

FINANCIAL ANALYSIS

1. The financial analysis has been conducted in accordance with the Asian Development Bank (ADB) Guidelines for the Financial Management and Analysis of Projects and Financial Due Diligence: A Methodology Note.¹ The objective of the analysis is to assess financial viability of the project and ensure that it is financially sustainable.

2. Financial analysis demonstrates that the current expressway operation scheme applied by the Ministry of Construction (MOC) is not efficient and does not ensure the long-term sustainability of assets or cover routine maintenance requirements. Therefore, developing and implementing a new scheme for expressway and toll road management for the MOC is included in project output 2.

3. Assuming the expressway operation and maintenance scheme is improved, the new road will adopt toll collection during operation and a revenue stream will be generated to support incremental operation and maintenance (O&M) requirements. The financial analysis therefore focused on assessing

- (i) the project financial internal rate of return to assess project viability should toll revenues be retained; and
- (ii) the capacity of the Department of Highways (DOH), the implementing agency of the project, to absorb the incremental O&M cost associated with the new road within current central budget allocations limits.

A. Assumptions

4. The financial projections are presented in current price terms, taking the potential impact of domestic and foreign inflation into account over the analysis period. The corporate tax rate in Myanmar of 25% is assumed in line with the domestic law. The assumed exchange rate is MK1,523.2 = \$1 as of December 2019.

B. Cost Estimates

5. The summary of the construction costs is shown in Table 1. The total costs include the ADB-financed expressway, the Japan International Cooperation Agency (JICA)-financed bridge (parallel financing), and the government's financial contribution covering the cost of land acquisition and initial finance charges.

Table 1: Financial Requirements

Source	Amount (\$ million)
Asian Development Bank	483.80
Japan International Cooperation Agency	254.80
Government	42.54
Total	781.14

ADB = Asian Development Bank, JICA = Japan International Cooperation Agency.

Source: Second Greater Mekong Subregion Highway Modernization Project (formerly GMS East-West Economic Corridor Highway Development) consultant.

¹ Asian Development Bank (ADB). 2005. *Financial Management and Analysis of Projects*. Manila; ADB. 2009. *Financial Due Diligence: A Methodology Note*. Manila.

6. The O&M costs consist of three components: the routine O&M costs, tolling costs, and periodic maintenance costs. These costs are based on the results of the feasibility study of the proposed project.

7. At the inception of operations, the routine O&M costs are approximately \$2.2 million annually, rising to \$4.8 million in 2044 because of the normal deterioration of the road over time. The tolling costs are approximately \$2.7 million annually.

8. In addition to annual maintenance and toll operations costs, periodic maintenance is expected to take place in 2034 at an expected cost of \$37.3 million, and then again in 2044 with costs of \$50.6 million. Actual annual O&M expenditures are set out in Table 2.

Table 2: Annual Costs for Routine Maintenance and Tolling Operations
(\$)

Year	Routine Maintenance		Periodic Maintenance		Total Toll System	Total Maintenance and Toll System
	ADB Road Routine	JICA Bridge Routine	ADB Road Periodic	JICA Bridge Periodic		
2025	2,056,707	165,864	0	865,552	2,666,910	5,755,034
2026	2,683,406	165,864	0	865,552	2,666,910	6,381,732
2027	2,708,711	165,864	0	865,552	2,666,910	6,407,038
2028	2,737,917	165,864	0	865,552	2,666,910	6,436,243
2029	2,771,708	165,864	0	865,552	2,666,910	6,470,034
2030	2,812,023	165,864	0	865,552	2,666,910	6,510,349
2031	2,858,705	165,864	0	865,552	2,666,910	6,557,031
2032	2,912,901	165,864	0	865,552	2,666,910	6,611,228
2033	2,975,979	165,864	0	865,552	2,666,910	6,674,306
2034	2,936,438	165,864	37,313,173	865,552	2,666,910	43,947,937
2035	3,011,151	165,864	0	865,552	2,666,910	6,709,478
2036	3,100,593	165,864	0	865,552	2,666,910	6,798,919
2037	3,205,286	165,864	0	865,552	2,666,910	6,903,612
2038	3,329,396	165,864	0	865,552	2,666,910	7,027,722
2039	3,476,699	165,864	0	865,552	2,666,910	7,175,025
2040	3,651,715	165,864	0	865,552	2,666,910	7,350,042
2041	3,859,859	165,864	0	865,552	2,666,910	7,558,185
2042	4,107,612	165,864	0	865,552	2,666,910	7,805,939
2043	4,402,740	165,864	0	865,552	2,666,910	8,101,067
2044	4,608,049	165,864	50,596,573	865,552	2,666,910	58,902,948

ADB = Asian Development Bank, JICA = Japan International Cooperation Agency.

Source: JICA Feasibility Study Sittaung Bridge, Interim Report June 2018; Second Greater Mekong Subregion Highway Modernization Project (formerly GMS East-West Economic Corridor Highway Development) consultants.

C. Expected Revenue

9. Expected revenues are calculated based on the traffic volumes forecast by the demand forecast model. The predicted revenue is based on the following formula: (unit price for 1 kilometer [km] of the given category) x (traffic volumes in vehicle-km for the given section of the given category).

