



Completion Report

Project Number: 42358-013
Loan Number: 2539
July 2016

Cambodia: Greater Mekong Subregion: Cambodia Northwest Provincial Road Improvement Project

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Asian Development Bank

CURRENCY EQUIVALENTS

Currency Unit	–	riel/s (KR)	
		At Appraisal	At Project Completion
		15 July 2009	31 December 2014
KR1.00	=	\$0.0002387	\$0.000245
\$1.00	=	KR4,189	KR4,060
SDR 1.00	=	\$1.55402	\$1.45355

ABBREVIATIONS

ADB	–	Asian Development Bank
CBF	–	cross-border facilities
DDIS	–	detailed design and implementation supervision
DMF	–	design and monitoring framework
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
GMS	–	Great Mekong Subregion
IEE	–	initial environmental examination
KEXIM	–	Export-Import Bank of Korea
MEF	–	Ministry of Economy and Finance
MPWT	–	Ministry of Public Works and Transport
NR	–	national road
PMU	–	project management unit
ROW	–	right of way
SDR	–	special drawing rights
SEC	–	Southern Economic Corridor

NOTES

- (i) The fiscal year (FY) of the Government of the Royal Kingdom of Cambodia ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

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BASIC DATA

A. Loan Identification

1.	Country	Kingdom of Cambodia
2.	Loan Number	2539
3.	Project Title	Greater Mekong Subregion: Cambodia Northwest Provincial Road Improvement Project
4.	Borrower	Kingdom of Cambodia
5.	Executing Agency	Ministry of Public Works and Transport
6.	Amount of Loan	SDR 10,512,000
7.	Project Completion Report Number	CAM 1576

B. Loan Data

1.	Appraisal	
	– Date Started	2 April 2009
	– Date Completed	10 April 2009
2.	Loan Negotiations	
	– Date Started	6 July 2009
	– Date Completed	7 July 2009
3.	Date of Board Approval	24 August 2009
4.	Date of Loan Agreement	17 September 2009
5.	Date of Loan Effectiveness	
	– In Loan Agreement	16 December 2009
	– Actual	25 November 2009
	– Number of Extensions	0
6.	Closing Date	
	– In Loan Agreement	30 June 2014
	– Actual	8 September 2015
	– Number of Extensions	1
7.	Terms of Loan	
	– Interest Rate	1% per annum during grace period and 1.5% per annum thereafter
	– Maturity (number of years)	32
	– Grace Period (number of years)	8
8.	Terms of Relending (if any)	Not applicable
	– Interest Rate	
	– Maturity (number of years)	
	– Grace Period (number of years)	
	– Second-Step Borrower	

9. Disbursements

a.	<u>Dates</u>		
	Initial Disbursement	Final Disbursement	Time Interval
	26 January 2011	30 March 2015	50 months

Effective Date	Original Closing Date	Time Interval
25 November 2009	30 June 2014	55 months

b. Amount (SDR and \$ million)

Category	Original Allocation (1)	Partial Cancellations (2 = 1-3)	Last Revised Allocation (3)	Amount Disbursed (4)	Undisbursed Balance (5 = 3-4)
1. Works	5.883	(0.250)	6.133	6.133	0.000
01A Improvement of NR56A	3.969		5.477	5.477	0.000
01B CBF Rehabilitation	1.914		0.000	0.000	0.000
01C Road Maintenance of NR6	–		0.656	0.656	0.000
2. Consulting Services	1.551	(0.041)	1.592	1.592	0.000
02A DDIS for NR56A	0.588		1.431	1.431	0.000
02B DDIS for CBF	0.271		0.000	0.000	0.000
02C Road Safety Program	0.530		0.000	0.000	0.000
02D HIV Prevention and Anti-trafficking Program	0.162		0.161	0.161	–
3. Equipment: Road Maintenance Program	0.517	0.107	0.410	0.410	0.000
4. Incremental Administrative Costs	0.123	0.076	0.200	0.200	0.000
5. Interest Charge	0.162	(0.098)	0.064	0.064	0.000
6. Unallocated	2.276	2.276	0.000	0.000	0.000
Total (SDR)	10.512	2.113¹	8.399	8.399	0.000
Total \$ Equivalent	16.260		12.633	12.633	

Notes: a b c d e

CBF = cross-border facility; DDIS = detailed design and implementation supervision; NR = national road.

¹ For final cancellation

a = \$ equivalent per RRP

b = \$ equivalent as of date of approval of cancellation

c = Total of (d + e)

d = Actual \$ equivalent

e = \$ equivalent as of report preparation

² The difference between the original amount and the revised total amount was due to the exchange rate variation between the SDR and the \$.

1 – Civil Works, 2 – Consulting Services, 3 – Road Safety Program, 4 – Equipment, 5 – Incremental Administrative Costs, 6 – Interest Charge, 7 – Unallocated

10. Local Costs (financed) – Not Applicable

C. Project Data

1.	Project Cost (\$ million)		
	Cost	Appraisal Estimate	Actual
	Foreign Exchange Cost	17.80	20.67
	Local Currency Cost	30.09	29.81
	Total	47.89	50.48

2.	Financing Cost (\$ million)		
	Cost	Appraisal Estimate	Actual
	Implementation Costs		
	Borrower Financed	6.060	8.230
	ADB Financed	16.010	12.570
	Other External Financing	25.570	29.580
	Total	47.640	50.380
	IDC Costs		
	Borrower Financed	0.000	0.000
	ADB Financed	0.250	0.100
	Other External Financing	0.004	0.000
	Total	0.254	0.100

ADB = Asian Development Bank, IDC = interest during construction.

3.	Cost Breakdown by Project Component (\$ million)		
	Component	Appraisal Estimate	Actual
	A. Investment Costs		
	1. Improvement of NR56A	6.14	8.95
	2. Improvement of NR56B	17.64	26.98
	3. Improvement of CBF	2.96	0.00
	4. Equipment of CBF	0.90	0.00
	5. Land Acquisition and Resettlement	1.06	1.56
	6. Consulting Services for design and supervision	2.43	4.79
	7. Road Maintenance Program ^a	0.80	1.28
	8. Road Safety program	0.82	0.49
	9. HIV prevention and anti-human trafficking Program	0.25	0.25
	10. Taxes and duties	4.87	4.87
	B. Incremental Administration Cost ^b	0.63	1.21
	C. Contingencies	9.15	0.00
	D. Financial Charges During Implementation	0.25	0.10
	Total	47.89	50.48

CBF = cross-border facility; NR = national road.

^a At appraisal, this component's scope was to provide two new permanent weigh stations on national roads and to maintain the existing seven weigh stations. This scope, in terms of new weigh stations, was changed in 2012 for periodic maintenance of a 13 km section of NR 6.

^b Includes project management cost.

Source: Asian Development Bank.

4.	Project Schedule		
	Item	Appraisal Estimate	Actual
	Date of Contract with Consultants		
	- Construction Supervision	31 March 2010	28 October 2010
	- HIV prevention Program	30 June 2010	22 February 2012
	- Road Safety Program	30 June 2010	14 March 2013
	Completion of Engineering Designs	31 July 2010	21 April 2011
	Civil Works Contract		
	Date of Award	31 December 2011	25 November 2011
	Completion of Work	31 December 2013	31 August 2014

Item	Appraisal Estimate	Actual
Equipment and Supplies		
Dates		
First Procurement	Not Specified	20 June 2011
Last Procurement	Not Specified	1 July 2012
Completion of Equipment Installation	31 December 2012	31 July 2012
Start of Operations		
Completion of Tests and Commissioning	Not Specified	22 October 2014
Beginning of Start-Up	Not Specified	1 September 2014
Other Milestones		

5. Project Performance Report Ratings

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
From 1 July 2009 to 31 December 2010	Satisfactory	Satisfactory
After the change of ADB performance rating system (effective from 1 January 2011)		
From 1 January 2011 to 31 March 2011		No Rating
From 1 April 2011 to 30 September 2011		Potential Problem
From 1 October 2011 to 31 December 2013		Actual Problem
From 1 January 2014 to 31 Mar 2014		On Track
From 1 April 2014 to 30 September 2014		Actual Problem
From 1 October 2014 to 31 December 2014		Potential Problem

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Fact-Finding Mission	2–11 February 2009	9	90	a, b, c, d, f, g
Appraisal Mission	3–10 April 2009	7	56	a, b, c, d, e, f,
Inception Mission	18–21 May 2009	2	8	a, f, g
Review Mission 1	3–7 December 2009	1	5	a
Review Mission 2	21–28 January 2011	1	7	a, g, f, h
Review Mission 3	22–30 June 2011	2	16	
Review Mission 4	28 November–2 December 2011	2	8	a, c, f, g
Special Loan Administration Mission	2–9 March 2012	2	14	a, c, f, i
Midterm Review Mission	11–19 June 2012	5	40	a, b, c, f
Review Mission 5	19–26 Nov 2012	4	32	a, b, c, f
Review Mission 6	22–23 May 2013	1	2	a
Review Mission 7	3–7 June 2013	3	12	a, b, f
Review Mission 8	25 November–2 December 2013	2	16	a, b, c, f
Review Mission 9	28 April–2 May 2014	3	18	a, b, c,
Review Mission 10	20–25 November 2014	4	28	a, b, c, f
Project Completion Review Mission	17–22 June 2015	3	12	a, b, f

a = transport specialist, b = environment specialist / officer, c = social / resettlement specialist, d = financial analysis specialist, e = counsel, f = project analyst, g = project implementation, h = procurement, i = integrity officer.

I. PROJECT DESCRIPTION

1. The project road, National Road (NR) 56 from Sisophon to Samraong (113 kilometer [km]) in the northwestern part of Cambodia, provides important subregional and rural access in the project area. NR 56 is considered a major provincial road that traverses two provinces, Banteay Meanchey and Oddar Meanchey in northwestern Cambodia, and also links the project area with the northern provinces of Thailand. The provinces Banteay Meanchey and Oddar Meanchey had shown a strong potential for agriculture development during project design but the existing road infrastructure was inadequate for sustainable rural development and for connectivity. The road also connects to NR 68 that links with Thailand at O'Smach, a strategic border point with strong potential to promote subregional transport and trade between Cambodia and Thailand.

2. NR 56 was a gravel road prior to project start in 2009. It has been subject to flooding and its surface was severely degraded and was thus impassable during the wet season. Under the project the road would be improved to paved, all weather standard. Therefore, it was expected that the project would increase access to local markets, reduce travel times and vehicle operating costs, and increase tourism, leading to increased economic activity in the project area. By providing more direct routes to border crossings and links to major economic corridors, the project would also strengthen subregional cooperation between Cambodia and Thailand.

