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Transport and Trade Facilitation in the Greater Mekong Subregion—Time to Shift Gears

Operations Evaluation Department

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
ADF	–	Asian Development Fund
ADTA	–	advisory technical assistance
AFTA	–	ASEAN Free Trade Area
AH	–	Asian Highway
ASEAN	–	Association of Southeast Asian Nations
ASYCUDA	–	Automated System for Customs Data
CAREC	–	Central Asia Regional Economic Cooperation
CBTA	–	Cross-Border Transport Agreement
CEPT	–	Common Effective Preferential Tariff
CPS	–	country partnership strategy
EIRR	–	economic internal rate of return
EU	–	European Union
EWEC	–	East–West Economic Corridor
FDI	–	foreign direct investment
GDP	–	gross domestic product
GFP	–	Global Facilitation Partnership
GMS	–	Greater Mekong Subregion
GZAR	–	Guangxi Zhuang Autonomous Region
HCMC	–	Ho Chi Minh City
IDB	–	Inter-American Development Bank
IIRSA	–	Integration of Regional Infrastructure in South America
Lao PDR	–	Lao People's Democratic Republic
MOC	–	Ministry of Commerce, Cambodia/Lao PDR/Thailand/PRC
MOT	–	Ministry of Transport, Thailand/Viet Nam
MPWT	–	Ministry of Public Works and Transit, Cambodia/Lao PDR
MRC	–	Mekong River Commission
NGO	–	nongovernment organization
NR	–	national road
NTFC	–	National Transport Facilitation Committee
OCR	–	ordinary capital resources
OED	–	Operations Evaluation Department
PCR	–	project completion report
PPER	–	project performance evaluation report
PPP	–	public–private partnership
PPTA	–	project preparatory technical assistance
PRC	–	People's Republic of China
RCIS	–	regional cooperation and integration strategy
RCSP	–	regional cooperation strategy and program
RETA	–	regional technical assistance
RN	–	route national
SAPE	–	sector assistance program evaluation
SEDP I	–	First Socioeconomic Development Plan, Cambodia
SEDP II	–	Second Socioeconomic Development Plan, Cambodia
SFA-TFI	–	Strategic Framework for Action on Trade Facilitation and Investment

STF	–	Subregional Transport Forum
STFWG	–	Subregional Trade Facilitation Working Group
TA	–	technical assistance
UNESCAP	–	United Nations Economic and Social Commission for Asia and the Pacific
VOC	–	vehicle operating cost
WCO	–	World Customs Organization

NOTE
In this report, "$" refers to US dollars.

Key Words

regional cooperation, regional integration, gms, adb, asian development bank, greater mekong subregion, adb gms, cambodia, lao, myanmar, china, thailand, viet nam, development effectiveness, roads, roads maintenance, performance evaluation, transport, infrastructure, trade facilitation

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The guidelines formally adopted by the Operations Evaluation Department (OED) on avoiding conflict of interest in its independent evaluations were observed in the preparation of this report. Although H. Satish Rao, Director General, OED, headed the East Asia Department, and Ramesh B. Adhikari, Director of Operations Evaluation Division 1, worked for the Southeast Asia Department, they were not involved in preparing, implementing, and supervising Greater Mekong Subregion projects. Mr. Adhikari supervised the report up to interdepartmental review. Jean-Francois Gautrin, Hien Thi Phuong Nguyen, Jennifer Simon, Pipong Phimphachanch, and Sota Ouk were the consultants in the transport sector study. To the knowledge of the management of OED, there were no conflicts of interest of the persons preparing, reviewing, or approving this report.

APPENDIXES

SUPPLEMENTARY APPENDIXES (available on request)

EXECUTIVE SUMMARY

Transport and trade facilitation form the backbone of the Greater Mekong Subregion (GMS) program supported by the Asian Development Bank (ADB). It has been 15 years since the GMS program was initiated and the first transport project was approved. Covering Cambodia, Lao People's Democratic Republic (Lao PDR), Myanmar, Thailand, Viet Nam, and the Yunnan Province and Guangxi Zhuang Autonomous Region in the People's Republic of China (PRC), the GMS program has included investments in physical infrastructure as well as in the development of cross-border agreements across the subregion and related trade facilitation.

This sector assistance program evaluation (SAPE) assesses the performance of transport and trade facilitation under the GMS program. More specifically, the SAPE examines the effectiveness of ADB-funded projects in achieving their development objectives. It identifies lessons for further development of GMS transport and trade facilitation and also for other regional cooperation initiatives. The transport sector analysis focuses mainly on the roads subsector, since the majority of ADB's activities have been in this subsector.

As of April 2008, of the 36 investment projects assisted by ADB in the GMS program, 26 were in the transport sector following ADB project classification. Transport projects formed 82% of the total project cost of $10 billion. ADB provided an aggregate funding of $3.3 billion or 40% of the project costs, using Asian Development Fund and ordinary capital resources funding. Trade facilitation initiatives have been implemented mainly through technical assistance (TA) grants amounting to $12 million covering five TA operations, out of which ADB funding was $2 million.

The GMS Context

The individual development plans of the GMS countries have been designed to develop trade through infrastructure development. While acknowledging the limitations of the existing network, the investment plans have an expansionary outlook targeted toward increasing the size of the network, typically developing international trade corridors and increasing competitiveness. Cambodia's First Socioeconomic Development Plan (1996–2000) highlighted the importance of developing the border-to-border primary road system. It acknowledged Cambodia's location at the center of the "GMS," implying that the importance of the GMS had been registered and accepted as early as 1996. Similarly, other countries' development plans prioritize links with the international borders within the GMS in an effort to reduce trade costs and improve connectivity.

The GMS Strategic Framework focuses on five development thrusts to achieve its goal: (i) strengthen infrastructure linkages through a multisectoral approach, (ii) facilitate cross-border trade and investment, (iii) enhance private sector participation in development and improve its competitiveness, (iv) develop human resources and skill competencies, and (v) protect the environment and promote sustainable use of the subregion's shared natural resources. The transport sector has been at the forefront of the GMS program and is the driving force to achieve the program's three Cs—enhanced connectivity, increased competitiveness, and improved sense of community.

The GMS program had initially targeted developing transport corridors. Subsequently, in 1998, the need for broadening the scope of transport corridors generated plans for three economic corridors—the Southern Economic Corridor (connecting Cambodia–Viet Nam with Thailand), the East–West Economic Corridor (connecting Lao PDR–Viet Nam with Thailand), and

the Northern Economic Corridor (connecting Yunnan with Lao PDR and Thailand). While most sections of these corridors have been completed, the evolution of transport corridors into economic corridors has yet to be achieved. Linked to this, there remain the issues of adequacy of demand in terms of growth in cross-border traffic and trade volumes on the transport corridors. In 2005, the current GMS Transport Strategy increased the number of planned economic corridors to nine.

To support transport and trade facilitation, the GMS program incorporated the Cross-Border Transport Agreement (CBTA), which is a GMS-wide instrument covering various aspects of cross-border transport facilitation—customs inspection, movement of persons, transit traffic, and road and bridge design standards. Although all the GMS countries have signed the CBTA, Viet Nam, Thailand, and Myanmar have not fully ratified its annexes and protocols. Initial implementation of the CBTA started at the Lao Bao–Dansavanh, Mukdahan–Kaysone Phomvihane, and Hekou–Lao Cai border-crossing points. The Joint Committee of the CBTA, which met in Beijing on 20 March 2007, set as a target the ratification or acceptance by all GMS countries of all the annexes and protocols of the CBTA and commencement of the implementation of the national action plans of the CBTA by the time of the Third GMS Summit in 2008. However, this was not achieved due to delays in ratification.

The GMS program has several overlapping areas with the Association of Southeast Asian Nations, as well as with other regional programs. However, this has not created any issues to date. Lessons could be learned from other regional initiatives such as the Initiative for the Integration of Regional Infrastructure in South America, as well as the Transport Corridor Management in sub-Saharan Africa. These initiatives have similarities with the GMS program and have attempted to explore innovative solutions that could be customized for application in the GMS program.

