td>
<td>55,877</td>
</tr>
<tr>
<td>2040</td>
<td>24,282</td>
<td>13,744</td>
<td>29,629</td>
<td>7,526</td>
<td>5,853</td>
<td>2,695</td>
<td>3,440</td>
<td>87,170</td>
</tr>
</tbody>
</table>

Source: CPCS Team’s analysis.

29. The economic returns for the two GDP growth cases and the toll scenarios are summarized in Table A7.12 below and demonstrate the robustness of the project.

A7.12: Economic Appraisal for Alternative Toll Rates and Growth Scenarios

<table>
<thead>
<tr>
<th>GDP Growth</th>
<th>Low GDP Growth Case</th>
<th>Base GDP Growth Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toll Rate (VND//km)*</td>
<td>800</td>
<td>1,200</td>
</tr>
<tr>
<td>NPV @ 11%</td>
<td>VND billions</td>
<td>23,229</td>
</tr>
<tr>
<td>USD billions</td>
<td>1.19</td>
<td>1.13</td>
</tr>
<tr>
<td>EIRR</td>
<td>20.7%</td>
<td>20.3%</td>
</tr>
</tbody>
</table>

30. A sensitivity analysis of the results to a cost overrun and or drop in user benefits further confirms the robustness of the Project’s economic results as shown in Table A7.13.

A7.13: Impact of Cost Overruns and Lower User Benefits on ENPV (US$ billion)

<table>
<thead>
<tr>
<th></th>
<th>Cost overrun of 25%</th>
<th>User Benefit at 75%</th>
<th>Cost overrun of 25% and User Benefit at 75%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected GDP Growth case and VND/km Toll</td>
<td>2.01</td>
<td>1.50</td>
<td>1.32</td>
</tr>
<tr>
<td>Low GDP Growth case and VND/km Toll</td>
<td>1.01</td>
<td>0.74</td>
<td>0.57</td>
</tr>
<tr>
<td>Expected GDP Growth case and 1,200 VND/km Toll</td>
<td>1.92</td>
<td>1.43</td>
<td>1.25</td>
</tr>
<tr>
<td>Low GDP Growth case and 1,200 VND/km Toll</td>
<td>0.95</td>
<td>0.70</td>
<td>0.52</td>
</tr>
</tbody>
</table>

C. Financial Analysis

C1. Key Assumptions

31. Inflation Rates. The domestic rate of inflation was projected to increase at a rate higher than that of US Dollar inflation, and the Vietnamese nominal exchange rate was projected to change in line with the relative inflation indices.
### Domestic Inflation Rate

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016 on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>12.00%</td>
<td>10.25%</td>
<td>6.50%</td>
<td>5.00%</td>
<td>5.00%</td>
<td>5.00%</td>
<td>5.00%</td>
</tr>
<tr>
<td>Foreign</td>
<td>2.10%</td>
<td>1.70%</td>
<td>2.00%</td>
<td>2.20%</td>
<td>2.20%</td>
<td>2.20%</td>
<td>2.20%</td>
</tr>
</tbody>
</table>

32. **Real cost increases**: It was assumed that real costs would not change over the life of the project with the exception of operating costs that were projected to increase in real terms by 2 percent per annum to reflect the real increase in the wage rate.

33. **Contingencies**: A physical contingency of 7.75 percent was used; price contingency was built directly into the financial model through the adjustment of costs and prices for inflation.

34. **Toll Rates**: The toll rates were held constant in real terms and were adjusted by the annual domestic rate of inflation.

35. **Financing Terms**: The project will receive loans from IBRD, IDA, and JICA. All funds will be on lent to VEC. The terms of the financing are as follows:

**IBRD**: The IBRD loan of US$470.5 million will be a Variable Spread Loan (VSL) with a tenor of 25 years; a 10 year grace period and a 15 year repayment period. The VSL has two components: (i) Libor and (ii) a Variable Spread. Libor was assumed at one percent for 2012 and then increased by 0.5 percent per annum until it reached 5.0 percent, after which it was held constant. The current variable spread of 0.48 percent was used throughout the life of the loan. Interest during construction will be “implicitly” capitalized in the Project Loan (in effect, IDC will be included in the Loan and paid semi-annually). The construction period is projected to be seven years and as a result interest will be capitalized from years 2012-2018. Principal repayment will start in year 2022 and follow a customized repayment schedule. The loan will be on-lent from MoF to VEC at an on-lending fee of 0.25 percent. The loan will also carry a front end fee of 0.25 percent.