3. The outcome of the project was increased transport efficiency in northwestern Cambodia. The project outputs to achieve this were (i) road improvement (improvement of NR 56), (ii) cross-border facilities (CBF) rehabilitated (rehabilitation of facilities at O'Smach CBF), (iii) road maintenance program implemented, (iv) road safety program functioning efficiently, and (v) HIV prevention and anti-human-trafficking program implemented.

4. To achieve this, on 29 August 2009, the Asian Development Bank (ADB) approved a loan of about \$16.3 million equivalent from its Special Funds resources to the Government of Cambodia through the Greater Mekong Subregion (GMS): Cambodia Northwest Provincial Roads Improvement Project.¹ In addition to ADB financing, the Government of Korea, through the Export-Import Bank of Korea (KEXIM), provided parallel cofinancing for the project for \$25.58 million. The Government of Cambodia financed about \$6.05 million of the project cost, which was \$47.89 million at appraisal. The Ministry of Public Works and Transport (MPWT), the executing agency, through its Project Management Unit 3 (PMU3), completed the project on 31 December 2014, after a 6-month extension of the original completion date of 30 June 2014.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

5. The project was developed in line with the government's infrastructure development emphasis on improving the national and provincial road network to allow more effective access to rural areas.

6. The project, as a flagship project of the GMS Southern Economic Corridor (SEC),

¹ ADB. 2009. *Report and Recommendation of the President to the Board: Proposed Loan to the Kingdom of Cambodia for the Greater Mekong Subregion: Cambodia Northwest Provincial Road Improvement Project*. Manila.

represents an important part of ADB's GMS initiative. The SEC was identified by the GMS countries as one of the three priority economic corridors in 1998. The development of the SEC was subsequently designated as a flagship initiative under the 10-Year GMS Strategic Framework that was endorsed by the leaders of the GMS countries during the First GMS Summit held in Phnom Penh, Cambodia in 2002. The project road serves as another transnational corridor where it connects to NR 68, which leads to the border at O'Smach, linking Thailand with Cambodia, and NR 56 connects with the main SEC linking Bangkok, Phnom Penh, Ho Chi Minh City, and Vung Tau.

7. The project was relevant to and consistent with ADB's Country Strategy and Program, 2005–2009.² The project is also relevant to one of the three strategic plans in the government's Rectangular Strategy, Phase II.³ In this context, the project also remained relevant at completion as the current ADB Country Partnership and Strategy 2014-2018, as well as the government's Rectangular Strategy, Phase III, has continued focus on project objectives, as at appraisal.⁴

8. It should be noted that the changes in the road maintenance program⁵ during project implementation did not affect the relevance of the project. The project was designed under a project preparatory technical assistance,⁶ the quality of which was satisfactory.

B. Project Outputs

9. **Road Improvements.** The project was to rehabilitate the 113 km of NR 56 from Sisophon to Samraong from its existing gravel surface to an all-weather double bituminous surface treatment pavement. The road's design width was 11 meters (m), consisting of 3.5 m dual carriageway and a 2 m wide shoulder on both sides. For the parallel financing of the rehabilitation works, NR 56 was divided into two sections: (i) NR 56A from Sisophon to Km 29 (length 29 km), financed by ADB; and (ii) NR 56B from Km 29 to Samraong (length 84 km), financed by KEXIM.

10. The road improvement works included two bridges on NR 56A, which were widened from 7 m to 10 m. Longitudinal and cross drainage was improved along the entire length of NR 56 to avoid future flooding. Further, in the town centers of Samraong, Sisophon, and Svay Chek, a side drain system with concrete pipes was constructed on both sides of the road, again, to prevent flooding. Based on the request of the Banteay Meanchey Provincial Government, a 2.5 km section connecting to NR 6 within Sisophon Town was paved with asphalt to avoid pavement failure during the wet season and heavy traffic. The generally low embankment of the existing NR 56 along all other sections was raised to prevent flooding.

11. Generally, for rehabilitation, the existing alignment of NR 56 was retained. However, a bypass road was designed and constructed to avoid environmental effects to the pre-Angkor

² ADB. 2005. *Country Strategy and Program: Cambodia, 2005–2009*. Manila.

³ Specifically, this refers to strategic plan of broad-based economic growth through investment in physical infrastructure; other two plans are development of the financial sector, support for greater regional integration, and sustainable development of small and medium-sized enterprises, and investments in agriculture and irrigation. Prime Minister Samdech Techo Hun Sen. 2008. *Rectangular Strategy for Growth, Employment, Equity and Efficiency, Phase II*. Phnom Penh.

⁴ ADB. 2014. *Country Strategy and Program: Cambodia, 2014–2018*. Manila and Prime Minister Samdech Techo Hun Sen. 2013. *Rectangular Strategy for Growth, Employment, Equity and Efficiency, Phase III*. Phnom Penh.

⁵ Refer to para. 15 for more information.

⁶ ADB. 2005. *Technical Assistance to the Kingdom of Cambodia for the Transport Infrastructure Development and Maintenance Project*. Manila.

Banteay Chhmar Temple during construction. The road improvement around the temple was restricted by a Royal Decree with a series of protective zones. To avoid these zones, it was necessary to provide the 11 km bypass road (which had the same design standards as NR 56). Nevertheless, the access road to Banteay Chhmar Temple was retained as the existing alignment of NR 56, but the access road was subsequently paved with double bituminous surface treatment pavement within the existing width only.⁷ All the works on the bypass and the temple's access road were done under KEXIM financing.

12. All the road improvement works were successfully completed by October 2015.⁸ This completed the smooth access to the cross-border facility (CBF) at O'Smach on the border with Thailand as NR 68 (from Kralanh in NR 6 to O'Smach through Samraong) was already rehabilitated by the government connecting Samraong and O'Smach.

13. **Improvement of the Cross-Border Facility at O'Smach.** The CBF at O'Smach was to be rehabilitated under the project, as the existing shed-like facilities were inadequate for operations in line with the Cross-Border Transport Agreement (CBTA) among GMS countries. New facilities planned to be provided were to meet CBTA requirements for single-stop single-window processing of cross-border traffic. The design of CBF considered all agencies involved in the CBF such as customs, immigration, quarantine, and police, functioning efficiently in the same compound. The area required for all facilities was approximately 4 hectares south of the border, on either side of NR 68.

14. However, despite ADB missions' continuous advice since project inception to complete land acquisition for the CBF in a timely manner, the government was unable to acquire the land. The government cited difficulty in contacting the landowners and unacceptably high rate of land compensation required by the landowners as reasons. As a result, the CBF—an important part of subregional aspect of the project—was not implemented. At appraisal, the risk of not implementing the resettlement plan was identified in the design and monitoring framework (DMF).

15. **Road Maintenance Program.** This output was to focus on axle load control to support road asset management of MPWT, also assisted by the ADB-financed Road Asset Management Project.⁹ With the objective to increase MPWT's capacity for axle load control, the output was to provide two permanent weigh stations in strategic locations, which would expand the seven permanent weigh stations already constructed, financed under the Greater Mekong Subregion: Cambodia Road Improvement Project.¹⁰ However, in 2012, instead of the proposed axle load control measures as at appraisal under this output, PMU3 requested ADB to finance periodic maintenance of a severely damaged 13 km section of NR 6 from Siem Reap to Kralanh, due to its rapid deterioration after floods. PMU3 also requested, under this output, financing for maintaining the seven permanent weigh stations that needed periodic repairs. ADB approved these proposed changes.

⁷ Initially, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) objected to the request of the provincial governor to the Ministry of Public Works and Transport (MPWT) to have the access road to the temple sealed under the project. However, towards the latter stages of the project, UNESCO changed its decision and requested MPWT to seal the access road.

⁸ NR 56A was completed in December 2014 and NR 56B was completed in October 2015.

⁹ ADB. 2009. *Report and Recommendation of the President to the Board: Proposed Loan to the Kingdom of Cambodia for the Road Asset Management Project*. Manila.

¹⁰ ADB. 2002. *Report and Recommendation of the President to the Board: Proposed Loan to the Kingdom of Cambodia for Greater Mekong Subregion: Cambodia Road Improvement Project*. Manila.

16. **Road Safety Program.** This output was included in the project for seeking measures to remedy deteriorating road safety in Cambodia since 2007, which was induced by rapid motorization. In line with the ongoing National Road Safety Action Plan, which focused on public awareness of the traffic law, road user competence and education, and safety awareness, the output was designed as a community-based road safety program.¹¹ The program was to enhance road user education in the project area, through public awareness campaigns, provision of related equipment, and implementation of minor civil works to improve the level of road safety in Cambodia. In April 2012, PMU3 requested ADB to approve a minor change in this output, a proposed split of the output into two contracts to enhance the effectiveness of this output: (i) consulting services for a community-based road safety program, and (ii) minor civil works related to road safety. ADB approved the change.

17. The road safety consultants, recruited in 2012, developed a program to work with other national road safety initiatives and programs in Cambodia to complement them, especially those of MPWT's National Road Safety Committee—the National Road Safety Action Plan. The consultants provided road safety education to schools in the project area and to provincial public authorities. Minor civil works provided 52 road safety billboards that were installed along national roads nationwide, including NR 56. The road safety billboards were expected to enhance public awareness of road safety and road users' behavior.

18. **HIV Prevention and Anti-Human-Trafficking Program.** This program was designed to supplement the national HIV/AIDS prevention program of the Ministry of Health, given the project was located in the area with the highest HIV and human trafficking incidence in Cambodia. This output was to focus on measures to reduce such negative impacts. It was expected that the program would reduce HIV transmission and prevalence of sexually transmitted infections among workers associated with the project and communities benefiting from NR 56. This program focused not only on the communities along NR 56 road corridor but also on all inhabited areas of northwestern Cambodia.

19. Four activities were implemented: (i) a community-based risk mitigation for HIV, safe migration, and anti-human-trafficking targeting females, including married women; (ii) focused HIV initiatives in the work setting, particularly for the construction workforce and entertainment workers, and enforcement education for military personnel, border police, and officials; (iii) strengthened district public health services; and (iv) a monitoring system. The anti-human-trafficking program also focused on safe migration. The program was implemented fully.

20. **Consulting Services.** As envisaged at appraisal, ADB-financed consultants were engaged for detailed design and implementation supervision (DDIS) consulting services, in addition to those described in paras. 16 to 19. The DDIS consultants assisted PMU3 in the detailed design of NR 56, pre-construction activities, procurement and consultant selection, construction supervision, and also in strengthening the capacity of MPWT in procurement, contract administration and quality control of civil works. These consulting services were completed in December 2014.