ADB's GMS Strategy and Program

ADB developed its first Regional Cooperation Strategy and Program (RCSP), 2004–2008 in 2004, which covers a broad agenda of activities for the transport sector and trade facilitation. Country partnership strategies and plans acknowledge the need to develop regional projects and have included them in their pipelines of projects. Regional and subregional economic cooperation programs (cross-border infrastructure and related software) form the first pillar of ADB's Regional Cooperation and Integration Strategy.

From 1992 until now, GMS transport project lending has accounted for 84% of total ADB lending for the transport sector in GMS countries. In TA operations, however, the proportion is lower at 57%. Since 2002, there has been an increase in the projects classified under the GMS banner. The only exception has been the Lao PDR, where ADB has been supporting the rehabilitation of the country's road network outside the GMS umbrella.

Strategic Assessment

Alignment of Regional Sector Strategy with Country and ADB Priorities. This was rated "substantial bordering on high." The GMS transport projects were all priority projects within the individual government public investment programs. The importance given to developing transport and logistics services with the neighboring countries is consistent across the GMS countries. ADB's strategies have matched up with this emphasis. While the stress on physical connectivity has been adequate, the related "software" comprising harmonization of regulations, procedures, and standards has been slow to develop. In addition, although ADB identified

industrial, agricultural, and other economic activities to transform the transport corridors into economic corridors, ADB's strategies have not considered the bigger picture of how this connectivity will be used by the countries to increase their industrial and agricultural production.

A comparison between economic corridors as envisaged during the Eighth GMS Ministerial Conference in October 1998 and the transport sector strategy for corridor development established to date shows that the core objectives established in 1998 have been only partly reflected in the sector strategy. To this end, in June 2008, the GMS members set up an Economic Corridors Forum to enhance collaboration among the countries in developing the areas along the corridors.

The current GMS Transport Strategy, 2006–2015 has room for improvement in two key areas. First, although ADB's RCSP emphasizes careful management of social and environmental dimensions, the GMS Transport Strategy is silent on how it will handle these issues. Second, the strategy is silent on private sector participation in GMS transport projects. With the increasing scope of the economic corridors, the size of investments needed has increased. However, there has yet to be any clear strategy on how private sector funds and expertise could be tapped for road improvement, as well as for operation and maintenance of the economic corridor. Each GMS country has initiated separate and independent plans for bringing in private sector resources. There exist several obstacles to private sector participation in the GMS.

The assistance to the PRC within the GMS framework is distinctly different from that provided to the other GMS countries. In the initial years of the GMS program, assistance to projects in Yunnan Province did not have the justification of the GMS regional cooperation program ingrained in the project rationale, e.g., Loan 1325: Yunnan Expressway Project was justified on the basis of improvement of capacity and integration of the road transport network in Yunnan and Heilongjiang provinces. Subsequent loan projects had specific justifications such that ADB assistance fit within the GMS program. However, almost all GMS project roads and railways constructed in the PRC are in the interior parts of Yunnan Province and Guangxi Zhuang Autonomous Region, i.e., away from the international border. Although these projects did form part of the broader GMS corridors, they depended on the government to provide the link with the international borders. In other words, ADB-assisted projects provided mainly national benefits rather than regional benefits.

As regards complementarity with other aid agencies, there have been consultations and coordination mechanisms in place among ADB, development partners, and governments. However, transport and trade facilitation initiatives within the GMS framework are being seen as mainly ADB-sponsored projects with limited cofinancing participation from other development partners. Discussions with the development partners have indicated that awareness about the GMS program was lacking, and until recently no specific efforts were made at drawing them into the GMS fold.

Institutional Assessment of the Sector. This is rated "substantial," taking into account the growing participation and high-level commitments demonstrated by the GMS governments. The most recent example of this is funding provided by PRC and Thailand for rehabilitation of the North–South Economic Corridor in the Lao PDR. PRC and Thailand have agreed to share the cost of the international bridge connecting Houayxay in the Lao PDR with Chiang Khong in Thailand. In the case of trade facilitation activities, the GMS countries' customs departments are going through restructuring steps involving simplification and harmonization of customs procedures and introduction of a friendlier attitude toward clients. The GMS action plan aims to

achieve full implementation of the CBTA by 2010. Taking into account the problems associated with ratifying and implementing the CBTA, achieving this deadline could be difficult.

The GMS Transport Forum and the Trade Facilitation Working Group have enabled coordination of transport sector activities. ADB plays a distinct role in facilitating and spearheading these discussions. On the institutional side, the GMS Strategic Framework as well as country strategies continue to depend on national institutions for planning and implementing transport projects. The overall attitude toward institutional strengthening within the GMS program is tilted toward addressing national constraints rather than developing regional arrangements. In line with the GMS Strategic Framework, all participating countries, with the assistance of ADB, have put in place national transport facilitation committees (NTFCs). This is a positive achievement but needs to be strengthened to ensure a better level of participation within the governments. These committees have only nominal representation from the trade departments, in some cases, none. In addition, there appears to be a lack of coordination with other sectors—notably the tourism, energy, environment, and social sectors.

The formation of a Strategic Framework for Action on Trade Facilitation and Investment in the GMS is appropriate, since it underscores the importance of trade-related capacity building in the form of institution building, training, and research activities at the regional level. On the transport side, ADB's assistance to the public works departments has supported project planning and road maintenance management. However, in several cases, government staff have left their jobs or have been transferred to other departments. This reduces the effectiveness of the training in particular and ADB assistance in general.

Institutional development within the GMS transport program has had limited success. One of the key issues facing freight forwarders and truck operators in the GMS countries is cross-border transactions such as freight insurance, vehicle insurance, and customs duty for transit goods. There has been a distinct absence of a regional body that brings together the business interests in these areas. The GMS Business Forum has proposed setting up a GMS transporters association to implement the CBTA transit regime. This is a positive step in developing a regional institution, which should be further encouraged.

Value Addition of ADB's GMS Program. This is assessed "substantial" based on three criteria: regional benefits and costs, benefits within the GMS, and benefits outside the GMS and net additional benefits for the participating countries. Although several factors contribute to economic growth and regional development, transport infrastructure improvements and trade facilitation are important conditions for economic growth, especially in the regional context. The countries' share of trade among themselves, and especially with the PRC, has risen sharply over the past decade. The degree of openness to trade, measured by the ratio of trade to gross domestic product, has increased in most economies. There is room for further improvement in trade facilitation, which could further increase intraregional trade.

TA operations have been designed appropriately to contribute in several areas: (i) the CBTA and its annexes and protocols, developed through a series of projects; (ii) framework agreements for implementing the CBTA; (iii) setting up NTFCs; and (iv) conducting workshops to discuss the CBTA at the country level. The success of such TA is dependent on successful implementation of the CBTA, which remains highly relevant and potentially useful for transport and for facilitating trade across the GMS countries.

Transport and economic corridors are interdependent. There needs to be a monitoring system that measures to what extent a transport corridor is being transformed into an economic

corridor. While there is general acceptance that all the countries need to have economic corridors, which is a logical progression of linking transport development with complementary investment in economic activities, ambiguity exists about how it will be achieved.

The GMS transport and trade facilitation program has created a demonstration effect in that it is being replicated in other subregions in Asia. The more obvious case is that of the Central Asia Regional Economic Cooperation, which has used the GMS program as a model for developing several of its strategies. Similarly, the South Asian Association for Regional Cooperation intends to formulate regional transport and transit agreements along the lines of the GMS.

For assessing the net additional benefits to the participating countries, the key question to ask is: Without the GMS program, would all the selected projects have been implemented and would trade facilitation have taken place? The GMS projects, without ADB support, could have been realized through different financing mechanisms (national budget or other agencies' financing). However, limitations of the national budget and external funds could have created delays and reduction in the size of the projects. Furthermore, ADB financing of transport projects in Cambodia, Lao PDR, and Viet Nam has been concessionary and complementary to the national program. On the trade facilitation side, bilateral agreements exist among the GMS countries for trade and vehicle movements. Despite being landlocked, the Lao PDR has gained access to seaports with the signing of the Lao–Thai Transit Agreement. Trade costs have already been reduced for the Lao PDR. However, the current agreement is helpful but not fully supportive of the Lao PDR's needs. Similarly, other bilateral agreements provide limited benefits in terms of encouraging cross-border trade between the two countries only. Such bilateral agreements do not directly encourage trade among other countries, transiting one or more countries. The CBTA aims to address these issues, adding value to the development process by harmonizing various aspects of transport and trade facilitation.