**IDA**: SDR90.2 million (US$143.0 million equivalent), comprising of SDR44.1 million (US$69.9 million equivalent) on Hard Term Lending terms and SDR46.1 million (US$73.1 million equivalent) on Standard (Blend) terms. The service charge for the IDA credit on Standard terms is 0.75 percent per annum. The IDA credit on Hard Term Lending terms carries a service charge of 0.75 percent per annum in addition to an annual interest rate of 3.2 percent. Both credits have a 10 year grace period, and principal repayment will be over a 25 year period: 2.5 percent of the loan amount per annum for years 11-20; and 5 percent per annum for years 21-35. Interest during construction (including the service charge) will be capitalized into the credit amounts for both IDA credits over the seven year construction period. The credits will be on-lent from MoF to VEC at an on-lending fee of 0.20 percent.

**JICA**: The JICA loan of US$673.6 million equivalent has a 10 year grace period and the principal will be repaid in equal installments over a 20 year period. The interest rate for JICA is fixed at 1.21 percent per annum. Interest during construction (IDC) for the JICA
loan will be capitalized into the loan amount over the seven year construction period. The credit will be on-lent from MoF to VEC at an on-lending fee of 0.20 percent.

C2. Results

36. The analysis focused on two aspects: (i) the financial viability of the project and (ii) its financial sustainability.

Financial Viability

37. The project’s financial internal rate of return (FIRR) is 2.6 percent. While this figure is clearly low, it requires careful consideration. Given that the project’s sources its funds from the highly concessional IDA and JICA and the competitively priced IBRD, the weighted average cost of capital (WACC) is 2.49 percent as shown below. So while the project is clearly not commercially viable, with the current financing package it can be considered marginal.\(^{13}\)

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>Cost of funds</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDA standard</td>
<td>73.1</td>
<td>0.75%</td>
<td>5.20%</td>
</tr>
<tr>
<td>IDA hard lending</td>
<td>69.9</td>
<td>3.95%</td>
<td>4.98%</td>
</tr>
<tr>
<td>IBRD</td>
<td>470.5</td>
<td>5%</td>
<td>33.52%</td>
</tr>
<tr>
<td>JICA</td>
<td>673.6</td>
<td>1.21%</td>
<td>47.99%</td>
</tr>
<tr>
<td>GoV</td>
<td>116.6</td>
<td>0%</td>
<td>8.31%</td>
</tr>
<tr>
<td><strong>WACC</strong></td>
<td><strong>1,403.7</strong></td>
<td></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

Financial Sustainability

38. More important in this case than the financial viability of the project as measured by its FIRR and FNPV is its financial sustainability, i.e., the project’s capacity to cover its operating and maintenance costs as well as service its debts throughout its life. Table A7.14, which presents the project’s cashflows through 2033 only, clearly shows that the project cannot be financially sustainable without financial support. The Net Cash Flows before financing are positive throughout the project’s life with the exception of year 2033 in which a major rehabilitation takes place at an estimated cost of US$208 million in 2010 prices.

39. Once the financing flows are included, however, the project’s cash flows are significantly less than is necessary to repay the principal and interest of the two loans and the IDA credits. While the project will generate high net cash flows in the later years, this is not sufficient to make up for the large early deficits. Using level principal repayments for the JICA loan and the IDA credits, and a customized repayment schedule for the IBRD that allows for correlating principal payment levels to cash flow levels, the simple cumulative sum of cash deficits in the first 15 years of operation is VND 16.2 trillion. When allowing for an annual debt service capacity ratio (DSCR) of 1.2 to address the uncertainty of the traffic flows, the cumulative cash

\(^{13}\) Note that the WACC as estimated reflects the project’s WACC at the beginning of the project. As the debt to equity ratio of the project (and VEC) changes over time, the project’s WACC will increase to reflect the higher cost of VEC’s debt and equity.
deficits for the first 15 years of operation further increase to VND 22.9 trillion; and the NPV of the net cash flows (through 2040) at 11 percent is significantly negative at VND -980 billion (US$52 million).