C. Project Costs

21. At appraisal, the project was estimated at \$47.89 million, including contingencies, taxes and duties, and charges during implementation. The financing plan at appraisal included an

¹¹ National Road Safety Committee, 2005, *The National Road Safety Action Plan*, Royal Government of Cambodia, Phnom Penh.

ADB loan of \$16.26 million equivalent (about 34% of the total project costs) from ADB's Special Funds resources. KEXIM was to provide \$25.58 million equivalent (about 53% of the total project costs) in parallel cofinancing. The Government of Cambodia was to fund the remaining cost, equivalent to \$6.06 million (about 13% of the total project costs). Financing details (at appraisal and completion) are in Appendix 2. The average exchange rates used are in Appendix 3. A summary of contracts financed by ADB is in Appendix 4.

22. The actual project cost at completion was \$50.48 million, of which ADB financed \$12.57 million (about 24.9% of the total project costs). KEXIM cofinancing accounted for the equivalent of \$29.58 million (about 58.6% of the total project costs). The Government of Cambodia financed the remaining project cost of \$8.23 million (about 16.3% of the total project costs). The rehabilitation of O'Smach CBF, which was estimated to cost \$4.28 million (\$2.95 million for civil works and \$1.32 million for equipment and consulting services at appraisal), was not implemented. Despite this, the difference between total project costs at appraisal and completion is about \$2.59 million, which was mainly due to the cost overruns of civil works, as a result of price increases beyond projections.

D. Disbursements

23. The loans proceeds were disbursed in accordance with the *ADB Loan Disbursement Handbook* (2007, as amended from time to time) through reimbursement, imprest account, and direct payment procedures.¹² MPWT established an imprest account for local expenditures such as incremental administrative expenditures. For civil works contracts, the direct payment procedure was applied. A disbursement schedule was not included in the appraisal. However, based on the implementation schedule prepared at appraisal, the projected and actual disbursements were prepared (Appendix 5).

24. During the initial stages of project implementation, the loan was disbursed more slowly than envisaged at appraisal due to delays in the recruitment of DDIS consultants, and slow implementation of the civil works. These disbursements were accelerated subsequently. Disbursements from the loan account were completed on 30 March 2015.

25. At project completion, utilization of financing was as follows: ADB loan: \$12.63 million (about 78%), including \$0.06 million in interest during construction, out of the original allocation of \$16.26 million. The imprest account's turnover ratio was 2% after the final settlement of the imprest account. PMU3 assessed the imprest account as positive as it helped with the payment of expenditures related to project management activities of PMU3. ADB finalized the financial data with MPWT and closed the loan account on 8 September 2015.

E. Project Schedule

26. The ADB Board approved the loan on 24 August 2009. The loan agreement was signed on 17 September 2009 that became effective on 25 November 2009. The original closing date of the loan was 30 June 2014. This was extended until 31 December 2014 at the request of the borrower. The 6-month extension of the loan enabled all works to be completed. This 6-month delay of the project was due to the initial delays that the project had during DDIS consultant selection, which in turn delayed civil works implementation. The civil works for the improvement of NR 56B, which was financed by KEXIM, were completed in October 2015.

¹² All disbursements of KEXIM's loan were according to KEXIM procedures.

F. Implementation Arrangements

27. The executing agency of the project was MPWT, and implementing agency was PMU3, until project completion. PMU3 was headed by an undersecretary of state of MPWT as the project director, responsible for all activities in the project's implementation. The project director was assisted by officials and other support staff. PMU3 had a senior accountant who was capable of handling all financial management matters; thus, all related matters were handled satisfactorily, as envisaged at appraisal. There were 26 staff in the PMU3.

28. The PMU3 managed two major tasks: (i) preconstruction activities (preparation of tender documents for ADB approval, acceptance of detailed designs, pre-bid meetings, and evaluation of bids and award of contract) related to civil works; and (ii) engagement of consultants for detailed design and construction supervision of the civil works, and supervision of all project activities. The Social and Environment Unit, established within MPWT's Department of Planning, undertook coordination and monitoring of resettlement, environment, and social issues during the implementation of the project. The DDIS consultants assisted PMU3 in all project management activities while providing PMU3 staff with capacity building.

G. Conditions and Covenants

29. The borrower and the executing agency generally complied with the loan covenants, with the exception of the covenant on audited financial statements submission, which was delayed in certain years. This was due to the availability of only a few adequately qualified auditing firms in the market, and the practice of the Ministry of Economy and Finance (MEF) to delegate the auditing of all project accounts of the entire Cambodia portfolio to one qualified firm in April of each year. Due to the clustering of auditing tasks, the firm was generally unable to meet the deadline for the submission of audited financial statements by 30 June. This issue has been discussed during portfolio reviews each year. ADB is now considering to provide a technical assistance to MEF to remedy the issue. Details of compliance with the covenants under the loan are presented in Appendix 9.

H. Consultant Recruitment and Procurement

30. The DDIS consultant recruitment (quality- and cost-based selection 80:20, full technical proposal) was delayed by about nine months, during the initial stages of project implementation. The delay was due to the slow submissions by PMU3, which also contained mistakes that ADB commented on PMU3's over resubmissions. The original contract for these consulting services was \$1.97 million, whereas the completion contract cost was \$2.19 million.

31. The other two consulting services for HIV prevention program and road safety program adopted quality-based selection with bio-data technical proposals and were not delayed. All the above consultant selection processes were suitable for the nature of their respective works.

32. Procurement processes of all works and goods under the project were also generally smooth, thus had no serious issues. Civil works contracts for the improvement of NR 56A and maintenance of NR 6 were under the international competitive bidding with single envelope procedure. The other civil works contract for road safety billboards was awarded under the national competitive bidding procedure, while the supply for maintenance of weigh stations was done under shopping. However, during a spot review in 2012, ADB's Office of Anticorruption and Integrity (OAI) recommended intense monitoring of procurement activities in future projects as PMU3's due diligence on the evaluation of bids of NR 56A was not comprehensive enough to

capture the pre-specified financial evaluation criteria.¹³ Since the contract was ongoing when this recommendation was made, ADB monitored succeeding procurement processes including those under other projects implemented by PMU3, intensely. The details of the procurement activities are in Appendix 4.

I. Performance of Consultants, Contractors, and Suppliers

33. There were three consultants associated with project implementation: the DDIS consultants, the HIV program consultants, and the road safety program's consultants. The performance of all three consultants was *satisfactory*, as they delivered outputs and reports with satisfactory quality, and without issues.

34. However, the performance of two contractors and one supplier was *partly satisfactory*. The lead contractor for NR 56A was absent from the contract mobilization time, thus the local partner had to implement the contract. The local partner lacked financial capacity and lacked staff with appropriate technical and managerial skills. This delayed the contract during initial stages. However, the local partner made efforts to expedite works starting from Q1 2013 with new site management staff, which improved progress. Neither the bidding documents nor the evaluation process at that time was able to avoid this situation. The ADB standard bidding documents needed stronger provisions for domestic preference aspects.

35. This situation was worse with the contractor for the maintenance of NR 6 between Siem Reap and Kralanh. Though the works started during the dry season, the progress was quite slow with slippage accumulating monthly as the contractor made no efforts to catch up, until its delayed completion in December 2014.

36. The supplier of equipment for the seven permanent weigh stations for maintenance was mobilized on time and implemented periodic maintenance satisfactorily. However, after the completion of maintenance works, the supplier and PMU3 had a dispute regarding the supplier's responsibility for repairs during the warranty period. The supplier did not repair the minor defects of equipment during this warranty period, thus PMU3's technical staff had to perform the tasks.

J. Performance of the Borrower and the Executing Agency

37. The performance of the borrower and the executing agency was *partly satisfactory*. Although the PMU3 implemented day-to-day activities of the project well and was able to complete the project with no serious delay, the CBF rehabilitation was not implemented. Despite ADB mission had reiterated requests and reminders to acquire from the landowners the 4-hectare land required for the proposed new CBF at O'Smach, the Government of Cambodia was unable to do so. This resulted in non-implementation of the CBF, which was a key output of this subregional project.

K. Performance of the Asian Development Bank

38. ADB performed well in implementing the project. ADB acted promptly during approvals, disbursements, and monitoring. ADB facilitated constructive dialogue during proposed changes to project scope. Further, ADB assisted the borrower and executing agency to resolve project implementation issues constructively. Even in the case of the O'Smach CBF, ADB continuously

¹³ <http://www.adb.org/projects/documents/gms-cambodia-northwest-provincial-road-improvement-project-ppr>.

alerted the executing agency well in advance, from inception mission, to acquire the land at the earliest. Therefore, the overall performance of ADB is rated *satisfactory*.

III. EVALUATION OF PERFORMANCE

A. Relevance

39. The project is considered *relevant*. It was consistent with the government's development objectives and in line with ADB's operational strategy in the road infrastructure sector for Cambodia. The project was particularly relevant in the context of the strategic needs to develop the northwestern part of the country and to reduce poverty by providing all-year, all-weather roads in one of the country's poorest regions.

B. Effectiveness in Achieving Outcome

40. When the two outcome target indicators are compared between those at appraisal and at completion, it appears that the outcome of the project was achieved (para. 50). The outcome target of increased transport efficiency was achieved by the project, as average travel time to services in the project area was reduced from a range of 60–90 minutes to a range of 24–36 minutes, against a target range of 30–45 minutes. Average trip lengths increased from 15 km to 43 km, a 186% increase, whereas the target was a 40% increase. It is likely that such achievements are attributable only to road improvements. Even though the O'Smach CBF was not rehabilitated, road improvements and the general economic growth in Cambodia may have contributed to increased CBF traffic (see DMF for achieved targets). Therefore, the outcome of the project may be considered as achieved. Based on the foregoing point of view in the evaluation, the project is therefore rated *effective*.

C. Efficiency in Achieving Outcome and Outputs

41. The project achieved its outputs partially, due to non-implementation of the O'Smach CBF. The project was completed with a delay of 6 months, because of delays in consultant recruitment, and delays in civil works implementation. The economic internal rate of return of the project investments is 36.7% compared with 19% envisaged at appraisal, likely due to the fairly high benefits achieved by road rehabilitation and enhanced by the economic growth in Cambodia. Out of the five output indicators of the DMF, only two were fully achieved, one partly achieved, and two not achieved. Therefore, the project is rated *less than efficient*. Appendix 11 shows the economic analysis of the project.

D. Preliminary Assessment of Sustainability

42. One major output of the project was the rehabilitation of NR 56, which was completed successfully under the project. The project completion review observed that the road was in good condition, without even any minor damage. Nevertheless, it has been observed that heavy truck traffic on the project road from Sisophon northwards is increasing. Therefore, it is likely that the road may deteriorate faster than envisaged unless measures for axle load control and routine maintenance are implemented effectively.