ADB Performance. ADB's performance is rated "substantial," taking into account feedback from the GMS governments as well as the implementation performance. This is based on the following criteria: portfolio management, responsiveness to client's needs, and honest brokering. ADB's lending and nonlending services have met the objectives and were delivered in a satisfactory manner. The delegation of loan administration and in some cases loan processing for road projects to the ADB resident missions in GMS countries is a positive development. Moreover, the recent shift of the trade facilitation unit within ADB from Manila to Bangkok indicates an appropriate response to the practicality surrounding the implementation of trade facilitation. However, portfolio management could have been improved taking into account the complicated nature of regional projects. Until 2007, all the loan processing and administration were carried out from ADB headquarters in Manila. It is notable that the administration of some GMS loans is being delegated from ADB headquarters to resident missions.

ADB has limited funding resources, and mechanisms need to be structured to channel more funds into Lao PDR and Cambodia as compared with the current levels of Asian Development Fund grants. The ceiling on its Asian Development Fund resources, especially in the case of the Lao PDR, has constrained the expansion of ADB's assistance.

Bottom–Up Assessment

Relevance. The transport and trade facilitation assistance is rated "highly relevant." Relevance in the transport sector, based on completed projects, is assessed along three main

headings: (i) consistency of ADB assistance with country programs, GMS transport strategy, and ADB priorities; (ii) extent to which ADB's interventions were balanced across objectives, selective, and focused; and (iii) degree to which the sector assistance was harmonized with that of other development partners. Besides the relevance of ADB's assistance to the needs of the country and region, the transport portfolio has been in line with ADB's comparative strength in the region. While trade facilitation has been consistent with ADB's national and regional strategies, the design of the TA has followed a piecemeal approach to dealing with the needs and issues.

Recently, ADB provided assistance for railways in Cambodia, PRC, and Viet Nam. This entry into the railways subsector is seen as positive, taking into account the need for reducing congestion on the roads as well as enabling bulk freight traffic by railways. ADB had earlier provided assistance for ports and civil aviation projects in Cambodia and PRC. All of these projects have been highly relevant to the GMS program, as well as to the needs of the countries. The future assistance planned in the civil aviation subsector in particular and other transport subsectors in general could be reviewed in light of the growing interest from the private sector and the potential for public–private partnerships.

Effectiveness. ADB's assistance for the transport sector is rated "effective" mainly due to the growth in national traffic and taking into account that the CBTA was not formulated at the time these projects were approved. The rating for the trade facilitation sector is also deemed effective based on results of the pilot implementation of the CBTA along the project roads and the bilateral agreements in place. The improvement of the GMS roads has resulted in significant savings in vehicle operating costs and reduced travel time. Border-crossing time according to surveys in Cambodia, Lao PDR, and Viet Nam has also been reduced. Although several benefits are apparent from completed projects, two main issues hamper the full delivery of benefits—first, with the full implementation of the CBTA pending, and second, missing infrastructure links have reduced the effectiveness of the completed projects. These missing links include bridges over the Mekong River at Neak Loeung in Cambodia and at Houayxay in the Lao PDR. A short length of cross-border road between Lao PDR and Cambodia in Champasack Province was completed in June 2008, about 7 years after project completion.

At the project level, travel time on the completed project roads has been reduced by 50% after road improvement. Reduction in border-crossing time in Cambodia and Viet Nam can be attributed more to recent bilateral agreements between these countries. As a result of the road improvement, national traffic has increased across the corridors, indicating that national level benefits have been high. However, the international traffic has been slow to grow, partly due to the absence of an agreement to facilitate cross-border movement of vehicles. Currently, the majority of traffic on the completed projects is national rather than subregional or international. While this in itself is not necessarily a negative feature, it may reduce the effectiveness of the main aim, which is cross-border trade. It also points to the fact that there remains potential for growth in cross-border trade. It is expected that full implementation of the CBTA will facilitate cross-border trade.

At the corridor level, benefits have been achieved in terms of reduction of the trade costs and corridor travel time. Analysis of the East–West Corridor between Da Nang in Viet Nam and Tak in Western Thailand indicates that nearly half of the corridor time was spent in customs clearances or at border crossings. From a cost perspective, it was found that 43% of the trade costs were attributed to customs and border crossings. In other words, implementation of the CBTA could have a major impact on trade costs and corridor travel time.

TA has been an important contribution by ADB to the GMS program. Project preparatory technical assistance (PPTA) has comprised the majority of TA operations in the GMS transport sector. As of April 2008, 37 PPTA grants had been approved, with ADB funding amounting to $29 million. Twenty-one projects have so far resulted from these PPTA operations, of which eight have already been completed. Such TA operations have involved mainly carrying out feasibility studies and detailed designs, but they have not adequately assessed the capacity within the government to implement and maintain the projects.

Advisory technical assistance (ADTA) amounting to $2 million has been targeted mainly at finalizing the CBTA and its annexes and protocols. Apart from the focus on CBTA preparations, ADB provided two TA grants for planning transport systems, resulting in the development of the first Transport Master Plan. Subsequently, another ADTA in 2004 helped prepare a new transport sector strategy for the GMS. The ADTA for trade facilitation was successful in laying the foundation for the CBTA. A number of other ADTA operations are ongoing, and their results are awaited.

Efficiency. ADB assistance for transport and trade facilitation is rated "efficient." Traffic surveys conducted along ADB-assisted roads in Cambodia, Lao PDR, and Viet Nam enabled updating of the economic analyses conducted at project completion. Recalculation of the economic analysis in April 2008 as part of this SAPE showed that most of the project components had economic internal rates of return around the threshold of 12%, implying marginal benefits mainly due to slow growth in regional traffic. These factors have resulted in a lower efficiency rating for the Phnom Penh–Ho Chi Minh City Highway Project.

At the country level, along the Phnom Penh–Ho Chi Minh City Highway, Cambodia has benefited marginally more than Viet Nam. On the East–West Corridor, ADB assistance has been economically justifiable, even though traffic growth in the Lao PDR has been less than expected. On this corridor, Viet Nam has benefited slightly more than the Lao PDR, getting 54% of the total benefits while contributing to 47% of the cost. The marginally high economic benefits on the Viet Nam side are due to the project starting late in 2003, when the Lao PDR side was nearing completion. There is no major imbalance in economic benefits between the two participating countries, which reinforces the regional cooperation aspect of the two projects.

ADB assistance for trade facilitation was completed within budget and on time in most of the completed TA operations. The ratification of these agreements shows that funds have been used appropriately and efficiently. However, additional assistance will be needed to implement the CBTA. The signing of the CBTA and the ratification of its annexes and protocols are the key outputs for measuring efficiency. The ratification by Cambodia, Lao PDR, and PRC is complete and ratification by other countries is expected in the short term.

Sustainability. Sustainability measures the likelihood that the outcomes of transport projects will be sustained. Rehabilitated project roads are in good condition, but they will require major resurfacing on a 6–7 year cycle. Awareness of the need for increasing the allocations for maintenance has been growing. With the exception of Cambodia, all other GMS countries have initiated measures to improve maintenance allocation, developed a regime for planning and prioritizing maintenance activities, and created the policy frameworks for bringing focus on road maintenance. This, combined with the efforts of development partners, signifies that ADB assistance to transport is likely to be sustainable in Lao PDR, PRC, and Viet Nam.

Despite moderate increases in budgetary allocations by Cambodia, maintenance continues to be a major issue that has yet to be resolved in a manner similar to that of the other

GMS countries. The issue in Cambodia is highlighted by the fact that ADB provided a loan of $6 million for the Road Asset Management Project. ADB's justification for providing this assistance to Cambodia was shortage of financial resources, poor organization of road management, and weak technical capacity. This has increased the risk of poor road maintenance in Cambodia.

