

CHAPTER 17 IMPLEMENTATION PROGRAM

17.1 General

In considering the implementation schedule, there are several important items to be determined. One is when official determination toward implementation of this project would be expected. In this chapter the implementation schedule is studied assuming that the time of commencement of this project is fixed.

Prior to the commencement of construction works, it is necessary to complete many kinds of works such as geological survey, detail design, arrangement of tender, land acquisition and compensation, and financial arrangement.

17.2 Project Cost

Based on the cost estimate, project cost is summarized as follows:

Table 17.1 Summary of Project Cost

(Unit: US\$, March 1996 prices)

Item	Financial Cost	
	Foreign Currency Portion	Local Currency Portion
1) Construction Work	43,333,000	21,465,000
2) Engineering Cost	3,033,000	1,503,000
3) Non-Eligible Cost	0	3,100,000
4) Contingency	4,636,600	2,606,800
Sub Total	51,003,000	28,675,000
Total	79,678,000	

17.3 Implementation Schedule

Before the commencement of construction works, several kinds of engineering activities should be carried out. The outline of these activities are described herein:

The detail design is necessary to cover the further detailed aspects of design, and to fix the total quantities to be used for cost estimates in which the up-dated material cost, labor fee and so on will be reflected. In addition, general and technical specifications should be covered in accordance with contents of detail design. It will take about ten months to complete these works.

The tendering preparation includes prequalification of tenderers, tender evaluation and approval of this project's client. It is expected to take about seven months.

The land acquisition and compensation undertaken by the Government of Cambodia ensures the smooth execution of construction works and securing the construction term stipulated with contract agreement. This activity is to be implemented immediately

after the official commencement of the project and should be completed prior to the commencement of actual construction works of substructure. Necessary duration to land acquisition and compensation is assumed to be eight months.

The construction period, including mobilization of works, substructure and superstructure of bridge and relating approach road, is estimated to be 42 months on the condition that mobilization of works is commenced 2 months in advance of entering the dry season, namely beginning in October, for the purpose of best use of dry season for substructure works. In case the commencement of mobilization works is scheduled in the middle of dry season, actual completion duration of substructures extends for another dry season, totaling three dry seasons. This sort of construction schedule should not be adopted in terms of the earliest completion of whole works.