40. Different alternatives were considered for enhancing the financial sustainability of the Project. These included granting IDA and/or JICA as well as using different IBRD repayment models. While these had an impact on reducing the Project’s negative net cash flows, none of these measures was sufficient to negate the need for further future financial support. It was therefore necessary to design the financial sustainability guarantee that ensures that VEC receives the necessary funds, on an annual basis, to cover any deficit between the project’s financial receipts, principally from toll revenues, and project expenditures.
ALL FUNDS ON LENT TO VEC

<table>
<thead>
<tr>
<th>Year</th>
<th>Exchange rate (VND/US$)</th>
<th>Operating Net Cash Flow (before financing)</th>
<th>Total Financial charges</th>
<th>Net Cash flows from operations and financing (billion VND)</th>
<th>Net Cash flows from operations and financing (million USD)</th>
<th>Net Cash flows from operations and financing if an annual debt service capacity ratio of 1.2 was used (billion VND)</th>
<th>NPV (Year 2010) @ 11%</th>
<th>NPV of deficits (Year 2010) @ 11%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>25,354</td>
<td>704</td>
<td>977</td>
<td>-273</td>
<td>-10</td>
<td>(468)</td>
<td>(980)</td>
<td>-468</td>
</tr>
<tr>
<td>2020</td>
<td>26,062</td>
<td>1,024</td>
<td>1067</td>
<td>-43</td>
<td>-2</td>
<td>(257)</td>
<td></td>
<td>-257</td>
</tr>
<tr>
<td>2021</td>
<td>26,789</td>
<td>1,273</td>
<td>1097</td>
<td>177</td>
<td>6</td>
<td>(43)</td>
<td></td>
<td>-43</td>
</tr>
<tr>
<td>2022</td>
<td>27,536</td>
<td>1,546</td>
<td>2601</td>
<td>-1055</td>
<td>-37</td>
<td>(1,576)</td>
<td></td>
<td>-1576</td>
</tr>
<tr>
<td>2023</td>
<td>28,305</td>
<td>(104)</td>
<td>2199</td>
<td>-2303</td>
<td>-79</td>
<td>(2,743)</td>
<td></td>
<td>-2743</td>
</tr>
<tr>
<td>2024</td>
<td>29,094</td>
<td>2,164</td>
<td>3140</td>
<td>-976</td>
<td>-929</td>
<td>(1,604)</td>
<td></td>
<td>-1604</td>
</tr>
<tr>
<td>2025</td>
<td>29,906</td>
<td>2,514</td>
<td>3442</td>
<td>-862</td>
<td>-862</td>
<td>(1,617)</td>
<td></td>
<td>-1617</td>
</tr>
<tr>
<td>2026</td>
<td>30,740</td>
<td>2,959</td>
<td>4231</td>
<td>-788</td>
<td>-955</td>
<td>(1,626)</td>
<td></td>
<td>-1626</td>
</tr>
<tr>
<td>2027</td>
<td>31,598</td>
<td>3,443</td>
<td>3673</td>
<td>-955</td>
<td>767</td>
<td>(1,634)</td>
<td></td>
<td>-1634</td>
</tr>
<tr>
<td>2028</td>
<td>32,480</td>
<td>2,718</td>
<td>3406</td>
<td>1090</td>
<td>1559</td>
<td>(1,690)</td>
<td></td>
<td>-1690</td>
</tr>
<tr>
<td>2029</td>
<td>33,386</td>
<td>4,173</td>
<td>3368</td>
<td>2002</td>
<td>2002</td>
<td>86</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>2030</td>
<td>34,317</td>
<td>4,458</td>
<td>3361</td>
<td>1,306</td>
<td>1,306</td>
<td>416</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>2031</td>
<td>35,275</td>
<td>4,920</td>
<td>3481</td>
<td>1,306</td>
<td>1,306</td>
<td>887</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>2032</td>
<td>36,259</td>
<td>5,484</td>
<td>1923</td>
<td>1,306</td>
<td>1,306</td>
<td>1,306</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>2033</td>
<td>37,271</td>
<td>(7,171)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-9,479</td>
</tr>
</tbody>
</table>

NPV (Year 2010) @ 11% = (9,479) billion VND
Annex 8: Project-Level Governance, Transparency, and Anti-Corruption Plan

A. Strengthening Governance

1. Since some prominent cases of alleged corruption in Vietnam revealed weaknesses in the country’s governance and anti-corruption system, the GoV has substantially strengthened the legal framework to combat corruption and waste. The central piece of legislation is the November 2005 Anti-corruption Law (55/2005/QH11) which clearly defines corrupt practices, the principles for handling corruption and the responsibilities of the different ministries and agencies in fighting it. In response to the Prime Minister’s instruction to ministries, line agencies and other organizations to develop an action plan for the implementation of the Anti-Corruption Law, MoT prepared and issued an Action Plan in December 2006 (Decision No. 350/QD-BGTVT). MoT has subsequently revised a large number of its departmental orders and administrative procedures to strengthen governance and anti-corruption.