In the case of trade facilitation assistance, it is too early to assess the sustainability of the CBTA. However, the gains in process time (customs, immigration) already observed at border crossings (largely due to measures put in place before the CBTA) will be sustained. Overall, ADB assistance for transport and trade facilitation is rated "likely to be sustainable."

Impact. Impact is assessed based on the degree of contribution to long-term changes in development conditions. Overall, the combined impact of ADB assistance for the transport and trade facilitation sectors is rated "substantial." Extensive studies have been carried out to measure the significance of trade facilitation and logistics in stimulating trade flows. These studies show that trade is stimulated by improvement in transport efficiency, reduction in cross-border delays, and decrease in informal payments at the border.

At the project level, ADB assistance has resulted in increased domestic economic activity, with new industries and special economic zones developing along the road. Casinos and tourist attractions have been developed, and duty free shopping malls have been constructed. Mining activities across the border between Lao PDR and Viet Nam have increased. The border community has benefited from new livelihood opportunities in local cross-border trade. Respondents to a socioeconomic survey said that their living conditions improved after road completion and that more job opportunities were available. The survey also noted that better road conditions facilitate access to health services at the local level.

At the corridor level, bus fares on the Phnom Penh–Ho Chi Minh City route as well as on the Phnom Penh–Svay Rieng route have decreased after adjustment for inflation using the consumer price index. Prices of commodities such as vegetables originating from the project road area and sold in the Phnom Penh market have benefited from transport cost reductions attributed to the project.

At the national level, the impact on small-sized economies—Lao PDR and Cambodia—has been higher, since a larger proportion of their trade uses the border points on the Southern Corridor and East–West Corridor. The impact on larger economies such as Viet Nam is relatively less, since it has several other trade points including seaports.

There are several negative impacts of the transport improvement and cross-border movements. The GMS Transport Strategy, 2006–2015 is silent on how it will handle social and environmental issues for GMS transport projects. This gap becomes more apparent in light of the impacts already seen due to the completed projects, e.g., illegal logging, wildlife trade, and deforestation. Adverse resettlement impacts have also emerged in recent months, e.g., in Cambodia. With the improvement of the roads, there has been a distinct deterioration in road safety with the increase in traffic and average vehicle speed.

A distinct link has emerged among infrastructure development, mobility, and the spread of communicable diseases such as HIV/AIDS.[1] Specific cases of HIV spread have been observed in border areas. ADB has initiated several grant-funded programs to address this issue. However, the impacts of these measures are likely to be modest, given the magnitude of

[1] Human immunodeficiency virus/acquired immunodeficiency syndrome.

the problem. Building capacities within the countries is crucial to ensure sustainability. This requires national ownership and concerted action from all stakeholders: the governments, nongovernment organizations, and aid agencies. ADB needs to continue generating multilateral and multiorganization efforts to sustain measures for countering the spread of HIV/AIDS.

Overall Assessment, Lessons, and Recommendations

Combining the top–down and bottom–up assessments, ADB's assistance for the transport sector as well as for the trade facilitation sector is rated "successful." Several positive factors support this rating. First, ADB has successfully provided a lead role in pushing through multilateral dialogue among the GMS countries. Second, there has been an appropriate mix of lending and nonlending assistance to support and sustain the dialogue. Third, the selection and implementation of physical infrastructure improvements have been appropriate to the needs at the national level as well as the subregional level. Finally, the focus on cross-border issues and the diligence in preparing the CBTA are appropriate.

The transport and trade facilitation sectors of the GMS program could be strengthened by taking into consideration the experience of the last decade. The core issues that need to be tackled are as follows: (i) reach a consensus on how the transport corridors can be converted into economic corridors, and (ii) ratify and implement the CBTA without delays. Factors that need to be considered to address these core issues are as follows: (i) further enhance synergies by providing a better balance of national and regional projects, (ii) encourage cofinancing to counter rising demands for funds, (iii) carry out specific actions to counter social and environmental issues, (iv) develop multimodality in corridor development to reduce transport costs, (v) focus on nonphysical barriers to trade, and (vi) mobilize private sector participation in operations and maintenance.

Key lessons identified include the following:

(i) GMS projects have been successful in providing benefits to the participating countries at the national level. For these benefits to spread to the subregional level, trade facilitation should be expedited.

(ii) Subregional projects have enabled cooperation among the countries. They have improved the efficiency of transport and created a favorable climate for dialogue and exchange of information.

(iii) The creation of NTFCs in the GMS countries has been a positive step toward coordinating transport planning and implementation. However, these committees need to be more inclusive in their functioning and to coordinate with their counterparts in other sectors.

(iv) There has been limited participation of the private sector in the financing, operation, and maintenance of transport projects. ADB and other development partners should make efforts to support policy reforms that enable private sector participation in GMS projects.

(v) With the expansion of the GMS program, the demands for lending and nonlending assistance have increased. ADB should focus on areas where it has an advantage in terms of in-house expertise and should mobilize other development partners to lead in other sectors.

(vi) The GMS Transport Strategy, 2006–2015 should be improved by recognizing the importance of social and environmental repercussions of regional transport projects. In addition, the role of transit countries and the corresponding costs and benefits to their national economies could be included. The recently completed

projects provide several implementation lessons that can be taken on board by the GMS program.

(vii) ADB can lead the way in developing a specific results-based monitoring framework that will cover policy as well as investment in transport infrastructure development. There needs to be a monitoring system that measures to what extent a transport corridor is being transformed into an economic corridor. This includes assessment of the impact of external interventions as well as that of transport infrastructure development. The GMS Transport Strategy needs to address this in its implementation plan.

Recommendations for ADB's future assistance for the GMS program are summarized in the table below.

Recommendation	Responsibility	Timing
1. **Fill Gaps in Transport Infrastructure and Trade Facilitation.** ADB should initiate action on identifying and addressing all gaps and missing links in transport infrastructure across the GMS program. The CBTA should be implemented with an agreed upon timetable and monitoring mechanisms without delay to reduce restrictions on cross-border movements which ADB should assist proactively (main text, para. 202).	Southeast Asia Department	Gaps to be identified by 2009 and solutions initiated by 2010
2. **Facilitate Institutional Development.** Transport and trade companies face problems in carrying out cross-border legal transactions such as freight insurance, vehicle insurance, and customs duty for transit goods. ADB should work in conjunction with the governments in setting up a regional body that brings together business interests from the GMS countries. A regional transport association is currently being discussed within the GMS Business Forum, and this should be promoted actively (main text, para. 203).	Southeast Asia Department	The regional country partnership strategy to develop an approach in consultation with the GMS countries
3. **Develop Strategic Partnerships and Harness Synergies with Other Regional Cooperation Initiatives.** ADB and the GMS program should develop partnerships with other regional cooperation initiatives outside Asia, which could enable transfer of best practices, create knowledge in areas such as logistics management, and ensure synergies with global trade processes (main text, para. 204).	GMS Secretariat	On a continual basis
4. **Mobilize Alternate Forms of Financing.** Given the huge gap in investment in transport infrastructure, ADB should catalyze financing from the private sector and other development partners (main text, para. 205).	Southeast Asia Department	The regional country partnership strategy to provide a steer

ADB = Asian Development Bank, CBTA = Cross-Border Transport Agreement, GMS = Greater Mekong Subregion.