43. There is no axle load control along NR 56 in 2016 for any truck traffic between Sisophon and O'Smach. Out of the seven permanent weigh stations provided under Loan 1945 (footnote 6), one station located at Thnal Kaeng along the NR 6 has been removed due to road widening. MPWT's road maintenance financing is insufficient for the entire road network of Cambodia. The

government may not perform routine maintenance effectively but seek periodic maintenance financing for the project road through external financing, as has been the case on some roads.

44. As for road safety, the program initiated by the project has to be continued under government financing for the program to be sustainable. However, such financing is unlikely since the government has not allocated sufficient budget for effective road safety measures. Given the foregoing, the project sustainability is *less than likely*.

E. Impact

45. **Environment.** At appraisal, it was envisaged that there would not be any adverse environmental impacts as the civil works consisted of rehabilitation of an existing road. Initial environmental examinations (IEE) undertaken during project design concluded that the negative environmental impacts of the project during construction would be minor.

46. All civil works contract documents included environmental impact mitigation measures to be implemented during construction by the contractors. However, these mitigation measures were not always fully complied with in reality. Environmental concerns included: (i) air pollution by dust due to poor maintenance of the existing road; (ii) inadequate control of borrow pit slopes for their embankment; (iii) erosion of embankments; and (iv) oil spill and debris from construction residuals. The contractors did improve their mitigation measures after repeated warnings and thorough inspection. In order to improve traffic safety, the contractors provided flagmen, warning signboards and safety facilities. The DDIS consultants monitored the civil works contractors to ensure that the environmental management plan (EMP) was properly complied with.

47. **Socioeconomic** The socioeconomic impact of the project has been significant. The level of land use development along NR 56 increased between 2010 and 2014, with new residences, commercial buildings, and shops. Provincial capital and district centers also have improved with renovated roadside buildings. Passenger traffic has increased as a result, from a range of 1,551 to 2,817 vehicles per day at appraisal in 2009 to a range of 2,397 to 4,438 after project completion, in 2015.

48. **Resettlement.** The detailed measurement survey (DMS) conducted in August 2011 to January 2012 confirmed 1,707 affected persons (210 affected households). The DMS was organized separately for NR 56A and NR 56B. The corridor of impact was 10 m (8 m in the urban communities of Sisophon and Samraong) from the existing road center.

49. The compensation for affected land and houses was completed in April 2013 for NR 56A and in February 2014 for NR 56B. All affected households received compensation for loss of land use and structures. The total cost of resettlement compensation was \$1.57 million, against the appraisal estimate of \$1.06 million (this estimate included compensation for CBF land as well, but not implemented). The estimate of \$1.06 million, made in 2009, was a preliminary estimate without DMS. Although the CBF land was not acquired, actual DMS with increased market prices at the time of compensation in 2013 and 2014 resulted in the total cost for resettlement being \$1.57 million, much higher than estimated. It should be noted that the risk of not implementing the resettlement plan was identified in the DMF during project appraisal.

50. **Income restoration.** An income restoration program was planned and implemented by the government for persons severely affected by the project. A total of 72 persons living along NR 56 were eligible to benefit from this program. These included (i) 18 households losing 10%

or more of their productive agricultural land; (ii) 23 households losing more than 50% of their main structure; (iii) five households headed by elderly persons, seven households headed by women, 17 households living below the poverty line or whose household head is disabled; and (iv) two households that were landless. The cost of this program was \$26,400. All 72 households also received the income restoration allowances. Overall, this program was successfully completed.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

51. The analysis of the DMF is as follows.

52. **Impact.** The project intended to make an impact on subregional transport and trade between Thailand and Cambodia, measured by increased traffic of passengers and cargo. This was achieved since passenger traffic increased by 40% (target at appraisal 30%) while cargo traffic increased by 60% (target at appraisal 20%). However, since the CBF was not rehabilitated, these achievements would be attributable to road rehabilitation alone. It is likely that there could be an even greater impact if the CBF had been rehabilitated.

53. **Outcome.** Similarly, the outcome target of increased transport efficiency was achieved by the project, as average travel time to services in the project area was reduced from a range of 60–90 minutes to a range of 24–36 minutes, compared with a target of 30–45 minutes. Average trip length increased from 15 km to 43 km, a 186% increase, whereas the target was a 40% increase. It is likely that such achievements are attributable only to road improvements. Therefore, here too, the transport efficiency could further increase if the CBF had been rehabilitated and operational, together with streamlined border procedures, to enhance subregional transport.

54. **Outputs.** Outputs achievements were: (i) NR 56 was rehabilitated as planned at appraisal to provide access in the northwestern provinces of Cambodia to climate resilient standards; (ii) as previously mentioned, O'Smach CBF was not rehabilitated, thus is in the same condition as at appraisal; (iii) road maintenance program could have better benefited from more permanent weigh stations for axle load control; however, since the output had a change in scope, periodic maintenance on a 13 km section of NR 6 was the only achievement under this output. The data retrieved from the permanent weigh stations (currently operating ones) show nation-wide overloading violations have decreased to 31%, against the target of 40%. However, since the current axle load control operations are ineffective due to the operational issues, these data may not be considered accurate.¹⁴ Therefore, this output does not appear to have achieved its appraisal targets; (iii) as for road safety, the output targeted a 20% reduction in fatalities from 2010 to 2013. This was not achieved as traffic deaths increased by 7% from 1,816 in 2010 to 1,950 in 2013; and (iv) the HIV prevention program targeted vulnerable groups and contractor personnel in a wide area of the northwestern Cambodia, with a performance target of 10% reduction of HIV/AIDS cases of 2010 by 2013. This has been achieved as the nationwide cases have fallen by 11%.

55. The overall assessment of the project, based on the foregoing individual assessments and the definitions and guidelines provided by the Independent Evaluation Department, is *less*

¹⁴ ADB. 2014. *Technical Assistance to the Kingdom of Cambodia for the Second Road Asset Management Project*. Manila.

than successful. This overall rating is largely due to the non-implementation of the CBF rehabilitation.

B. Lessons

56. The following lessons emerged during project implementation.

57. **CBF Rehabilitation.** No CBF rehabilitation between Cambodia and Thailand included in past ADB-financed projects was implemented since the government failed to acquire land in a timely manner.¹⁵ Therefore, future subregional projects of similar nature need to assess the feasibility of land acquisition for CBF at the concept stage. Depending on the case, either the project should not be considered for ADB-financing or the government should ensure that land acquisition is completed before the fact-finding mission, as an advance action.

58. **Timely Implementation of Resettlement Compensation.** The timely implementation of resettlement (including at the CBF) was a risk identified at project appraisal. The project encountered delays in resettlement compensation due to slow disbursement of counterpart funds. Since delays in resettlement affect civil works implementation, measures to supplement counterpart funds, including the use of ADB loan proceeds for resettlement compensation, should be considered. Alternatively, future projects may opt to avoid the need for resettlement by rehabilitating the roads within existing road widths only.

59. **Contractor Assessment.** The project was affected by the unsatisfactory performance of two contractors and one supplier. Although such performance issues are usually observed in projects of similar nature, it is not simple to find a resolution through the bidding process or contract administration. Therefore, a well-planned performance monitoring system by the government linked to sanctioning of such entities may be a likely remedy.

60. **Road Safety Program.** Road safety programs in rural areas need continuous support to remain sustainable. In this respect, project-based interventions need to be designed more carefully with measures of strengthening beneficiary involvement included in the community-based road safety program to sustain its momentum even after project completion.

C. Recommendations

61. Project-specific and general recommendations that may affect projects or may be generally applicable to ADB practices are addressed below.

1. Project Related

62. **Future monitoring.** Routine and periodic maintenance of the project road is critical to its long-term sustainability as there has been a rapid increase in the levels of traffic since road opening. MPWT allocating sufficient budget for such maintenance activities in a timely manner through their acquired skills of road maintenance planning is essential. Effective axle load control is another area that the government has to focus on to bring back on track overload control operations.

¹⁵ Loan 1945: Poipet CBF was not implemented as planned (project completed in 2011); and Loan 2373: Koh Kong CBF was cancelled from project scope (project completed in 2014).

63. It has been a practice in road sector assistance in Cambodia that ADB focuses on sector issues common to all ongoing projects to establish a common monitoring platform. This results in a natural process of monitoring a completed project through an ongoing or ensuing project, so that monitoring is continued and lessons are carried over. Therefore, no special monitoring is considered necessary for this project. Further actions and follow up are possible through future additional assistance, as outlined in para. 67.

64. **Covenants.** Strict adherence to resettlement-related covenants is necessary to have resettlement compensation, financed by counterpart funds, paid in a timely manner. Another recommendation is to have the borrower agree to ADB financing of the compensation payments.

65. **Timing of the project performance evaluation report.** A project performance evaluation should be undertaken in 2017 to determine whether the project is still meeting its objectives.

2. General

66. **Design and Monitoring Framework targets.** During the project design, ADB did not specifically discuss DMF targets in detail with the executing agency, but the practice should be established to formulate realistic DMF indicators (baseline and achievement-related) for future projects.

67. **ADB assistance.** ADB should consider providing special assistance during implementation of future projects (e.g., staff consulting support) to expedite the executing agency's procedures for ADB approvals of procurement implementation and improving the quality of documentation. This should also be applied to consultant selection processes.

68. **Performance monitoring system.** As has been observed, the performance of consultants, contractors, and suppliers is an issue. It is recommended to establish a performance monitoring system with mechanisms to impose sanctions on non- or unsatisfactorily performing entities. The government may need to consult the Operations Services and Financial Management Department and the Office of Anticorruption and Integrity in developing an effective system of this nature.