2. The World Bank has a continuing program of activities to support improved GAC outcomes in the transport sector, including: (a) participation in the development of a cross-sectoral theme and approach for the World Bank with regard to GAC in Vietnam; (b) a continuing formal dialogue with MoT; (c) assessment of governance risks in the transport sector in Vietnam to determine the level of exposure of the Bank to fraud and corruption in the procurement and implementation of civil works contracts in the transport sector and to review mitigation measures currently employed under ongoing projects and to make recommendations as to the sufficiency of these measures given the exposure level; and (d) a research program to support development of knowledge and learning for GAC implementation.

B. Project-Level Governance, Transparency, and Anti-Corruption Plans

3. The Governance, Transparency, and Anti-Corruption Plans (GTAP) for World Bank supported transport projects in Vietnam have evolved significantly over the past few years. In particular, the former focus on procurement-related activities and on strengthening process design and control has shifted to address, in a more direct manner, risks associated with financial management and project implementation.14 For the Da Nang – Quang Ngai Expressway Project (DQEP) the GTAP for the Project has been prepared following discussions with MoT, VEC, PMU-85, PMU-1, and JICA. It is an updated version that draws on: (a) anti-corruption measures developed under previous World Bank-financed projects in both Vietnam and in other countries; (b) the findings and recommendations of the World Bank’s DIR for RNIP and RTP2 in Vietnam completed in September 2006; (c) initiatives and recommendations of Transparency International; and (d) the findings of the 2009 review of progress in implementing the Anti-Corruption Law in the construction sector in Vietnam. The plan also reflects local capacity for implementation.

14 The names of the plans have also evolved from “Action Plan to Improve Fairness and Transparency in Procurement” to “Governance and Transparency Action Plan” and, most recently, to “Governance, Transparency, and Anti-Corruption Plan.”

15 Projects referred to include the 2008 Northern Delta Transport Development Project, the 2007 Hanoi Urban Transport Project and the 2006 3rd Rural Transport Project in Vietnam; the 2006 Road Maintenance Project in Paraguay; and the National Road Improvement Program-Phase II in the Philippines.
C. The Plan

4. The GTAP has three inter-related modules that address: (a) strengthening stakeholder integrity and promoting awareness, disclosure, and transparency; (b) enhancing specific process design and controls; and (c) strengthening monitoring, oversight, and enforcement of such controls. Details on the implementation of the GTAP, including necessary resources, sources of funds, target dates, and implementation responsibilities, will be presented in the Project Operations Manual (POM). Particular features of the GTAP are:

- **Module I: Increasing Awareness, Transparency, and Disclosure, and Strengthening Stakeholder Integrity Commitments.** The importance of these functions has been recognized by the government in the Anti-corruption Law and related legal documents. The module provides the overarching frame for the GTAP and strengthens governance through the project cycle by reinforcing other specific measures and actions. It comprises three components: (i) *Increasing awareness and capacity* of the content of the GTAP; (ii) *increasing transparency and disclosure*, through regularly updated and complete project information that will be made publicly available; and (iii) *strengthening stakeholder integrity commitments*, as project officials and contractual partners will be required to commit to ethical business standards, project integrity controls, fair implementation, and publicity of sanctions.

- **Module II: Strengthening Process Controls.** This module deals with the “nuts and bolts” of activities involved in the project cycle, covering planning, design, procurement, and implementation. Mitigation measures have been established for key governance risks.

- **Module III: Strengthening Monitoring, Oversight, and Enforcement.** The enhanced process controls will be followed through with Independent Assessments/Audits. Impartial third party audits and assessments of the integrity of project transactions will be undertaken, with feedback to ongoing project activities.

5. MoT has approved the GTAP and will hold a workshop prior to Loan Effectiveness to introduce the plan to the stakeholders and civil society and adjust the Plan as necessary in response to any feedback. Any changes to the Plan will be discussed and confirmed with the World Bank.