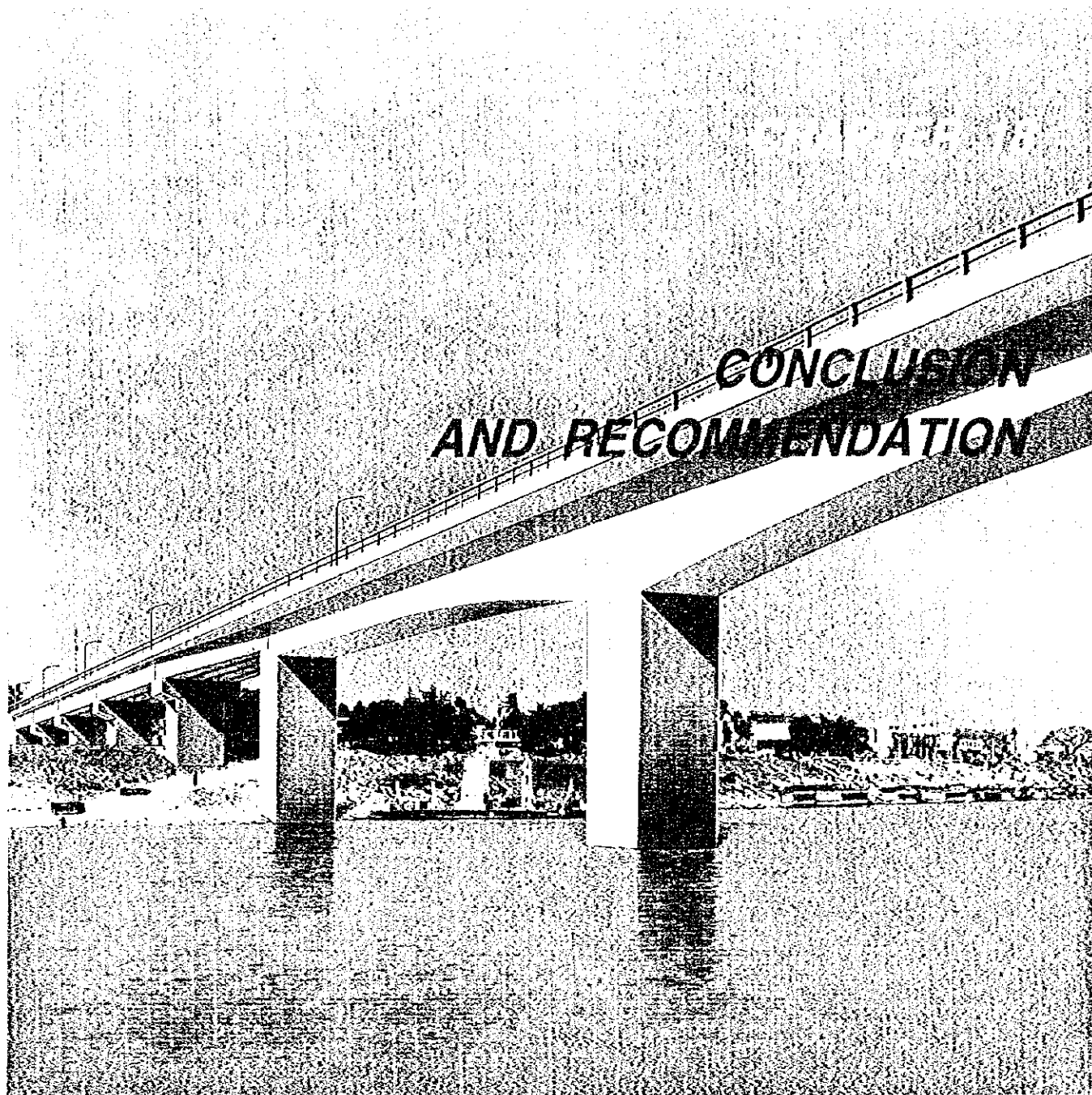
As mentioned in section 17.1, the implementation schedule depends upon the time of commencement of the project. This means that there are many possible cases in planning the implementation schedule. Among these plans, a schedule regarded to be most feasible is depicted in Figure 17.1. According to this implementation schedule, substructure works begin with the third dry season and whole works end in the sixth dry season.