PROJECT FRAMEWORK

Design Summary	Performance Targets and/or Indicators	Achievements
Impact Increased subregional transport and trade between Thailand and Cambodia	<ul style="list-style-type: none"> • Increased passenger traffic at O'Smach border by 30% from 2010 in 2013 • Increased cargo traffic at O'Smach border by 20% from 2010 in 2013 	<ul style="list-style-type: none"> • Achieved; 30% increase of passenger traffic achieved; this is only attributable to road improvement and general economic development. • Achieved; 20% target achieved; this is only attributable to road improvement and general economic development.
Outcome Increased transport efficiency in northwestern Cambodia	<ul style="list-style-type: none"> • Average travel time to services in the project districts of 1.0–1.5 hours in 2010 is reduced to 30–45 minutes by 2018 • Increased average trip lengths of the project road by 40% from 2010 in 2013 	<ul style="list-style-type: none"> • Achieved; travel time target achieved in 2014, ahead of the target year of 2018. • Achieved; average trip length increased from 15 km to 43 km, a 186% increase thus average trip length target achieved.
Outputs 1. Project road rehabilitated	<ul style="list-style-type: none"> • 113 km of roads (NR56) rehabilitated, with 310 affected households resettled and compensated by 2013 	<ul style="list-style-type: none"> • Achieved; NR 56 was rehabilitated as planned. The final count of affected households was 210, all compensated by 2013.
2. Cross-border facilities rehabilitated	<ul style="list-style-type: none"> • Cross-border facilities rehabilitated in line with CBTA standards by 2013 	<ul style="list-style-type: none"> • Not achieved; the cross-border facility was not rehabilitated.
3. Road maintenance program implemented	<ul style="list-style-type: none"> • Reduced nationwide overloading violations by 40% from 2010 in 2013 	<ul style="list-style-type: none"> • Partly achieved; the road maintenance program was implemented with the scope changed to the periodic maintenance of a 13-km section of NR6. The maintenance of permanent weigh stations was implemented. This was not exactly the intended output here, as the axle load control was not implemented. The records from permanent weigh stations showing nearly 40% decrease in national overloading violations between 2010 and 2013 may not be considered accurate. This is because the axle load control operations became ineffective since 2012 due to operations issues.
4. Road safety program functioning efficiently	<ul style="list-style-type: none"> • Reduced nationwide road accident fatalities by 20% from 2010 in 2013 	<ul style="list-style-type: none"> • Road safety program was completed in two activities: a community-based road safety program and minor civil works related to road safety. • Not achieved; fatalities increased by 7% from 2010 to 2013.

Design Summary	Performance Targets and/or Indicators	Achievements
5. HIV prevention and anti-human-trafficking program implemented	<ul style="list-style-type: none"> Reduced cases of HIV/AIDS by 10% from 2010 by 2013 	<ul style="list-style-type: none"> Achieved: the HIV prevention and anti-human-trafficking program was implemented. Achieved: national cases of HIV decreased by 11% in 2013 from 2010.

Activities with Milestones	Inputs (\$ million)		At Completion (\$ million)	
1. Rehabilitation of project road	ADB	\$16.26	ADB	12.61
1.1 Selection of detailed design and construction supervision consultants: by March 2010	Civil Works	9.90	Civil Works	9.19
1.2 Preparation of tender documents and selection of contractors: by 2011	Consultants	2.40	Consultants	2.43
1.3 Implementation of resettlement plans: by 2011	General	3.96	General	0.99
1.4 Implementation of project road rehabilitation: by 2013	KEXIM	\$25.58^a	KEXIM	\$29.58
2. Rehabilitation of cross-border facility	Civil Works	18.54	Civil Works	26.98
2.1 Selection of detailed design and construction supervision consultants: by March 2010	Consultants	1.10	Consultants	2.60
2.2 Preparation of tender documents and selection of contractors: by 2011	General	5.94	General	0.00
2.3 Implementation of resettlement plans: by 2011	Government	\$6.05	Government	\$8.23
2.4 Implementation of cross-border facility rehabilitation: by 2013	Civil Works	1.06	Civil Works	1.65
3. Road maintenance program	Consultants	0.00	Consultants	0.00
3.1 Stakeholder consultation for the program: by June 2010	General	4.99	General	6.58
3.2 Formulation and finalization of the program: by 2010	Total	\$47.89	Total	\$50.42
3.3 Implementation of road maintenance program: by 2012				
4. Road safety program				
4.1 Stakeholder consultation for the program: by June 2010				
4.2 Formulation and finalization of the program: by 2010				
4.3 Implementation of road safety program: by 2013				
5. HIV prevention and anti-human-trafficking program				
5.1 Stakeholder consultation for the program: by June 2010				
5.2 Formulation and finalization of the program: by 2010				
5.3 Implementation of HIV prevention and anti-human-trafficking program: by 2013				

CBTA = cross-border trade agreement; KEXIM = Export-Import Bank of Korea; km = kilometer; MPWT = Ministry of Public Works and Transport; NR = national road; UNAIDS = Joint United Nations Programme on HIV/AIDS; UNICEF = United Nations Children's Emergency Fund.

^a This estimate was based on ADB's feasibility study. However, KEXIM reappraised this estimate based on Korean price indices for their consultants and/or contractors, which was \$29.94 million. This was the approved loan amount.

APPRAISAL AND ACTUAL PROJECT COSTS
(\$ million)

Project Component	Appraisal Estimate			Actual		
	Foreign	Local	Total	Foreign	Local	Total
A. Base Cost						
1. Improvement of NR56A	2.81	3.33	6.14	4.10	4.85	8.95
2. Improvement of NR56B	8.08	9.56	17.64	12.36	14.62	26.98
3. CBF Rehabilitation	1.70	1.26	2.96			
4. Equipment of CBF	0.52	0.38	0.90	0.00	0.00	0.00
5. Resettlement		1.06	1.06		1.56	1.56
6. Consulting Services: NR56A	0.58	0.33	0.91	1.40	0.79	2.19
Consulting Services: NR56B	0.70	0.40	1.10	1.66	0.94	2.60
Consulting Services: CBF	0.27	0.15	0.42			
7. Road Maintenance Program	0.38	0.42	0.80	0.60	0.68	1.28
8. Road Safety Program	0.39	0.43	0.82	0.23	0.26	0.49
9. HIV prevention	0.07	0.18	0.25	0.07	0.18	0.25
10. Taxes and Duties		4.87	4.87		4.87	4.87
Subtotal (A)	15.43	22.44	37.86	20.42	28.75	49.17
B. Incremental Administration Cost	0.06	0.57	0.63	0.05	0.45	0.50
Total Base Costs	15.49	23.01	38.49	20.47	29.20	49.67
C. Contingencies						
1. Physical	1.48	2.20	3.69	0.03	0.05	0.08
2. Price	0.58	4.88	5.46	0.07	0.56	0.63
Subtotal (C)	2.06	7.08	9.15	0.10	0.61	0.71
D. Financial Charges						
1. Interest during Construction	0.25		0.25	0.10		0.10
Subtotal (D)	0.25		0.25	0.10		0.10
Total	17.80	30.09	47.89	20.67	29.81	50.48

CBF = cross-border facility; NR = national road.

CURRENCY EQUIVALENTS

Year	Riels to \$1.00
2009	4,165
2010	4,051
2011	4,039
2012	3,995
2013	3,995
2014	4,060

Source: National Bank of Cambodia

SUMMARY OF CONTRACTS

PCSS No.	Contractor / Supplier	Description	Contract Amount (in \$ million)
01 –Civil Works			
0005	Tan Kim Engineering Co., Ltd. & BCDC Co., Ltd. Joint Venture	ICB: Improvement of NR56A (Sisophon to Km 29)	8,214,941.00
0010	Kuy Leang Ky Construction Trading Group Co., Ltd.	ICB: Civil works for Maintenance of NR6	978,034.00
Subtotal Category 01:			9,192,975.00
02 – Consulting Services			
0001	Korea Consultants International	QCBS: Consulting Services for Detailed Design and Construction Supervision	2,185,854.00
0006	CDOH	QBS: Consulting Services for HIV Prevention and Anti-Human Trafficking Program	246,542.00
Subtotal Category 02:			2,432,396.00
03 –Road Safety Program			
0008	SweRoad in association with PPIC Co., Ltd	QBS: Consulting Services of Road Safety Program	257,108.00
0011	Diamond Construction & Import Export Co., Ltd	NCB: Supply and Installation of Road Safety Billboards on National Roads	204,852.00
Subtotal Category 03:			461,960.00
04 –Road Maintenance Program			
0003	Samin Data System Co. Ltd.	Direct Contracting: Maintenance and spare parts for permanent weigh stations	287,978.00
Subtotal Category 04:			120,964.00
TOTAL			12,208,295.00

ICB = international competitive bidding; km = kilometer; NCB = national competitive bidding; NR = national road; QBS = quality-based selection; QCBS = quality- and cost-based selection.

PROJECTED AND ACTUAL DISBURSEMENTS
(\$ million)

Year	Projected	Actual
2009	–	–
2010	0.30	–
2011	0.37	0.72
2012	2.01	1.85
2013	2.36	2.13
2014	10.53	6.98
2015	–	0.99
Total	15.75	12.67

– = not applicable.

Source: ADB Semi-monthly Listing of Loan Disbursement

PROJECT IMPLEMENTATION SCHEDULE

Activities	2009		2010				2011				2012				2013				2014			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Project Management	[Actual Implementation]																					
Selection of DDIS Consulting Firms	[at appraisal]																					
Improvement of NR 56A, 28km																						
CS1: Detailed Design																						
CW1: ICB Bidding and Contract Award																						
CW1/CS1: Construction/Supervision	[Actual Implementation]																					
Improvement of CBF at O'Smach																						
CS1: Detailed Design																						
CW3: ICB Bidding and Contract Award																						
CW3/CS1: Construction/Supervision	[Actual Implementation]																					
Maintenance Work of NR 6																						
CS1: Detailed Design																						
CW5: NCB Bidding and Contract Award																						
CW5/CS1: Construction/Supervision	[Actual Implementation]																					
HIV Prevention and Anti-Human Trafficking Program																						
CS4: HIV Program Active	[Actual Implementation]																					
CS2/CW4: Road Safety Program	[Actual Implementation]																					
Road Maintenance Program																						
EQ2: Axle Load Control Equipment	[Actual Implementation]																					

at appraisal
 actual

CBF = cross-border facility; CW = civil works; CS = consulting services; DDIS = detailed design implementation and supervision; EQ2: Equipment 2 contract; ICB = international competitive bidding; km = kilometer; NCB = national competitive bidding; NR = national road.