A. Legal Structure

1. VEC is a wholly Government owned state enterprise that was established in October 2004 by the Minister of Transport under Decision No. 3033/QD-BGTVT. Under this Decision, VEC has been charged with investment, operation, maintenance, and the management of toll collection on national expressway routes. The company operates under a business license issued in November 2004 and amended in December 2007.

2. VEC is presently responsible for the development of six expressway projects (Table A9.1), of which three are now under construction. The first of these projects, the Cau Gie – Ninh Binh Expressway, is scheduled to begin initial operations in late-2011, although the current status of construction would suggest that operations are more likely to start during 2012.

Table A9.1: VEC Expressway Projects under Active Development

<table>
<thead>
<tr>
<th>Expressway</th>
<th>Status</th>
<th>Operations Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>(HCM-LT-DG)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Da Nang - Quang Ngai (DQEP)</td>
<td>Under Preparation</td>
<td>2019</td>
</tr>
</tbody>
</table>

B. Organizational Structure

3. VEC is headed by the General Director under the supervision of the Management Board. Reporting to the General Director are four deputy directors, each of whom oversees one or more specific functions. VEC consists of six departments: (i) administration; (ii) planning; (iii) accounting and finance; (iv) appraisal; (v) projects; and, (vi) technical, quality, and environmental management. Project implementation is undertaken by three project management units within VEC: (i) Cau Gie – Ninh Binh; (ii) Noi Bai – Lao Cai; and, (iii) southern expressway projects. As of May 2010, VEC employed 205 full-time staff.

4. VEC also has one subsidiary\(^\text{16}\) company and one associate\(^\text{17}\) company. As of the end of 2009, VEC owned 55% of its subsidiary, the Vietnam Expressway Consultant Joint Stock Company, and 20% of its associate, the Vietnam Expressway Service Joint Stock Company. The total employment of these two companies is approximately 100 persons.

C. Financial Structure

5. As a separate legal entity, VEC is financially independent from Government. However, as its sole shareholder, and given the key role played by VEC in the development of...
of Vietnam’s road infrastructure, the Government exercises considerable control over VEC’s financial affairs. As noted above, Government determines which projects are to be assigned to VEC. Furthermore, since most of the company’s debt is Government guaranteed, this gives the Ministry of Finance effective control over VEC debt issuance.

6. The challenge facing VEC is to fund the construction of a national expressway network with only limited financial contributions from Government. As a result, VEC has had to rely heavily on borrowing to fund its capital investments. This has led to an increasingly more leveraged capital structure. Between 2007 and 2009, the debt to equity ratio increased from 35:65 to 81:19 (Table A9.2). The financial projections prepared for VEC indicate that the capital structure will become even more highly leveraged over the next decade.

7. VEC intends that it will repay its debt and fund the operation and maintenance of the completed expressways entirely through the collection of toll revenues and related income. However, with no expressways yet in operation, traffic levels and, therefore, toll revenues are presently uncertain. This uncertainty, when combined with the very large amount of debt that VEC is taking on, increases risks to the company’s financial structure. Prospective lenders appear to be conscious of this risk and have been cautious in extending debt to VEC. For example, even though its domestic bonds are Government guaranteed, five of its bond auctions in 2009 failed to sell any bonds and a number of other offerings raised less than the amounts targeted. VEC has at least partially covered these funding shortfalls with a VND 800 billion ($46 million) advance from MoF and with short-term loans from domestic commercial banks.


8. Since its establishment, VEC’s focus has been on the planning and construction of its initial expressway projects. Given that none of these projects has yet been completed, VEC has not yet begun to generate operating revenues. VEC’s annual capital investments have increased significantly over the past four years, from VND 324 billion ($20 million) in 2007 to VND 3,451 billion ($192 million) in 2009 (Table A9.2). VEC’s expenditures in 2010 were budgeted at VND 7,000 billion ($370 million), almost double that of 2009. However, based on actual disbursements over the first 10 months of 2010, it appears likely that expenditures will be lower than this plan amount, but still higher than in 2009.


10. At the end of 2009, VEC’s total debt was VND 4,596 billion ($256 million), almost three times more than that at the end of 2008 (Table A9.2). This debt has been derived from three sources, domestic bond issues, which accounted for 44% of total debt at year end 2009, debt from Official Development Assistance (ODA) sources (36%), and domestic commercial bank loans (20%).