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TRANSPORT AND TRADE FACILITATION IN THE GREATER MEKONG SUBREGION
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108°00'E
24°00'N
10°00'N
INDIA
BANGLADESH
MYANMAR
THAILAND
LAO PEOPLE'S DEMOCRATIC REPUBLIC
CAMBODIA
VIET NAM
PEOPLE'S REPUBLIC OF CHINA
YUNNAN PROVINCE
GUANGXI ZHUANG AUTONOMOUS REGION
GUIZHOU
HUNAN
GUANGDONG
MALAYSIA
ANDAMAN SEA
Gulf of Martaban
Gulf of Thailand
Gulf of Tonkin
NAYPYIDAW
HA NOI
VIENTIANE
BANGKOK
PHNOM PENH
North–South Corridor
Northern Corridor
Northeastern Corridor
Eastern Corridor
Central Corridor
East–West Corridor
Southern Corridor
Southern Coastal Corridor
Western Corridor
Dali–Lijiang Railway Project
ADB-Financed Yunnan Expressway Project
Western Yunnan Roads Development Project
Southern Yunnan Road Development Project
Western Guangxi Roads Development Project
Guangxi Roads Development II Project
Guangxi Roads Development Project
Fancheng Port in Guangxi Autonomous Region
Kunming
Mohan
Boten
Lao Cai
Hekou
Nanning
Pingxiang
Youyiguan
Lang Son
Hai Phong
Ninh Binh
Thanh Hoa
Vinh
Vangvieng
Pakkading
Ban Lao
Thakhek
Nong Khai
Nakhon Phanom
Udon Thani
Khon Kaen
Kalasin
Mukdahan
Kaysone Phomvihane
Da Nang
Dong Ha
Hue
Dung Quat
Dietri
Quy Nhon
Pleiku
Salavan
Pakxe
Phouvong
Stung Treng
Siem Reap
Kampong Cham
Da Lat
Koh Kong
Go Dau
Ho Chi Minh City
Vung Tau
Sihanoukville
Kampot
Sre Ambel
Svay Rieng
Ha Tien
Can Tho
Ca Mau
Nam Can
Tak
Phitsanulok
Mae-Sot
Denchai
Loei
Chaiyaphum
Nakhon Ratchasima
Nakhon Sawan
Chon Buri
Sattahip
Trat
Prachuap Khiri Khan
Chumphon
Ranong
Surat Thani
Phuket
Trang
Songkhla
Hat Yai
Narathiwat
Yala
Pathein
Yangon
Mawlamyaing
Myeik
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Pyay
Mandalay
Thibaw
Lashio
Loilem
Tachilek
Mae Sai
Chiang Rai
Jinghong
Mohei
Simao
Yuanjiang
Gejiu
Yuxi
Mile
Chuxiong
Longling
Ruili
Muse
Tamu
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Myitkyina
Maliuwang
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Guilin
Hexiang
Lipu
Liuzhou
Wuzhou
Baise
Tiandong
Pingguo
Litang
Tanlou
Fusui
Guiyang
Yulin
Qinzhou
Chongzuo
Dongxing
Fangcheng
Yen Bai
Kep
Hoa Binh
Nateuli
Louang-Namtha
Louangphrabang
Ayeyarwady
Salween (Thanlwin)
Chindwin R.
Tonle Sap
Scale 0 50 100 200 300 Kilometers
National Capital
City/Town
ADB-Financed Project
Expressway
Possible Extension
River
Provincial Boundary
International Boundary
Boundaries are not necessarily authoritative.
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I. INTRODUCTION

A. Background

1. Transport and trade facilitation are the leading sectors for the regional cooperation initiatives of the Asian Development Bank (ADB). This sector assistance program evaluation (SAPE) assesses the performance of ADB's assistance to these sectors in the Greater Mekong Subregion (GMS) comprising Cambodia, Lao People's Democratic Republic (Lao PDR), Myanmar, Thailand, Viet Nam, and Yunnan Province and Guangxi Zhuang Autonomous Region (GZAR) of the People's Republic of China (PRC).

2. Launched in 1992, ADB's GMS program has focused on transport and trade facilitation initiatives in its endeavor to enhance connectivity and improve competitiveness across international borders. It was designed to link the GMS countries, though improvements in infrastructure focused on facilitating cross-border trade and investment. Within the transport sector, its objectives were to develop transport corridors, reduce nonphysical barriers to movement, and formulate and coordinate strategies to ensure that the transport corridors evolve into economic corridors. ADB funding for the transport sector within the GMS program has reached $3.3 billion to date.

3. Although Myanmar is one of the GMS countries, the scope of the SAPE does not fully include it owing to the absence of any assistance from ADB. In addition, it is difficult to obtain trade and transport data from Myanmar. The transport sector analysis focuses mainly on the roads subsector, since the majority (83%) of ADB's activities are in this subsector.[1] Trade facilitation has been dealt with mainly by evaluating activities being undertaken to reduce trade costs and improve traffic movements across borders.

4. The PRC occupies an important position in the GMS program, although the program's coverage is limited to Yunnan Province and GZAR. The SAPE draws on information from the two provinces directly applicable in the context of the GMS program. It focuses on Cambodia, Lao PDR, and Viet Nam to draw lessons and information that could be representative of the GMS countries. Key findings from the PRC have been included where available and applicable.

B. Objective and Scope

5. The objective of this evaluation is to provide an independent assessment of ADB's assistance to the transport and trade facilitation sectors within the GMS program and the regional cooperation strategy and program (RCSP) for the GMS, and to identify issues and areas where ADB and the GMS countries could work together more effectively to improve the development effectiveness of their partnership. More specifically, the SAPE assesses the effectiveness of ADB-funded projects in terms of national and subregional benefits and costs. It seeks to identify lessons from past experience for further development of the GMS strategy and program and also for other regional cooperation initiatives.

C. Evaluation Framework and Methodology

6. The SAPE follows ADB's guidelines for the preparation of a country assistance program evaluation report.[2] Appendix 1 provides the evaluation framework and the methodology adopted. The top–down assessment reviews (i) the strategic alignment of the GMS Transport

[1] ADB has recently started providing assistance to the railways subsector. Since ADB has exited from the ports and civil aviation subsectors, the SAPE provides only a limited coverage of those.

[2] ADB. 2006. *Guidelines for the Preparation of Country Assistance Program Evaluation Reports*. Manila.

Strategy with country and ADB priorities, (ii) institutional development, (iii) value addition of the GMS program, and (iv) ADB's performance as a development partner. The bottom–up assessment examines the performance of lending and nonlending assistance in the transport and trade facilitation sectors by reviewing their relevance, effectiveness, efficiency, impact, and sustainability. Based on these assessments, the SAPE identifies lessons and recommendations for future ADB assistance.

7. The SAPE analyzes a combination of information collected from desk reviews, project documents, and primary data collection. The top–down assessment is mainly a desk-based exercise supported by perceptions drawn from meetings with government officials. The bottom–up assessment evaluates differential economic benefits using data from recently completed projects; it also examines two sample projects: (i) the Phnom Penh–Ho Chi Minh City (HCMC) Highway Project linking Cambodia and Viet Nam; and (ii) the East–West Corridor Project linking Lao PDR and Viet Nam.[3] Project performance evaluation reports (PPERs) were prepared by the Operations Evaluation Department (OED), in parallel to the SAPE, to provide detailed analysis from these projects. In addition, the SAPE process included several perception surveys to measure various aspects of the effectiveness of trade facilitation: change in origin–destination of goods and passengers, border-crossing efficiency, freight forwarder impact, and border community impact. The preliminary findings of the SAPE have been shared with ADB staff and the government officials.

D. Findings of Earlier Evaluation of the GMS Program

8. OED carried out an impact evaluation study of the GMS program in 1999,[4] the main findings of which relating to the SAPE are summarized below:

(i) **Transport.** Close follow-up is needed to ensure that cross-border agreements are implemented and to monitor their effectiveness so that any necessary changes can be made. The potential benefits of infrastructure development will not be realized without further trade and investment reforms. ADB will need to be proactive in mobilizing resources for transport projects and ensuring equitable distribution of costs and benefits among GMS members.

(ii) **Trade.** Greater focus is needed on trade and investment opportunities within other GMS programs (e.g., transport), and greater priority must be given to overcoming policy constraints within the subregion. Fostering private sector partnership in the program, including better marketing, is critical.

9. A midterm self-evaluation review[5] of the GMS program in 2007 carried out by ADB indicated that the initiative has made good progress in developing infrastructure linkages, but lags in other areas such as enhancing competitiveness and subregional cooperation in social and environmental concerns. This has led to some perceptions that the GMS program is skewed toward infrastructure development. All of the issues mentioned by the midterm review and many of the suggestions made in the previous OED review continue to be valid and important for fine-tuning the GMS program.