10. For the analysis, the consultant team investigated five tolling scenarios: (i) no tolling, (ii) business-as-usual tariffs, (iii) adjusted tariffs, (iv) uniform tariff increase, and (v) Department of

Bridge tariffs scheme. In considering factors such as revenue, tariff distortions, traffic route choice, and political ease of implementation, the adjusted tariffs scenario was used for project financial analysis and it assumes correction of the current distortions among vehicle categories and tariff rate adjustments. Given limited affordability and possible negative impact on road users, it is not recommended to increase tolling rates beyond this scenario.

11. The proposed road sections are estimated to generate \$10.9 million in revenue from tolling in 2025. The revenue is expected to increase to \$29.7 million in 2035 and \$36.4 million in 2045.

D. Financial Rate of Return

12. The financing sources for the project are expected to be ADB's concessional ordinary capital resources, the JICA loan (for the bridge civil works component and for the consultancy component), and the government counterpart funds. It has been assumed that both the ADB loan and the JICA loan will be advanced in the form of sovereign loans to the Ministry of Planning and Finance (on behalf of the government), and then the DOH will borrow the funds from the ministry on a relending basis, without a relending premium on each loan.

13. Based on the project revenues and total costs (including capital costs, O&M costs, and financial costs), the net present value and the financial internal rate of return are both negative (Table 3). However, the expected revenue is still greater than the total O&M costs. This is a minimum condition to achieve operational and financial sustainability. The expected revenue can also cover the financial costs of the project.

14. Analysis of the financial net present value and the financial internal rate of return suggests it is not possible to recover the full costs from road users only. Therefore, regardless of which O&M scheme is introduced under output 2 of the project, additional government support will be required to cover investment costs.

Table 3: Summary of Financial Internal Rate of Return Analysis
(\$ million)

Item	Value
Capital costs	705.1
Net capital costs	392.3
Operating costs	226.1
Total costs	701.5
Tolling revenue	521.0
FIRR (%)	(1.7)
WACC (%)	0.0
NPV	(200.5)
Additional government contribution	0.0

() = negative, FIRR = financial internal rate of return, NPV = net present value, WACC = weighted average cost of capital.
Source: Asian Development Bank.

E. Department of Highways Management

15. The DOH is a department under the MOC. It will act as an implementing agency of the project and will be responsible for ensuring sustainable O&M of the assets.

16. Under the current O&M scheme, recurring expenditures for expressway operations depend on general budget appropriations for road maintenance. The current budget allocation is unrelated to revenue from the road subsector. The trunk road length increased from 29,825 km in 2005 to 40,588 km in 2016, while the road maintenance budget has increased from \$14.4 million in 2005 to \$125.0 million in 2019. ADB assessed that the current allocation is still sufficient to maintain roads in their current condition, but there appears an increasing risk of accumulating a maintenance backlog.

17. The 2019 maintenance budget for union roads is equivalent to about \$4,000 per km. This maintenance budget includes routine maintenance, periodic maintenance, special maintenance, disaster restoration, and maintenance for the Yangon–Mandalay expressway.

18. Given the rough road conditions, the current maintenance allocation is associated with risks of potential O&M backlogs. Although the DOH road maintenance unit's management of the current budget allocation is good, the financial framework is likely unsustainable in the long run.

F. Analysis Summary and Conclusions

19. To support long-term operational efficiency and financial sustainability of the new road and strengthen capacity of the DOH as an institution which operates a wider road network in Myanmar, an analysis of available schemes for expressway and toll road management for the MOC was conducted. The analysis identified three available institutional options: (i) the state-owned enterprise model, (ii) a new O&M model (possibly under the construction supervision and implementation support consultant contract), and (iii) a new department under the MOC made up of the DOH and Department of Bridge model based on availability of payments (full cost recovery) (Table 4). These models will be further analyzed and proposed to the MOC for implementation.

Table 4: Advantages and Disadvantages of Institutional Alternatives

Model	Advantages	Disadvantages
Modified SOE model	Tolling revenues are ring-fenced Financial and operational performances are reported transparently Excessive revenue will stay in public hands High flexibility with possible privatization later	Large start-up risks (e.g., hiring and training highway engineers) Risk of state capture Potential fiscal burden to the union budget
New O&M model	The quality of roads can be warranted Lighter commitment for the government and room for fine-tuning later Some investment from the private sector is expected	This is a new institutional scheme and there could be unforeseen difficulties This is different from the current BOT model and will need legal amendments Profit levels are expected to be low and this may not be attractive to the private sector
New department under MOC	Tolling revenues are ring-fenced Excessive revenue will stay in public hands Department can become a road agency later Direct control by MOC	Capacity building efforts may fail The risk of no or limited improvements on the budget cycle and fiscal reform in the road subsector Risk of state capture Potential fiscal burden to the union budget

BOT = built–operate–transfer, DOH = Department of Highways, O&M = operation and maintenance, SOE = state-owned enterprise.

Source: Asian Development Bank.

20. Whichever institutional option the government chooses, it will also need to establish the following capabilities: (i) road asset management capacity and monitoring capability to ensure

road availability and road quality; (ii) maintenance standards setting and maintenance efficiency capacity; and (ii) cash flow management capability so that the government can manage cash short and/or long situations as well as improve the build–operate–transfer contracts framework. Capacity building will be required.

21. An agreed institutional framework for road O&M as well as future institutional strengthening of the MOC will be included in the project Design and Monitoring Framework under output 2 (capacity of the MOC for expressway management enhanced). The project will also include the adoption of the new vehicle categorization and tariff structure and its implementation. Starting with a scheme for the Bago–Kyaikto expressway, the proposed activities will cover the entire toll highway network of the MOC.