11. Much of VEC’s debt has been issued in maturities much shorter than the life of the expressway assets being financed. For example, as of the end of 2009, 56% of its borrowings through the bond market had an original maturity of five years or less. By mid-2010, this had increased to 74%. Furthermore, all of VEC’s commercial bank loans have an original maturity of less than five years. As a result, some of this debt is coming due before the
expressways have even begun to operate. With no operating revenue, VEC has had to refinance this maturing debt. The need to refinance at least a portion of this maturing debt will continue, at least over the next five years. For example, in 2013, VND 1,069 billion ($58 million) of existing debt will mature. Although, the first of VEC’s expressways will be in their initial phase of operations by 2013, operating revenues may not be sufficient to fully cover this principal repayment while also meeting its other financial obligations. Therefore, it is likely that VEC will have to refinance at least part of this maturing debt with new borrowing. As VEC’s capital structure becomes more highly leveraged, its ability to refinance this maturing debt becomes less certain.

Table A9.2: VEC - Financial Summary1/ (VND billion - current prices)

<table>
<thead>
<tr>
<th>Capital Investments3/</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>324</td>
<td>484</td>
<td>1,268</td>
<td>3,451</td>
</tr>
</tbody>
</table>

Capital Structure & Liquidity

<table>
<thead>
<tr>
<th>Debt : Equity Ratio</th>
<th>0:100</th>
<th>0:100</th>
<th>35:65</th>
<th>62:38</th>
<th>81:19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Ratio</td>
<td>772.6</td>
<td>112.2</td>
<td>17.1</td>
<td>11.3</td>
<td>4.5</td>
</tr>
<tr>
<td>Cash &amp; Short Term Investments</td>
<td>246</td>
<td>21</td>
<td>263</td>
<td>456</td>
<td>526</td>
</tr>
</tbody>
</table>

Borrowing

<table>
<thead>
<tr>
<th>New Borrowing</th>
<th>0</th>
<th>0</th>
<th>400</th>
<th>1,373</th>
<th>3,163</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt Service4/</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>117</td>
<td>578</td>
</tr>
<tr>
<td>Debt at Year End</td>
<td>0</td>
<td>0</td>
<td>400</td>
<td>1,727</td>
<td>4,596</td>
</tr>
<tr>
<td>Net Borrowing5/</td>
<td>0</td>
<td>0</td>
<td>400</td>
<td>1,293</td>
<td>2,831</td>
</tr>
<tr>
<td>Borrowing as % of Capex5/</td>
<td>0%</td>
<td>0%</td>
<td>83%</td>
<td>102%</td>
<td>82%</td>
</tr>
</tbody>
</table>

1/ Derived from VEC audited VAS financial statements. 2/ Derived from VEC project disbursement data. Exclusive of interest during construction and other financing charges. Includes advances to contractors. 3/ Principal and interest payments. 4/ New borrowing less repayments. 5/ Net borrowing divided by capital investments.

Given VEC’s difficulties in meeting its borrowing needs from domestic sources, it has increasingly turned to ODA sources. To date, the largest share of ODA debt has been provided by the Asian Development Bank (ADB), which at year end 2009 had disbursed the equivalent of VND 1,487 billion ($83 million) toward the cost of the Noi Bai – Lao Cai Expressway (NB-LC) and the Ho Chi Minh City – Long Thanh – Dau Giay Expressways (HCM-LT-DG). In December 2010, ADB also approved a loan for partial funding of the Ben Luc – Long Thanh Expressway (BL-LT). The other existing source of ODA is the Japan International Cooperation Agency (JICA), which is funding a portion of the HCM-LT-DG and BL-LT projects in addition to the planned loan for the Da Nang – Quang Ngai Expressway (DQEP).

While ODA sources can provide large amounts of long-term funding at attractive interest rates, these loans are denominated in foreign currencies and often at floating interest rates. As a result, VEC is becoming increasingly exposed to changes in exchange and interest rates. To address this exposure, VEC needs to strengthen its capacity to quantify and manage the risks associated with foreign currency or floating rate debt. The proposed technical assistance to be included in DQEP is aimed at strengthening this capacity.
E. Projected Financial Performance: 2010 – 2020

14. Financial projections have been prepared for VEC to assess its financial performance over the 2010 – 2020 period. The projections incorporate all operating revenues and expenses, capital investments, loan repayments, and borrowings that have been incurred to date by VEC and which are projected to be incurred over the forecast period. The scope of the analysis is limited to the six expressway projects over which VEC presently holds responsibility (Table A9.1) under the assumption that VEC does not begin implementation of any additional projects until at least after 2020.