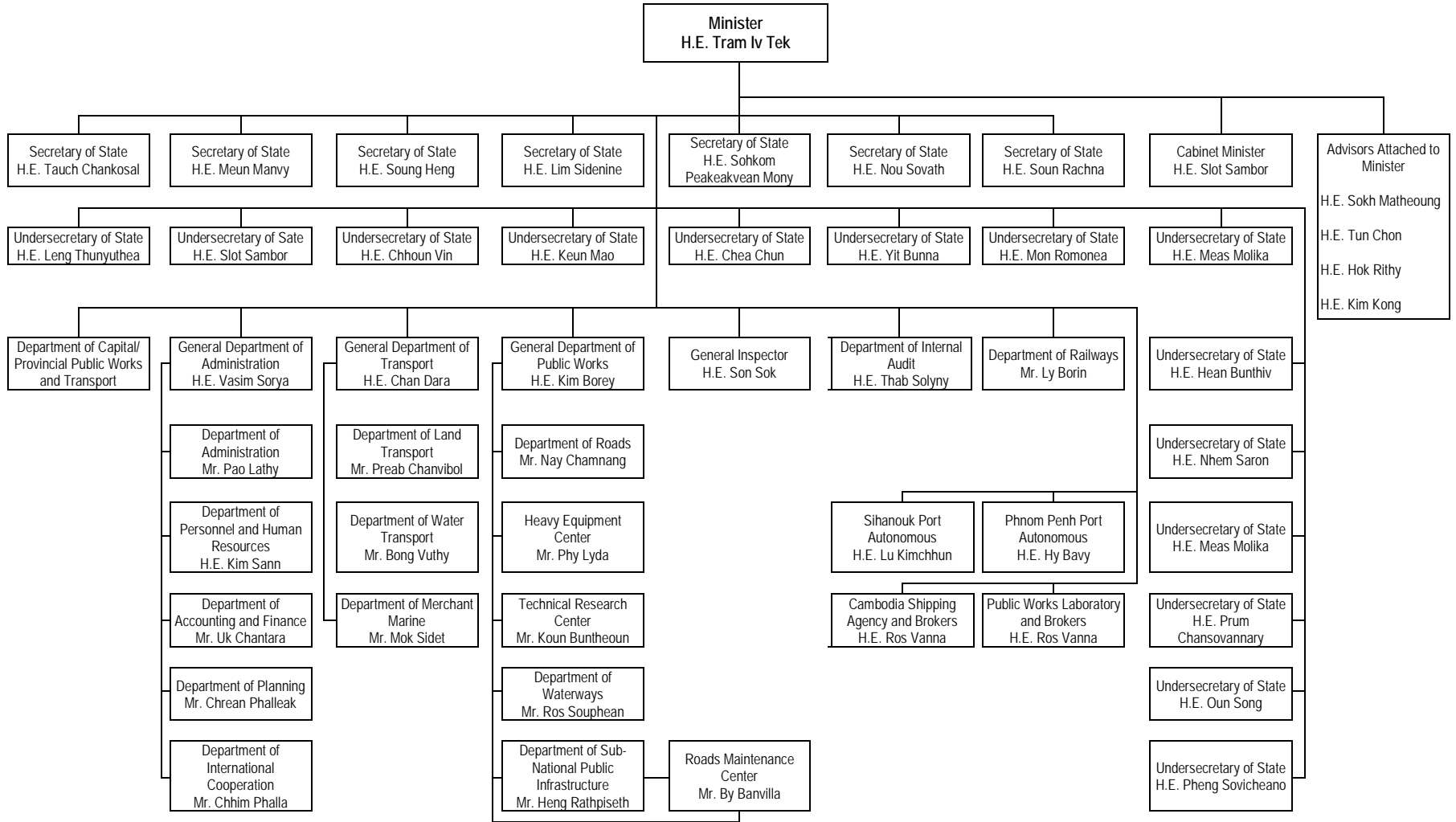
CHRONOLOGY OF MAIN EVENTS

Date	Event
2009	
2–11 February	Fact-finding mission fielded
2–10 April	Appraisal mission fielded
6–7 July	Loan negotiations
24 August 2009	Loan approval
17 September 2009	Loan signing
25 November 2009	Loan effectiveness
2010	
28 October	Contract signing of DDIS consulting services
2011	
21–28 January	ADB Special Review Mission fielded
1–11 March	ADB Special Review Mission fielded
15 March	Submission of Draft Detailed Design Report and Drawings
1 August	Advertisement of Invitation for Bids for NR 56A (CW1) contract
14 October	Submission of Bid Evaluation Report of contract CW1
2 November	ADB approved Bid Evaluation Report of Contract CW1
25 November	Signing of contract CW1
28 November–2 December	ADB Loan Review Mission fielded
2012	
3 January	Advertisement of Invitation for Bids for contract CW3 (CBF O'Smach)
22 February	Contract signing of the HIV Prevention and Anti-Human-Trafficking Program
2–9 March	ADB Loan Review Mission fielded
2–9 March	ADB Procurement Review for Effective Implementation
12 March	Issued Notice to Commence contract CW1
2 April	Reallocation of loan proceeds and arrangement of advertisement CS3 from ADB
20 April	Advertisement of Invitation for Bids for the Road Safety Program (CS3)
11–19 June	ADB Midterm Review Mission grounded
26 July	ADB has no objection to the use of financing under the road maintenance component for the maintenance of NR 6 from Siem Reap to Sisophon
9 August	ADB approved the Bid Evaluation Report for the O'Smach Cross Border Facility Project
17–21 September	ADB Resettlement Review Mission fielded
18 September	Request for approval for the Updated Resettlement Plan to ADB
13 November	ADB approved minor change in the project scope and change in implementation arrangements (re-scoping EQ2: axle load control to a new contract CW5: Road Maintenance of NR6)
19–26 November	ADB Loan Review Mission fielded
21 December	ADB approved proceeding with contract negotiation with second-ranked firm for contract CS3
2013	
19 February	ADB approved BER and award of contract CW5
27 February	Contract signing of contract package CW5: Maintenance of NR6 from PK333 to PK342
14 March	Contract signed with SweRoad for CS3: Consulting Services of Road Safety Program

Date	Event
15 March	Issued Notice to Commence the Works for contract CW5 on 27 March 2013
20 March	Issued Notice to Commence to SweRoad for contract CS3: Road Safety Program
27 March	Commenced works of contract CW5: Maintenance of NR6 from PK333+000 to 342+000
10 April	ADB proposed cancellation of Cross Border Facility Rehabilitation at O'Smach from project scope
22–23 May	ADB Resettlement Review Mission fielded
3–7 June	ADB Loan Review Mission fielded
21 June	PMU3 submitted to ADB the revised supplementary IEE for access road to Banteay Chhmar Temple
28 August	PMU3 submitted to ADB the supplementary IEE of BCT for public disclosure
6 November	PMU3 approved extension of time for completion of CW1 contract
25 November	ADB Loan Review Mission fielded
13 December	Initial assessment of Siem Reap–Sisophon section of NR6
2014	
28 April	ADB Loan Review Mission fielded
8 May	MEF request to ADB for an extension of the loan closing date
18 June	ADB approved the extension of the loan closing date for a period of 6 months
18 June	ADB has no objection to awarding the contract CW4: Road Safety Billboards
24 June	Signed contract for CW4: Supply and Installation of Road Safety Billboards
1 July	Commenced works for the contract CW4: Supply and Installation of Road Safety Billboards
23 July	MEF request to ADB for reallocation of loan proceeds
10 September	ADB approved reallocation of loan proceeds as RGC requested
1 October	PMU3 submitted PPME completion report to ADB
22 October	Issuance of Taking-Over Certificate for the contract CW1
20–25 November	ADB Final Loan Review Mission fielded
9 December	Issuance of Certificate of Completion of Works for the contract CW4
15 December	Issuance of Certificate of Completion of Works for the contract CW5
31 December	Project completed
2015	
17–22 June	Project Completion Review Mission fielded and completed
20–23 October	Project Completion Review Mission for resettlement fielded
8 September	Final cancellation of unutilized loan proceeds approved
8 September	Loan account closed

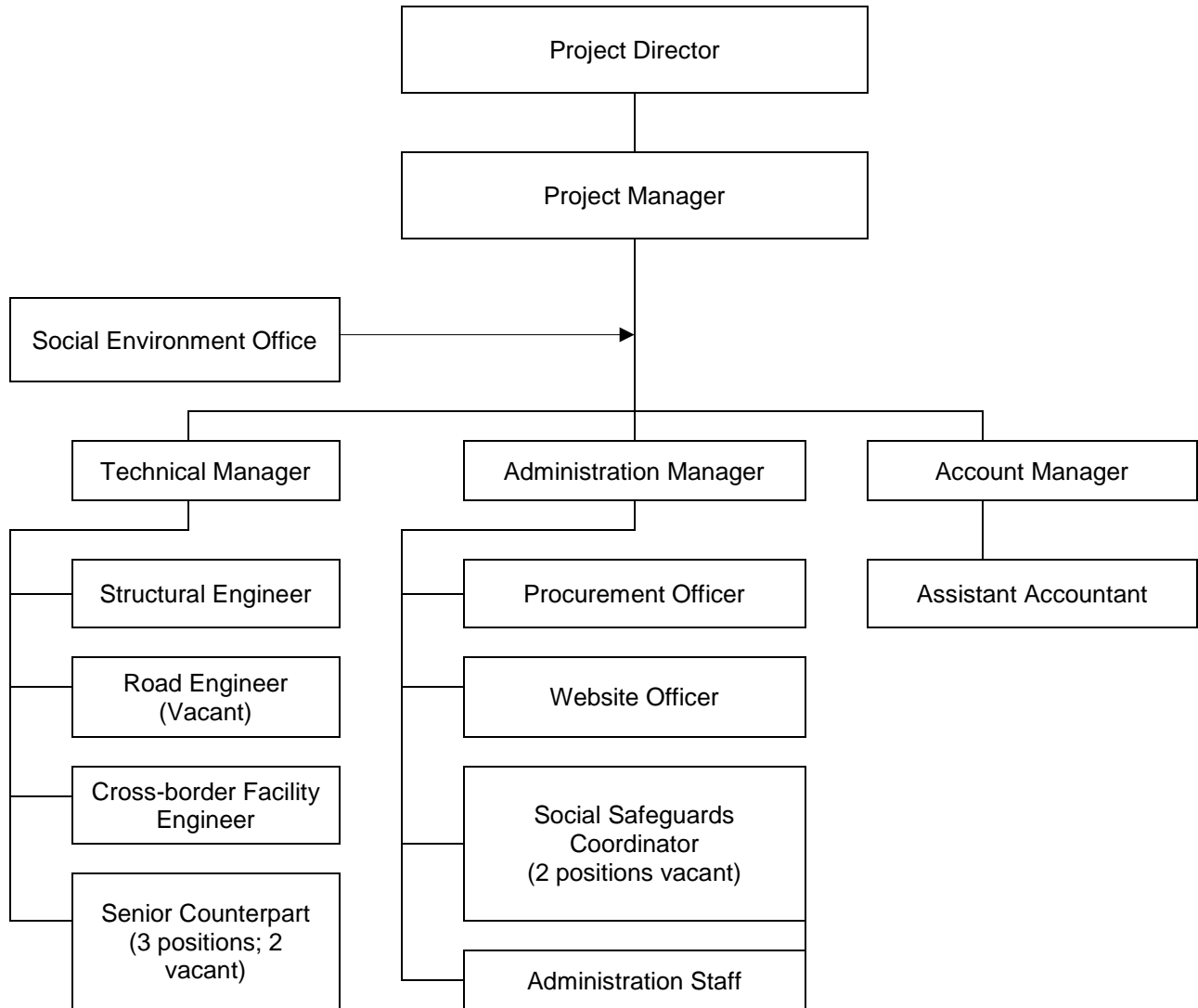
ADB = Asian Development Bank; BCT = Banteay Chhmar Temple; BER = bid evaluation report; CBF = cross-border facility; CS = consulting services; CW = civil works; DDIS = detailed design and implementation supervision; EQ = equipment; IEE = initial environmental examination; MEF = Ministry of Economy and Finance; NR = national road; PK = kilometer post; PMU = project management unit; PPME = project performance monitoring and evaluation