E. Organization of the Report

10. Chapter II presents background on the transport and trade facilitation sectors and on regional cooperation strategies in the GMS. Chapter III provides the top–down assessment.

[3] See detailed information on GMS loans and grants in Appendix 2.

[4] ADB. 1999. *Impact Evaluation Study of the ADB's Program of Subregional Economic Cooperation in the Greater Mekong Subregion*. Manila.

[5] ADB. 2007. *Midterm Review of the Greater Mekong Subregion Strategic Framework (2002–2012)*. Manila.

Chapter IV analyzes the bottom–up assessment. Chapter V summarizes the top–down and bottom–up assessments to give an overall rating for the sectors and provides the conclusions, lessons, and recommendations.

II. SECTOR CONTEXT

A. Economic Growth and Trade Linkage

11. Economic growth in the subregion since the early 1980s has been underpinned by rapid expansion in manufacturing exports, thus making them among the fastest-growing economies in the world. From 2000 to 2007, the rate of growth of gross domestic product (GDP) in the GMS averaged 8.6%. While strong export orientation has been the marked feature of growth and development in East and Southeast Asia, diverging trends can be observed across the GMS countries in terms of the relative importance of trade to economic growth. In almost all GMS countries, the share of exports relative to GDP has grown significantly since 2000 from their level in the 1990s. From 2000 to 2006, merchandise exports from the GMS grew by an average of 17% in value terms. At the same time, the growth of imports into GMS countries has generally outpaced export growth, with the exception of Lao PDR and Thailand. The softening of domestic demand in the two countries has largely put import growth on check. This indicates a general increase in trade activity in the region. The direction of trade over the past few years has exhibited not just a rapid expansion of trade with the rest of the world but also of GMS economies' trade among themselves. From 2000 to 2006, total trade by the GMS with the rest of the world rose at an average rate of 15%, but trade flows within the GMS increased even faster at 20.6%. Appendix 3 provides further analysis of the exports and imports.

12. The direction of trade varies across the GMS. The share of intra-GMS trade in total trade is higher for smaller economies than for larger ones, the Lao PDR having the highest share of its trade focused on the GMS (Table 1). From 2000 to 2006, no significant increase in the share of intra-GMS trade was observed for Thailand and Viet Nam. The Lao PDR's intra-GMS trading temporarily dipped in 2004 as the country's trading with Cambodia and Viet Nam declined. Cambodia, on the other hand, showed a downward trend in its trading within the subregion, as garment exports to non-GMS countries expanded in recent years. In 1995, 74% of Cambodian exports headed to neighboring Asian countries. In 2005, only 27.2% of the exports were to other Asian countries and 50% were destined for the United States, up from just 1% in 1995.[6]

Table 1: Direction of Trade in 2006 (% of total)

	GMS		Other Asia		United States		Europe		Others	
Country	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**
Cambodia	2.5	23.1	20.1	66.0	53.3	0.9	0.4	0.2	23.6	9.8
Lao PDR	54.7	76.5	9.3	15.4	0.7	0.5	0.8	0.3	34.4	7.3
Thailand	4.1	1.2	38.7	38.4	15.0	7.5	1.9	1.6	40.3	51.2
Viet Nam	5.0	10.2	19.3	60.3	21.2	2.6	2.3	1.8	52.2	25.1
GZAR, PRC	22.3	24.3	37.6	23.3	11.3	5.8	18.1	12.0	10.7	34.6
Yunnan, PRC	15.4	6.7	63.0	26.1	6.4	4.4	10.7	12.9	4.5	49.8

GMS = Greater Mekong Subregion, GZAR = Guangxi Zhuang Autonomous Region, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Note: GMS here excludes Myanmar.
Sources: International Monetary Fund, Direction of Trade Statistics CD-ROM (March 2008); Guangxi Statistical Yearbook 2007; and Yunnan Statistical Yearbook 2007.

[6] United Nations Economic and Social Commission for Asia and the Pacific. 2007. *Review of Developments in Transport in Asia and the Pacific 2007: Data and Trends*. New York.

13. The above statistics show that there has been an increase in the quantum of trade, as well as a diversification in the trading partners. This puts added pressure on the transport infrastructure and highlights the constraints in the existing system.

B. Transport Sector in the GMS

14. Transport infrastructure and services in the GMS are in various stages of development. While standard indicators, such as road density and proportion of paved roads, are good measures of the maturity of a country's road network, they are also largely a function of the geography and demography of a country (Table 2). In the GMS for example, although Thailand's road length per capita is much lower than those of its comparators in the subregion, the proportion of paved roads is much higher, thus putting the country ahead in terms of road development. In contrast, the Lao PDR has fewer paved roads, but this is principally on account of its sparse population. Overall, although the last few decades have seen rapid economic development in the subregion (para. 11), transport network conditions and standards in a large part of the GMS remain inadequate to meet the rapidly growing demand for transport facilities and services.

Table 2: Comparative Transport Indicators 2006

Item	Cambodia	Lao PDR	GZAR, PRC	Thailand	Viet Nam	Yunnan, PRC
Population density (people/km^2)	81.60	24.70	198.20	126.40	258.80	113.80
Road Density						
Km per 1,000 people	2.64	5.44	1.11	0.83	2.64	4.34
Km per km^2	0.22	0.13	0.22	0.11	0.68	0.49
Rail Density						
Km per 1,000 people	0.04	—	0.07	0.06	0.03	0.04
Km per 1,000 km^2	3.41	—	13.67	7.95	7.99	4.89

GZAR = Guangxi Zhuang Autonomous Region, km = kilometer, km^2 = square kilometer, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.

Sources: Asian Development Bank. 2006. *GMS Transport Sector Strategy*. Manila; World Bank. 2007. *World Development Indicators*; Guangxi Statistical Yearbook 2007; and Yunnan Statistical Yearbook 2007.

15. Appendix 3 provides an overview of transport infrastructure development in GMS countries. The movement of freight and people faces two main constraints there: lack of adequate physical infrastructure, and cross-border barriers. The GMS program, along with the other regional programs, has addressed both these issues to a certain extent, but it has yet to achieve the goal of "a GMS that is more integrated, prosperous, and equitable."[7]

C. Member Government Plans

16. Transport and trade development plans have typically been domiciled within the respective countries' socioeconomic development plans. Generally, investment plans for roads have been prepared to enable trade improvement. While acknowledging the limitations of existing networks, the development plans have an expansionary outlook targeted toward increasing the size of the network. The importance given to developing transport and logistics services with the neighboring countries is consistent across the GMS countries. Typically, investment plans have been designed along the lines of developing international trade corridors and increasing competitiveness. Appendix 4 provides a summary of these development plans.

17. Cambodia's First Socioeconomic Development Plan (1996–2000) highlighted the importance of developing the border-to-border primary road system. It acknowledged Cambodia's location at the center of the "GMS," implying that the importance of the GMS had

[7] ADB. 2002. *Building on Success: A Strategic Framework for the Next Ten Years of the Greater Mekong Subregion Economic Cooperation Program*. Manila.

been registered and accepted as early as 1996. The Lao PDR's socioeconomic development plans prioritize links with its international borders in an effort to reduce its trade costs and improve connectivity. The PRC's earlier development plans focused mainly on developing internal links; however, with the increasing importance of the Association of Southeast Asian Nations (ASEAN) and the efforts within the GMS, Yunnan and GZAR have accorded higher priority to developing international links with Lao PDR, Myanmar, and Viet Nam. Thailand's 10th national plan prioritizes infrastructure development and improved logistics to enhance the country's competitiveness. Viet Nam continues to accord high importance to developing regional transport links, especially with the PRC. Appendix 4 gives the statement of the Communist Party of Viet Nam, which echoes the priorities of the GMS program.

D. GMS Regional Cooperation Plans for the Sector

18. ADB initiated and built the GMS program to achieve a well-integrated and prosperous Mekong Subregion—free of poverty and committed to protecting the environment that is vital to the subregion's future well-being. The GMS Strategic Framework (footnote 7) focuses on five development thrusts to achieve this goal: (i) strengthen infrastructure linkages through a multisectoral approach, (ii) facilitate cross-border trade and investment, (iii) enhance private sector participation in development and improve its competitiveness, (iv) develop human resources and skill competencies, and (v) protect the environment and promote sustainable use of the subregion's shared natural resources.