15. The financial projections have been prepared under the following assumptions:

- The three projects not yet under construction (BL-LT, HN-LS, DQEP), as well as the HCM-LT-DG Project, are assumed to be completed and enter operations one year later than presently scheduled. Due to this delay, the costs incurred in the final year of construction for three of these projects (HCM-LT-DG, BL-LT, HN-LS) are assumed to increase by 10% over that presently estimated.

- The growth in traffic volumes is projected to be lower than forecast in the feasibility studies by 10%-25%.

16. The projections indicate that VEC is likely to struggle financially over the forecast period. The company is projected to incur net losses in each year between 2012 and 2020 (Table A9.3). Although significant Government equity injections are provided, primarily to cover counterpart funding requirements, these injections are not sufficient to offset the net losses. As a result, equity levels decline and by 2020 are reduced to about 1/3 of their level as in 2009. However, borrowing levels increase significantly in order to fund VEC’s very large capital investment program. Therefore, the company’s capital structure becomes progressively more leveraged. By 2019, the debt to equity ratio reaches 98:2, meaning that the company’s capital structure is almost entirely comprised of debt (Table A9.3). This is well above those levels considered satisfactory.

17. The lack of profitability over VEC’s first decade of operations is not untypical for an expressway. Facilities have to be constructed to meet traffic levels over a medium to longer-term time horizon while shorter-term traffic levels will be lower and then increase over time. Therefore, toll revenues will also be lower and often do not cover expenses over this initial operating period. However, in VEC’s case, the net losses are particularly large because it is carrying such a significant amount of debt, which means that annual financing charges are high.

18. Although VEC’s projected accounting losses are a cause for concern, a portion of the losses relate to non-cash items, such as depreciation expense and unrealized foreign exchange losses. As a result, the company’s cash flow performance is anticipated to be better than these accounting losses might suggest. Although the cash position is anticipated to be tight out to at least 2017, once the first five expressways are completed and begin generating operating revenue, net cash flows will improve. Given that no additional projects are undertaken until at least after 2020, VEC would be expected to generate reasonable cash surpluses beginning in 2018 (Table A9.3).

19. The total Government contribution estimated to be required over the 2011 – 2020 period is VND 19,397 billion ($940 million) (Table A9.3). Most of these contributions are for counterpart funding on the six existing expressway projects. After the DQEP begins
operating in 2019, contributions are also required under the financial sustainability guarantee arrangement between Government and VEC.

20. In order to fund construction of the six expressway projects it is presently responsible for, VEC’s debt will increase very significantly over the forecast period, from VND 4,596 billion ($256 million) at the end of 2009, to VND 117,627 billion ($5.23 billion) by 2019 (Table A9.3). Assuming that VEC’s responsibilities are not expanded beyond its six existing expressway projects, the level of debt should peak in 2019 and then begin declining. However, over the period out to 2019, VEC’s capital structure will become progressively more reliant on debt. The debt to equity ratio is projected to range from a low of 84:16 in 2012 to a high of 100:0 in 2020 (Table A9.3). Beyond 2020, again assuming that VEC undertakes no additional expressway projects, the capital structure should gradually rebalance itself as debt levels decline and equity levels increase as a result of improved profitability.

21. VEC’s capacity to service its debt is projected to be less than satisfactory over the period prior to 2018. The debt service ratio (DSR), which is calculated as annual net revenues divided by debt service, is expected to be less than 1.0 over much of the period. Lenders typically require that the borrower achieve a DSR of 1.2 – 1.5 in order to provide a sufficient provision for unforeseen shortfalls in net revenues or unanticipated increases in debt service obligations. The projections indicate that VEC will not be able to consistently achieve DSRs in this range until at least 2018.