ORGANIZATION CHART



Organization Structure for Project Implementation

**Ministry of Public Works and Transport
Project Management Unit 3**



STATUS OF COMPLIANCE WITH LOAN COVENANTS

Loan Covenant	Reference in Loan Agreement	Status of Compliance
<p>In the carrying out of the Project and operation of the Project facilities, the Borrower shall perform, or cause to be performed, all obligations set forth in Schedule 5 to this Loan Agreement.</p>	Sect. 4.01	Complied with.
<p>The Borrower shall: (i) maintain, or cause to be maintained, separate accounts for the Project; (ii) have such accounts and related financial statements audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB; (iii) furnish to ADB, as soon as available but in any event not later than 6 months after the end of each related fiscal year, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the Loan proceeds and compliance with the financial covenants of this Loan Agreement as well as on the use of the procedures for imprest account/statement of expenditures), all in the English language; and (iv) furnish to ADB such other information concerning such accounts and financial statements and the audit thereof as ADB shall from time to time reasonably request.</p>	Sect. 4.02 (a)	Complied with, though late in certain years.
<p>The Borrower shall enable ADB, upon ADB's request, to discuss the Borrower's financial statements for the Project and its financial affairs related to the Project from time to time with the auditors appointed by the Borrower pursuant to Section 4.02(a) here above, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB, provided that any such discussion shall be conducted only in the presence of an authorized officer of the Borrower unless the Borrower shall otherwise agree.</p>	Sect. 4.02 (b)	Complied with.
<p>The Borrower shall enable ADB's representatives to inspect the Project, the Goods and Works financed out of the proceeds of the Loan, and any relevant records and documents.</p>	Sect. 4.03	Complied with.
<p>MPWT shall be the Project Executing Agency. It shall be responsible for procurement under the Project, withdrawal of the Loan proceeds, recruitment and engagement of consultants financed under the Project, and reporting to ADB and KEXIM.</p>	Schedule 5, Para.1	Complied with.
<p>PMU-3 shall be responsible for Project planning and implementation, including implementing EMP during the Project design and construction stages, and carrying out monitoring and enforcement of EMP with the assistance of a detailed design and implementation supervision consultant to be engaged under the Project.</p>	Schedule 5, Para.2	Complied with.

Loan Covenant	Reference in Loan Agreement	Status of Compliance
<p>MPWT shall be responsible for the operation and maintenance of the Project facilities by providing proper technical supervision and ensuring adequate fund allocation. The Borrower shall ensure that adequate budget is requested and made available annually for the operation and maintenance of the Project facilities during and after the Project.</p>	Schedule 5, Para.3	Complied with, at the time of project completion report.
<p>The Borrower shall ensure that Environment Policy (2002), Policy on Indigenous Peoples (1998), Policy on Gender and Development (1998) and Involuntary Resettlement Policy (1995) are applied and implemented for all Project components regardless of their financing sources.</p>	Schedule 5, Para.4	Complied with.
<p>The construction and operation of the Project facilities shall be carried out in accordance with the agreed IEE, and shall comply with the Borrower's environmental laws and regulations and ADB's Environment Policy (2002). If there is any discrepancy between the Borrower's laws and regulations, and ADB's Environment Policy, ADB's policy shall prevail.</p>	Schedule 5, Para.5	Complied with.
<p>The MPWT shall ensure that environmental mitigation measures, environmental monitoring activities and environmental capacity strengthening programs as well as any other recommendations specified in the IEE are implemented as agreed to minimize any adverse environmental impacts arising from the construction and operation of Project facilities. For this purpose, MPWT shall include the IEE's environmental mitigation and monitoring measures in the bidding documents for civil works contracts, and ensure that the civil works contractors shall: (i) develop construction environmental management plans based on the measures specified in the bidding documents prior to any site works; and (ii) implement the construction environmental management plans in accordance with the IEE during the construction.</p>	Schedule 5, Para.6	Complied with.
<p>The Borrower, through MPWT, shall ensure that any involuntary resettlement is carried out in accordance with the resettlement plans as agreed between the</p>	Schedule 5, Para.7	Complied with.
<p>Borrower an ADB, ADB's Involuntary Resettlement Policy (1995), and the Borrower's relevant laws and regulations. If there are any differences between Borrower's laws and regulations, and ADB's Involuntary Resettlement Policy, ADB's policy shall prevail.</p> <p>Prior to commencing land acquisition and involuntary resettlement activities, the Borrower, through MPWT, shall submit the updated resettlement plans to ADB for approval, and disclose them to the public in accordance with the ADB Public Communications Policy (2005).</p>	Schedule 5, Para.8	Complied with.

Loan Covenant	Reference in Loan Agreement	Status of Compliance
<p>MPWT shall not issue a notice to commence civil works in a particular section of the roads to be constructed or rehabilitated under the Project, until: (a) compensation payment and relocation of the affected people in such particular section have been completed satisfactorily in accordance with the updated resettlement plan approved by ADB; (b) rehabilitation assistance for such particular section has been put in place; and (c) such particular road section is free of all encumbrances.</p>	<p>Schedule 5, Para.9</p>	<p>Complied with.</p>
<p>MPWT, through its Social and Environmental Unit and in close collaboration with the Resettlement Department of the Borrower's Inter-Ministerial Resettlement Committee, shall be responsible for internal monitoring of resettlement activities. Within one (1) month of the commencement of updating the resettlement plans, it shall engage an independent agency for external monitoring and evaluation. The internal and external monitoring reports shall be submitted to ADB on a quarterly basis and uploaded on MPWT's website within two (2) weeks of their submission. Such monitoring shall be carried out until all resettlement activities have been completed.</p>	<p>Schedule 5, Para.10</p>	<p>Complied with.</p>
<p>The Borrower shall ensure that counterpart funds for resettlement activities are provided in a timely manner, and shall meet any unforeseen obligations in excess of the resettlement budget in order to satisfy the requirements and objectives of resettlement required under ADB's Involuntary Resettlement Policy.</p>	<p>Schedule 5, Para.11</p>	<p>Complied with.</p>
<p>The Borrower shall ensure that the Project does not affect any ethnic minority peoples. In case any ethnic minority is affected, MPWT shall develop and implement an ethnic minority development plan acceptable to ADB in accordance with the Borrower's applicable laws and regulations, and ADB's Policy on Indigenous Peoples (1998).</p>	<p>Schedule 5, Para.12</p>	<p>Complied with. There was no ethnic issue.</p>
<p>The Borrower shall ensure that all civil works contracts under the Project incorporate provisions and allocate budgets such that contractors: (a) comply with the Borrower's applicable labor laws and related international treaties/conventions including prohibiting child labor; (b) provide safe working conditions and separate water and sanitation facilities for male and female workers in the construction camps and in the construction sites; (c) provide equal wages to male and female workers for work of equal value; (d) provide day-care services for children of female construction workers; and (e) recruit local labor for construction work and the road maintenance program.</p>	<p>Schedule 5, Para.13</p>	<p>Complied with.</p>
<p>The Borrower shall ensure that the gender strategy to be provided in the agreed resettlement plans and their updates, and the Summary of Poverty Reduction and Social Strategy are fully undertaken to maximize project benefits to women. Key actions shall include: (a) separate consultations on</p>	<p>Schedule 5, Para.14</p>	<p>Complied with.</p>

Loan Covenant	Reference in Loan Agreement	Status of Compliance
<p>resettlement activities for affected women groups (female headed households, elderly women, and poor women); (b) timely compensation and relocation of houses for such women groups; (c) implementing HIV/AIDS and human trafficking awareness program for women with district and commune councils of women; and (d) developing monitoring indicators covering women groups and implementing project specific gender strategy.</p> <p>The Borrower shall ensure that civil works contracts financed by the Project have provisions that before commencing their construction works, civil works contractors: (a) shall have cleared all UXOs on the construction sites; and (b) shall provide to MPWT the verification that the construction sites have actually been cleared. MPWT shall not issue a notice to proceed for any construction works until it obtains such verification from the concerned civil works contractors.</p>	<p>Schedule 5, Para.15</p>	<p>Complied with.</p>

ADB = Asian Development Bank; EMP = environmental management plan; IEE = initial environmental examination; KEXIM = Export-Import Bank of Korea; MPWT = Ministry of Public Works and Transport; PMU = project management unit; UXO = unexploded ordnance.

RESETTLEMENT ACTIVITIES

A. Progress of Compensation

1. The compensation of affected land and houses due to the project has been fully completed. The revised numbers of affected households for the project has been confirmed at 210 from 300 at appraisal. All affected households have received their compensation for loss of land use and structures.

2. A total of 811,380 square meters of land was affected by the rehabilitation of National Road (NR) 56. It included all land and structures affected by project works based on the feasibility study. The detailed measurement survey was organized for the two project road sections. The corridor of impact was 10 meters (m), on both sides from the existing road center (8 m in the urban communities of Sisophon and Samraong). From the perspective of road safety and future improvement of the road, it would be best if all affected persons moved out of the right-of-way (ROW) entirely. However, some affected persons wanted to stay for livelihood reasons. In those cases, the government allowed them to move their affected houses, shops, or structures back from the corridor of impact and compensated them for the actual land and structures they lost within the corridor of impact, but not for what was in the ROW. They were allowed to construct equivalent structures in the back of the ROW, but without any land title.

3. Civil works progressed smoothly and was completed without having any complaints or obstacles in relation to resettlement implementation. The total amount for the implementation of the Updated Resettlement Plan was increased from \$1,130,800 in the appraisal resettlement plan to \$1,565,392.

B. Disclosure of Resettlement Plan

4. The approved resettlement plan was translated into the Khmer language and has been made available to the public since December 2012 in the Provincial Department of Public Works and ADB websites.

C. Income Restoration Program

5. A contract for income restoration allowances was made for persons severely affected by the project. A total of 72 affected households along NR56 were eligible to participate in the income restoration program (IRP) that was developed and implemented for households severely affected by the loss of their productive assets or main structure, landless affected households, and affected households falling under vulnerable groups. Those groups were (i) 18 households losing 10% or more of their productive agriculture land, (ii) 23 households losing more than 50% of their main structure, (iii) five households headed by elderly persons, seven households headed by women, 17 households living below the poverty line or whose household head is disabled, and (iv) two landless households. The cost for implementing the IRP was \$26,400.00. All 72 households have received the income restoration allowance.