19. The transport sector has been at the forefront of the GMS program and is the driving force to achieve the program's three Cs—enhanced connectivity, increased competitiveness, and improved sense of community. Initial efforts in this sector were guided by the ADB-financed GMS Subregional Transport Sector Study commissioned in 1992. It identified priority transport projects, some of which have been implemented. With the increase in the regional cooperation activities, the countries agreed to establish a Subregional Transport Forum (STF) to handle operational issues and to oversee the implementation of projects and initiatives. Prior to 2003, the STF was the platform for discussing issues related to the Cross-Border Transport Agreement (CBTA). Subsequently, the national transport facilitation committees (NTFCs) took over the negotiation, finalization, and implementation of the CBTA. The GMS program established a Subregional Trade Facilitation Working Group (STFWG), which was dormant for a few years and was not directly involved with the development of the CBTA. It is now in the process of developing the Strategic Framework for Action on Trade Facilitation and Investment (SFA-TFI) in the GMS, which links with the CBTA on specific issues such as customs and quarantine.

20. The GMS program initially targeted development of transport corridors rather than economic corridors.[8] Subsequently, in 1998, the need for broadening the scope of transport corridors generated three economic corridors: the Southern Corridor (connecting Cambodia–Viet Nam with Thailand), the East–West Corridor (connecting Lao PDR–Viet Nam with Thailand), and the Northern Economic Corridor (connecting Yunnan with Lao PDR and Thailand). While most sections of these corridors have been completed, the evolution of transport corridors into economic corridors has yet to be achieved (para. 59). Linked to this, there remain the issues of adequacy of demand in terms of growth in traffic and trade volumes

[8] The priorities of the STF were (i) developing priority transport corridors; (ii) linking the capitals, other population centers, and major tourist destinations in the subregion; (iii) helping develop remote and low-income areas by improving access to markets and social and economic services; and (iv) reducing if not eliminating nonphysical barriers to the movement of people and goods in the subregion. These criteria were used to prepare the Road Master Plan in 1995. As defined by the RCSP, an economic corridor is a geographic area in which infrastructure investments are linked directly to trade, investment, and production opportunities.

on the transport corridor. The current GMS Transport Strategy[9] has increased the number of economic corridors to nine as follows: (i) North–South Corridor: Kunming–Bangkok; (ii) Eastern Corridor: Kunming–HCMC; (iii) East–West Corridor: Mawlamyaing–Da Nang; (iv) Southern Corridor: Dawei–Quy Nhon/Vung Tau; (v) Southern Coastal Corridor: Bangkok–Nam Can; (vi) Central Corridor: Kunming–Sihanoukville/Sattahip; (vii) Northern Corridor: Fangcheng–Tamu; (viii) Western Corridor: Tamu–Mawlamyaing; and (ix) Northeastern Corridor: Nanning–Bangkok/Laem Chabang.

21. The principles of the Road Master Plan were amended in 2005 when the GMS Transport Strategy, 2006–2015 was prepared. The focus shifted from enabling cross-border traffic to a strategy for improving the capacity and efficiency of a subregional transport network. This new strategy is based on end-user demand, internal and external subregional links, and efficiency of cross-border traffic. To support this, the strategy expanded the scope of the economic corridors, bringing in new routes. This has increased the level of investment required besides putting additional pressure on the countries' implementation capacity. Despite this, the GMS Transport Strategy has been endorsed by the member countries, thus ensuring ownership by the governments.

22. To support trade facilitation, the GMS program incorporated the GMS CBTA, which is a multicountry instrument covering various aspects of cross-border transport facilitation. The CBTA was initiated in November 1999 with three countries signing it: Lao PDR, Thailand, and Viet Nam. Cambodia, PRC, and Myanmar subsequently joined in at various stages between 2001 and 2003. Progress has been made in signing the CBTA and negotiating its annexes and protocols. Box 1 provides the current status of the CBTA. The Joint Committee of the CBTA, which met in Beijing on 20 March 2007, set as a target the ratification or acceptance by all GMS countries of all the annexes and protocols of the CBTA and commencement of the implementation of the national action plans of the CBTA by the time of the Third GMS Summit in 2008. However, this was not achieved.

Box 1: Current Status of the Cross-Border Transport Agreement

(i) All the countries have signed the CBTA, but ratification of the annexes and protocols is pending in three countries.
(ii) Cambodia, Lao PDR, and PRC have fully ratified the CBTA including its annexes and protocols. The other three countries are at various stages of ratification.
(iii) Initial implementation of the CBTA started at the Lao Bao–Dansavanh, Mukdahan–Kaysone Phomvihane, and Hekou–Lao Cai border-crossing points.
(iv) The GMS customs transit system has been adopted by all GMS countries, and the harmonized customs transit documents have been agreed upon. Implementation at the East–West Corridor is under way.

CBTA = Cross-Border Transport Agreement, GMS = Greater Mekong Subregion, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Asian Development Bank's Southeast Asia Department.

23. The GMS Transport Strategy focuses on physical connectivity, while the CBTA focuses on nonphysical factors. This is seen as an appropriate combination for implementation of the GMS program. However, the GMS program has had limited interventions in improving the investment climate. The GMS Business Forum has, in the last 2 years, provided a voice for the private sector

[9] ADB. 2007. *GMS Transport Strategy 2006–2015 Coast to Coast and Mountain to Sea: Towards Integrated Mekong Transport Systems*. Manila.

to engage in the identification of transport and trade bottlenecks. However, the GMS program has generally assumed that infrastructure investments will lead to an increase in economic activity.

24. During the first GMS Summit, in 2002, the PRC mooted an action plan for trade facilitation and investment. Subsequently, an SFA-TFI was endorsed at the Second GMS Summit in 2005. This SFA-TFI underscores the importance of trade-related capacity building in the form of institution building, training, and research activities at the regional level. The SFA-TFI is expected to address policy and institutional issues related to the treatment of border and behind-border issues, as well as the development of policy stances and negotiation capacities in relation to the world trading system and free trade agreements.[10]

25. On the institutional side, the GMS Strategic Framework as well as country strategies continue to depend on national institutions for planning and implementing transport projects. The overall approach to institutional strengthening within the GMS program is tilted toward addressing national constraints rather than developing regional arrangements. For example, with the growth in trade expected after implementation of the CBTA, the need for an international transport association has arisen to handle issues relating to freight insurance, truck movements, cargo handling, etc. There is a need to rise beyond the national outlook and develop regional institutions. For example, the International Road Transport Union represents the global road transport industry and strives to lift barriers to international transport and trade. It acts as an international guarantor for the Transports Internationaux Routiers carnet system, under which trucks are sealed by customs upon departure and can cross several borders without further checks until they reach their destinations.

26. Each GMS country has set up an NTFC. These six GMS NTFCs were tasked with negotiating and finalizing the CBTA. The first joint committee (comprising heads of NTFCs) meeting, held in 2004, formalized the institutional arrangements under the CBTA following ratification by all six GMS governments of the CBTA framework agreement. Senior NTFC officials continue to play a lead coordinating role in the negotiation, finalization, and implementation of the CBTA. Subcommittees under the joint committee were also established for transport, customs, immigration, and health inspection. Subcommittee members have included senior officials from relevant ministries and agencies who are members of the NTFCs in the six countries. However, cross-border transport facilitation activities continue to be distinct from trade facilitation activities within the governments. The link between the transport and trade facilitation departments within the governments requires streamlining, i.e., the participation in the NTFCs of departments other than transport needs to be strengthened.

27. The GMS Transport Strategy, 2006–2015 is a strategy of the GMS countries and relates to the GMS program as a whole rather than just to ADB. ADB has a separate RCSP, 2004–2008[11] that comprises ADB's strategy for implementing the GMS program. With several strategies and agreements, there has been a glut of plans and programs for transport and trade facilitation. These, combined with the initiatives of other development partners (para. 41), tend to create a complex matrix of overlapping interventions.