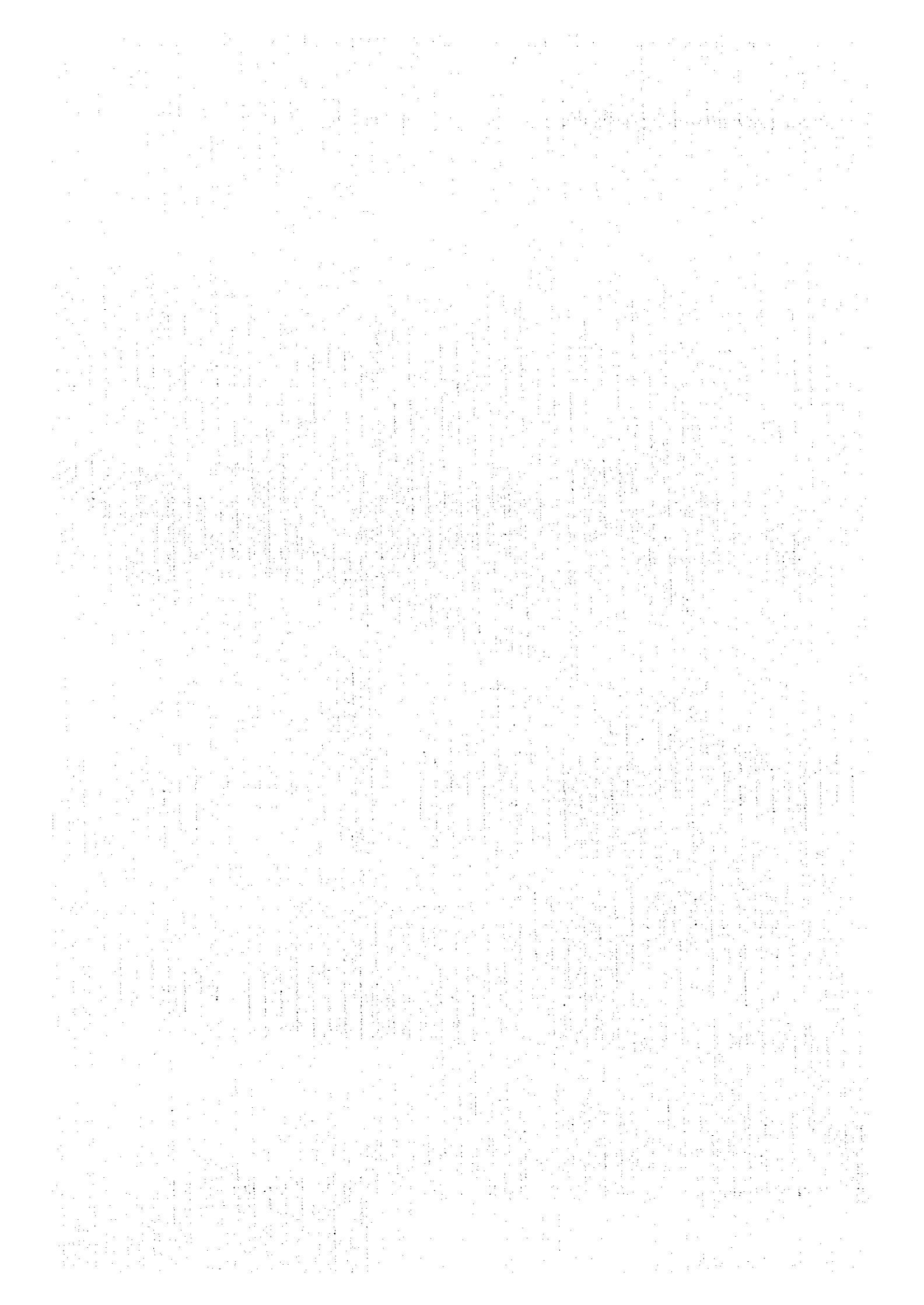
1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial reporting and compliance with regulatory requirements. The text notes that incomplete or inaccurate records can lead to significant legal and financial consequences for the organization.

2. The second section focuses on the role of internal controls in preventing fraud and errors. It outlines various control mechanisms, such as segregation of duties, authorization procedures, and regular audits, which are designed to minimize the risk of misstatements and ensure the integrity of the data. The document stresses that a strong internal control system is a key component of an organization's risk management strategy.

3. The third part of the document addresses the challenges of data security and privacy in the digital age. It highlights the need for robust security measures, including encryption, access controls, and regular security updates, to protect sensitive information from unauthorized access and cyber threats. Additionally, it discusses the importance of data privacy policies and the need to comply with relevant regulations, such as the General Data Protection Regulation (GDPR).

4. The final section discusses the importance of continuous monitoring and reporting. It suggests that organizations should implement real-time monitoring systems to detect anomalies and potential risks as they occur. Regular reporting to management and external stakeholders is also emphasized as a means of providing transparency and ensuring that the organization remains on track with its strategic objectives.





CHAPTER 18. CONCLUSIONS AND RECOMMENDATIONS

According to this Feasibility Study on Construction of Mekong Bridge in Kingdom of Cambodia, which presents the results of numerous economic and engineering studies (e.g., traffic surveys, topographic surveys, bathymetric surveys, geological surveys, river hydrological studies, environmental examinations, design calculations, and cost estimates), the following conclusions and recommendations are offered:

1. A bridge crossing the Mekong River will have crucial importance on not only accelerated development of the transportation sector but also on overall development of the economy in Cambodia and especially regional development.
2. Functions of a Mekong Bridge can be expected as follows:
 - 1) Improvement of Accessibility between Phnom Penh and Remote Areas in the Left Bank
 - 2) Improvement of the International Road Network
 - 3) Promotion of Open Markets and a Market-Oriented Economy
 - 4) Upgrading of Living Standards in Rural Areas
 - 5) Promotion of Agricultural Development
 - 6) Promotion of Resource Development
 - 7) Balanced Development of the Country
3. According to the traffic surveys in May 1995, average daily traffic was observed to be 970, 80 and 260 PCU (not including motorcycles or non-motorized vehicles) at the Neak Loeung, Prek Tamak and Kompong Cham ferry stations respectively. Future Traffic in the year 2011 is expected to be 4,110,390 and 1,890 PCU at the Neak Loeung, Prek Tamak and Kompong Cham without bridge.
4. There are three candidate routes each at Neak Loeung, Prek Tamak and Kompong Cham. Each candidate route having two alternative routes was studied for the purpose of selecting the optimum route among these six alternatives. In consideration of project cost, EIRR, concordance with national regional development strategy, formation of an international network and promotion of an open-market economy, promotion of public welfare, and environmental impact, it was recommended that the Kompong Cham route(C-2) has significant advantages over the other five alternatives.

5. In addition, the location of the final route was slightly shifted downstream by approximately 300 m from the C-2 route and named the selected route (C-3) according to the following reasons: 1) to minimize social impacts and reduce the cost of land acquisition and compensation on the Kompong Cham side due to construction of viaduct and approach road, 2) to avoid general scouring which could occur along C-2 route, 3) to avoid construction of foundation in deep river channel.

6. Environmental study examines probable impacts of this bridge construction on the environment, regarding identified environmental parameters. All the environmental parameters will be adversely affected in some degree by the project implementation. However, adverse impacts on these environmental parameters can most likely be mitigated by the provision of proposed counter measures and monitoring programs; consequently no serious environmental problems are expected in the future.

7. As a result of the engineering studies and preliminary design, the following plan is recommended for the Mekong River Bridge:

Location of Bridge:	Kompong Cham
Navigational Clearance:	15.0m from high water level
Bridge Width:	13.5m
Road width:	10.8m
Sidewalk:	1.1m on both sides
Total Bridge Length:	1,360m

Main Span Bridge

Type: Cast-in-situ Prestressed Concrete Continuous Box Girder

Span Arrangement: 80+7@120+80=1,000m

Approach bridge

Type: Prestressed Concrete connecting T-Girder

Span Arrangement:

Kompong Cham side: 5@40=200 m

East Bank Side: 4@40=160 m

Approach Roads	
Roadway:	7.00 m
Sidewalk	0.75 m on both sides
Total Length:	2,238 m
Kompong Cham side	257 m
East Bank side	1,981 m

8. Land acquisition and compensation is to be undertaken by the Government of Cambodia prior to the commencement of the construction works.
9. According to the hydrological study, the average difference between the highest and lowest water level is around 14 m at Kompong Cham. In order to make the best use of the dry season (from December to May) in the initial construction works, it is recommended that mobilization of the works be scheduled to begin with beginning of October.
10. Construction period is estimated to be 42 months (3.5 years) on the condition that actual commencement of mobilization works starts at October.
11. Total project cost is estimated to be US\$79.678 million in 1996 prices in which foreign currency portion is 64% and local currency portion is 36%
12. The economic evaluation determined that the Mekong Bridge at Kompong Cham is economically justifiable. Although the bridge proposal appears to have a marginal economic return on investment when looking only at its impact on reduced transport costs, the Project will also serve as a catalyst for economic growth. While it was not considered possible to forecast the magnitude of development benefits with any confidence, they will most likely be significant. In light of these potentially large development benefits and the base EIRR of 9.5 per cent (which does not include development benefits), it is believed that the Project is economically viable.
13. Based on results of the economic evaluation and the financial evaluation, which illustrated the severe financial constraints of servicing a domestic loan even under very favorable loan conditions, it is strongly recommended that external financing without debt service obligation be sought for the implementation of the Project.

In conclusion the Study Team considers that construction of the Mekong Bridge at Kompong Cham is technically and economically feasible under proper finance and accordingly recommends that it be immediately implemented.





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