6. The IRP was implemented by a nongovernment organization, SBK Research, recruited by the government. The IRP was completed by November 2015.

SUMMARY OF ECONOMIC REANALYSIS

A. Introduction

1. The Greater Mekong Subregion: Northwest Provincial Road Improvement Project consists of improving secondary National Highway (NR) 56 from Sisophon to Samraong (113 kilometers [km]). An all-weather sealed bituminous surface was provided. The project improved access to markets, employment, and social services for the local population and enabled access for the growing number of tourists to temple ruins and other tourist spots, which could help mitigate the unsustainably high levels of tourism at Angkor Wat.

2. The road improvement works were divided into two subprojects: (i) NR 56A from Sisophon to km 29 (29 km); and (ii) NR 56B from km 29 to Samraong (84 km). Two 7 meter (m)-wide bridges on NR 56 were widened to 10 m under this project to meet the standard adopted for the project roads. The project constructed cross drainage pipes along the whole stretch of road. In the urbanized area of the project, such as Sisophon, Svay Chek and Samraong, side drain systems with concrete pipe were constructed on both sides of the road to solve continuous flooding problems in the town area during the wet season. The existing road was too low and thus was frequently flooded in the wet season, preventing access. Due to the raising of the embankment, local people and intercity transport have benefited during the wet season.

3. The economic analysis was carried out by comparing the with-project and without-project scenarios. In the without-project scenario, the roads are assumed to continue receiving minimal maintenance consisting of annual grading and biannual regraveling, with the result that the roads slowly deteriorate over time. The with-project scenario involves upgrading to paved all-weather standard and includes vertical realignment where required to raise the road above the flood level during seasonal flooding,

4. The economic analysis covers 2009–2034. Upgrading the project roads was implemented during 2010–2014 and this is followed by 20 years of benefits during 2015–2034. All benefits and costs are expressed in fixed 2011 economic prices. The economic prices are estimated using economic border prices for traded goods and services, and domestic market prices net of domestic taxes and subsidies for non-traded goods and services.

B. Road Condition and Traffic

1. Road Condition

5. The road condition after project completion was paved by mainly double bituminous surface treatment and 2.5 km of asphalt pavement in Sisophon. At project completion, the road was in good condition without any sign of damage. The road is equipped with safety facilities and proper road furniture. Travel time from Sisophon to Samraong has fallen by 57%. It is not possible to estimate the time saving during the rainy season, as the road was not freely passable before construction. The improvement of NR56 brought average travel time within NR 56 down from 210 minutes to 90 minutes.

2. Traffic Volume

6. Traffic counts were classified according to vehicle type and analyzed using version 4 of the Highway Development Model (HDM-4). The annual average daily traffic (AADT) increased

from 1,551 in 2008 to 4,438 in 2014; passenger cars increased from 205 in 2008 to 1,374 in 2014, and trucks from 140 in 2008 to 1,358 in 2014.

Table A11.1: Annual Average Daily Traffic along NR56

Section	2008	2014
Sisophon-Banteay Chhmar	1,551	4,438
Chhmar-Samraong	2,817	6,408

NR = national road.

3. Traffic Growth Rates

7. Traffic growth rates were compared between appraisal estimates and actual. Traffic count data surveyed in August 2014 shows an average growth in passenger vehicles by more than 7.2% and in trucks by 20.7% per year during 2010 to 2014. There is a huge jump in counts in each class of vehicles in 2010 over the 2008 base data used by ADB, whereas Average Annual Daily Traffic in the period from 2010 to 2014 shows a growth of 7.5%. The transport growth elasticity model shows average growth of over 15%.

C. Costs

8. Project investment costs comprise civil works, detailed design and supervision consultancy, resettlement and land acquisition, contingencies, and administrative costs.

**Table A11.2: Detailed Cost Estimates by Financier
(\$million)**

Item	ADB		KEXIM		Government		Total	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual
A. Investment Costs								
1. Improvement of NR 56A	6.14	7.60	0.00	0.00	0.00	1.35	6.14	8.95
- Improvement of NR 56A	5.96		0.00		0.00		5.96	0.00
- UXO clearance of NR 56A	0.18		0.00		0.00		0.18	0.00
2. Improvement of NR 56B	0.00	0.00	17.64	26.98	0.00	0.00	17.64	26.98
- Improvement of NR 56B	0.00		16.97		0.00		16.97	0.00
- UXO clearance of NR 56B	0.00		0.67		0.00		0.67	0.00
3. CBF rehabilitation	2.96	0.00	0.00	0.00	0.00	0.00	2.96	0.00
- CBF rehabilitation	2.95		0.00		0.00		2.95	0.00
- UXO clearance of CBF	0.01		0.00		0.00		0.01	0.00
4. Equipment of CBF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5. Land Acquisition and Resettlement	0.00	0.00	0.00	0.00	1.06	1.56	1.06	1.56
6. Consulting services: NR 56A	0.91	2.19	0.00	0.00	0.00	0.00	0.91	2.19
Consulting services: NR 56B	0.00	0.00	1.10	2.60	0.00	0.00	1.10	2.60
Consulting services: CBF	0.42	0.00	0.00	0.00	0.00	0.00	0.42	0.00
7. Road Maintenance Program	0.80	1.12	0.00	0.00	0.00	0.16	0.80	1.28
8. Road Safety Program	0.82	0.46	0.00	0.00	0.00	0.03	0.82	0.49
9. HIV Prevention and Anti-Human-Trafficking Program	0.25	0.25	0.00	0.00	0.00	0.00	0.25	0.25
10. Contingencies Physical	1.43	0.06	2.26	0.00	0.00	0.02	3.69	0.08
11. Contingencies Price	2.11	0.54	3.35	0.00	0.00	0.09	5.46	0.63
12. Taxes and Duties	0.00	0.00	0.00	0.00	4.87	4.87	4.87	4.87
Subtotal (A)	15.83	12.22	25.25	29.58	5.94	8.08	47.03	49.88
B. Incremental Administration Cost								
1. Project Management	0.19	0.35	0.32	0.00	0.00	0.03	0.51	0.38
2. Taxes and Duties	0.00	0.00	0.00	0.00	0.12	0.12	0.12	0.12
Subtotal (B)	0.19	0.35	0.32	0.00	0.12	0.15	0.63	0.50
C. Interest and Other Charges during Construction								
1. Interest during Construction	0.25	0.10	0.004	0.000	0.00	0.00	0.25	0.10
Subtotal (C)	0.25	0.10	0.004	0.000	0.00	0.00	0.25	0.10
Total (A+B+C)	16.26	12.67	25.580	29.580	6.06	8.23	47.89	50.48

ADB= Asian Development Bank; CBF = cross-border facility; KEXIM=Korea Export Import Bank; NR = national road; UXO=unexploded ordnance.

Table A11.3: Project Costs at Appraisal vs Actual

- Project Cost (\$ million)		
Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	17.80	20.67
Local Currency Cost	30.09	29.81
Total	47.89	50.48

- Financing Cost (\$ million)		
Cost	Appraisal Estimate	Actual
Borrower Financed	6.06	8.23
ADB Financed	16.01	12.67
Other External Financing (Export- Import Bank of Korea)	25.58	29.58
Total	47.89	50.48

9. The economic prices are estimated by multiplying financial prices by a conversion factor of 0.9. A conversion factor considers all traded goods and services and domestic market prices.

D. Benefits

10. The major economic benefits of the project were quantified in terms of vehicle operating cost savings arising from a reduction in the operating cost of vehicles, and saving in future maintenance because improved road condition requires less costly maintenance than the original road.

11. The benefits to road users were estimated from the differences between the costs in the with- and without-project scenarios.

Table A11.4: Economic Benefits With- and Without-Project

Typical Vehicle Operating Cost With-Project and Without-Project (\$ per km)			
Vehicles Type	Without-Project (IRI = 11) at appraisal, 2008	With-Project (IRI = 2.5) Estimated, 2008	With-Project (IRI = 1.25) 2014
Car/ Pick-ups/ Vans	0.43	0.23	0.50
Buses	0.79	0.45	0.693
Trucks	1.21	0.71	0.489
Motorcycles	0.08	0.06	0.116
Motorcycle with Trailers	0.09	0.07	0.148

ADB = Asian Development Bank; IRI = International Roughness Index (meters/km), which is a measure of road's roughness; higher the roughness higher the vehicle operating cost.

Sources: Asian Development Bank Estimates

E. Results of Economic Analysis

12. The cutoff rate of economic internal rate of return (EIRR) is 12% for the Cambodia component. The EIRR for the project as a whole has been calculated as 36.7%, with a net present value of \$95.47 million, using a 12% discount rate. The table below shows results of the economic analysis with a comparison of appraisal estimates and actual.

Table A11.5: Results of Economic Analysis at Appraisal vs Actual

Analysis	2008 (at Appraisal)	2014 (Actual)
Net present value	\$32.33 million	\$95.47 million
Economic internal rate of return	19.9%	36.7%

QUANTITATIVE ASSESSMENT OF OVERALL PROJECT PERFORMANCE

1. Overall Rating

Criteria	Assessment	Rating (0–3)	Weight (%)	Weighted Rating
Relevance	Relevant	2	25	0.50
Effectiveness	Effective	2	25	0.50
Efficiency	Less than Efficient	1	25	0.25
Sustainability	Less Likely	1	25	0.25
Overall Rating	Partly Successful			1.50

Note:

Relevance: Project objectives and outputs were relevant to strategic objectives of the Government and of ADB.

Effectiveness: Project achieved its outcome.

Efficiency: Project achieved objectives in an efficient manner.

Sustainability: Project benefits and development impacts are sustainable.

2. Rating System

Rating Value	Relevance	Effectiveness	Efficiency	Sustainability
3	Highly relevant	Highly effective	Highly efficient	Most likely
2	Relevant	Effective	Efficient	Likely
1	Partly relevant	Less than effective	Less than efficient	Less than likely
0	Irrelevant	Ineffective	Inefficient	Unlikely
Rating:	Greater than 2.7	= Highly Successful		
	Between 1.6 and less than 2.7	= Successful		
	Between 0.8 and less than 1.6	= Less than Successful		
	Less than 0.8	= Unsuccessful		

CONTRIBUTION TO THE ADB RESULTS FRAMEWORK

No	Level 2 Results Framework Indicators (Outputs and Outcomes)	Achievements	Methods / Comments
1	Expressways or national highways built or upgraded (km)	114 km	Completed in 2014

km = kilometers.

Source: Asian Development Bank.