22. Despite the unsatisfactory debt service capacity, the projections do show that VEC should be able to meet its debt obligations in all years. However, the relatively weak debt service capacity does indicate a moderate level of risk regarding VEC’s ability to service its debt in a timely manner. Relatively minor shortfalls in operating revenues, or increases in debt service obligations as a result of foreign exchange or interest rate movements, could lead to an inability to meet all financial obligations. VEC might then have to defer payments for debt service, capital investments, or operations and maintenance, or seek additional Government financial assistance.

23. The practical implications of the imbalanced capital structure depend very much on the requirement for VEC to take on additional projects beyond the existing six expressways. For these existing projects, the bulk of the debt financing required has already been secured or is in an advanced stage of being secured. Therefore, the impact of the increasing imbalance in the capital structure on VEC’s ability to fund these projects may be limited. However, the ability of VEC to secure the debt needed to fund additional projects over the next decade would be much more uncertain. Lenders would be expected to be very cautious about extending additional debt to VEC, even if this debt is Government guaranteed. Therefore, the implications of the imbalanced capital structure are significant if VEC is to undertake additional expressway projects over the next decade but less so if it is limited to the six presently under construction or active preparation.

24. If VEC is to undertake additional expressway projects over next decade, it could only realistically expect to secure the new debt needed to fund these investments if it can achieve a more balanced capital structure and better debt service capacity than presently projected. This could be achieved through a reduced reliance on debt financing for its existing six projects, which would require a corresponding increase in Government equity contributions. Government equity contributions could be increased by passing a portion of the ODA loans from MoF to VEC as equity. This could then enable VEC to retain some capacity to take on additional debt in the future.
Table A9.3: VEC - Summary of Financial Performance  
(VND billion - current prices)

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Profitability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td></td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>11</td>
<td>884</td>
<td>1,032</td>
<td>1,823</td>
<td>3,179</td>
<td>3,720</td>
<td>6,793</td>
<td>7,886</td>
<td>9,242</td>
<td>10,770</td>
</tr>
<tr>
<td>Expense</td>
<td>(6)</td>
<td>(2)</td>
<td>(4)</td>
<td>(6)</td>
<td>(914)</td>
<td>(1,479)</td>
<td>(3,108)</td>
<td>(4,729)</td>
<td>(5,207)</td>
<td>(11,079)</td>
<td>(12,059)</td>
<td>(13,207)</td>
<td>(13,495)</td>
<td></td>
</tr>
<tr>
<td>Net Profit</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>(30)</td>
<td>(447)</td>
<td>(1,284)</td>
<td>(1,550)</td>
<td>(1,487)</td>
<td>(4,286)</td>
<td>(4,173)</td>
<td>(3,965)</td>
<td>(2,725)</td>
<td></td>
</tr>
</tbody>
</table>

| **B. Cash Flow**     |        |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating Net Cash Flows | (3)  | 609  | (316)| (617)| (231)| (422)| (120)| 594  | 836  | 3,486| 4,232| 4,624| 6,194|        |
| Government Contributions | 193 | 41   | 2    | 2,645| 5,987| 2,534| 1,461| 2,655| 2,420| 1,117| 385  | 193  | 0    |        |
| **Overall Net Cash Flow** | 1,331| 789  | 15   | (31) | 216  | 0    | 50   | 181  | 164  | 621  | 1,866| 1,785| 2,836|        |
| Ending Cash Balance\[^1\] | 456  | 526  | 542  | 511  | 727  | 624  | 673  | 855  | 764  | 1,385| 3,251| 5,036| 7,872|        |

| **C. Capital Investments & Debt** |        |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Capital Investments    |        | 1,268| 3,451| 4,246| 14,756| 27,261| 28,058| 18,410| 17,462| 12,190| 3,017| 2,244| 1,472| 1,541|
| New Borrowing          |        | 1,373| 3,163| 4,603| 12,879| 22,786| 26,954| 17,557| 16,748| 12,530| 1,908| 1,080| 250  | 258  |
| Repayments             |        | 80   | 332  | 34   | 193  | 1,075 | 1,127 | 452   | 2,368 | 3,704 | 2,889| 1,614| 1,875| 2,175|

| **D. Key Performance Indicators** |        |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Debt Service Ratio     |        | 0.0  | 0.1  | 0.4  | 0.4  | 0.7  | 0.7  | 1.3  | 0.8  | 0.7  | 1.0  | 1.4  | 1.4  | 1.6  |

\[^1\] Includes cash and short-term investments, which consists primarily of fixed deposits.
IBRD Map No. VNM38199