E. ADB Strategies and Plans for the Sector

1. Regional Strategy and Plans

28. ADB developed its first regional strategy for the GMS (footnote 11) in 2004. This RCSP aims to (i) strengthen connectivity and facilitate cross-border movements and tourism;

[10] See detailed information on TA in Appendix 5.
[11] ADB. 2004. *The GMS Beyond Borders Regional Cooperation Strategy and Program 2004–2008*. Manila.

(ii) integrate national markets to promote economic efficiency; (iii) address human resource development through health and other social, economic, and capacity-building measures; and (iv) share environmental and natural resources management. The strategy is focused on the three economic corridors: north–south, east–west, and southern. It advocates broadening ADB's scope of cooperation to cover the railway, air, and water transport sectors. It also proposes to develop a new master plan beyond 2006 based on (i) assessing the infrastructure needs for trade, investment, and tourism flows; (ii) prospects for strengthening multimodal linkages; and (iii) integration of subregional and border area development schemes that would help transform transport corridors into full-fledged economic corridors.

29. The RSCP notes that transport investments to date have developed from national rather than regional perspectives, with corresponding difficulties in maximizing the benefits and opportunities of regional corridors. It also acknowledges the fact that international projects typically involve an asymmetrical distribution of costs and benefits.

30. The RCSP expected the signing of annexes and protocols of the CBTA by 2005. However, this has yet to be completed. It also expected cross-border movement on the East–West Economic Corridor (EWEC) to take place after 2005. Currently, pilot testing of the CBTA has been initiated in the EWEC, as well as in two other locations. ADB has identified future support for other trade facilitation measures, such as simplification of customs procedures and preparation for World Trade Organization accession by the Lao PDR.

2. Country Partnership Strategy and Plans

31. ADB's country strategies for the GMS countries are closely linked with the GMS program. All the country partnership strategies (CPSs) and plans acknowledge the need to develop regional projects and have included them in their pipeline of projects. However, compared with the actual size of the GMS program, ADB's financial assistance appears to be small. The investment plan developed as part of the GMS Transport Strategy estimated an investment requirement of $1.65 billion between 2006 and 2011. Taking into account ADB's country portfolios, it would be difficult for ADB to allocate sufficient resources to fund such large investments on its own. In view of this, ADB's role as a catalyst becomes crucial to generate funding from other multilateral and private sources.

32. The general focus of ADB's CPSs has been to provide funding for capital investment projects. The strategies do acknowledge the need to address institutional capacity weaknesses to ensure sustainability of project benefits. However, no specific strategy or plan of action has been identified to tackle this weakness. Individual project loans include components for capacity building, which often do not ensure a sufficient level of sustainability, e.g., in the case of the Ministry of Public Works and Transport in Cambodia, which continues to face capacity constraints in implementing projects. Cambodia's country operational strategy in 2000 had identified institutional capacity constraints across sectors. Its 2004 country strategy underlined this constraint. However, the actual assistance continues to be lethargic in its approach to institutional development.

33. On the positive side, ADB's commitment to regional cooperation projects in general and to GMS projects in particular has been strong. Of a total of $2.08 billion from the Asian Development Fund (ADF) provided for regional projects between 1994 and 2008, ADB allocated

47% to GMS projects.[12] Of this amount ($988 million) allocated to GMS projects, transport projects received 76%. In other words, the GMS transport program has received a large share of concessionary ADF funding, highlighting the core competency of ADB in this sector.

34. Table 3 compares the size of investment projects within the GMS and the pipeline of ADB assistance as mentioned in the respective country's CPS, including both ADF[13] and ordinary capital resources (OCR)[14] financing. It indicates that the funding demands are high and there is a need for ADB to scale-up its assistance for regional projects, especially in Cambodia and Lao PDR.

Table 3: Comparison of Planned ADB Allocations for Regional Projects

Country	Per Capita Investment for 2003–2006 ($)	Investment Projects Planned under GMS Transport Sector Strategy 2006–2011 ($ million)[a]	CPS Pipeline for GMS Regional Projects in Transport and Trade Facilitation for 2007–2009		Type of Assistance
			Loan ($ million)	TA ($ million)	
Cambodia	82	74	13	1.0	ADF
Lao PDR	152	198	20	0.7	ADF
Viet Nam	200	1,996	625	1.0	ADF and OCR combination
Thailand	741		No firm lending identified		
PRC (Yunnan and GZAR)[b]	354[b]	2,931	1,921	0.5	OCR

ADB = Asian Development Bank, ADF = Asian Development Fund, CPS = country partnership strategy, GMS = Greater Mekong Subregion, GZAR = Guangxi Zhuang Autonomous Region, Lao PDR = Lao People's Democratic Republic, OCR = ordinary capital resources, PRC = People's Republic of China, TA = technical assistance.

[a] These figures are drawn from Annex 1 Action Plan for Investment Projects of the GMS Transport Strategy, 2006–2015. These figures include only those projects where distinct costs have been estimated for a country. They do not include joint costing where the costs between two countries have not been separated out (the projects included are Cambodia [A2.1–2, A3.2–3, B1–10, and A3.3–2]; Lao PDR [A3.6–1, A3.6–3, A6–3, and A6–4], Viet Nam [A2.2–2, A6–9, A3.2–3, and A2.1–4]; and PRC [C2.1–3, 2.1–5{a}, D14]. Refer to ADB. 2007. *GMS Transport Strategy 2006–2015 Coast to Coast and Mountain to Sea: Towards Integrated Mekong Transport Systems*. Manila for details of these projects). Projects costing about $126.5 million have been planned as joint projects involving two or more countries. The action plan was prepared in 2005, and projects shown as commencing in 2006 may not have proceeded as scheduled.

[b] The per capita investment for the PRC provinces shown here is for 2004 only, but is indicative for the period.

Sources: Per capita investment figures are from World Development Indicators online and ADB. 2007. *GMS Transport Strategy 2006–2015 Coast to Coast and Mountain to Sea: Towards Integrated Mekong Transport Systems*. Manila; and ADB country partnership strategy documents.

35. In the past, the CPS typically included regional projects within the assistance pipeline of its national projects. This has changed in the recent years, with the CPS separately identifying regional projects. However, in the case of the PRC's Yunnan Province and GZAR, all the projects are categorized as national projects, since they are all funded from OCR funds, but the project documents provide a regional cooperation rationale for the investment.

F. ADB's Assistance for the GMS Program

36. The transport sector has received more than 90% of total ADB lending for the GMS program (Table 4).[15] As of April 2008, ADB had financed 40% ($3.3 billion) of the total project

[12] ADB. 2007. *ADF and Regional Cooperation*. Presented at the ADF X Donors' meeting on 26–27 November 2007 in Vientiane, Lao PDR.

[13] ADF offers loans at very low interest rates and grants that help reduce poverty in ADB's poorest borrowing countries.

[14] OCR loans are made at near-market terms to better-off borrowing countries.

[15] ADF grant funding of $42 million was approved for the Northern GMS Transport Network Improvement in the Lao PDR.

costs ($8.3 billion) in the transport sector.[16] Trade facilitation initiatives have been implemented mainly by way of technical assistance (TA). Appendix 2 provides a summary of the transport portfolio of the GMS program.

Table 4: Transport Projects in the GMS Program as of April 2008

Item	Number of Projects	Amount ($ Million)	%
Total GMS project costs (all projects)	36	10,147	100.0
Total GMS transport project costs	26	8,334	82.0
ADB assistance for the GMS program			.
Total infrastructure (transport and energy) loans and grants	30	3,526	100.0
Total transport loans and grants	26	3,350	95.0
• Of which: loans in roads	20	2,971	89.0
• Of which: loans in railways	3	282	8.0
• Of which: loans in ports	2	82	2.0
• Of which: loans in airports	1	15	0.4

ADB = Asian Development Bank, GMS = Greater Mekong Subregion.
Source: ADB GMS Secretariat.

37. ADB has funded a broad array of TA. Several operations have overlapping themes among the transport, trade facilitation, and tourism sectors. Appendix 5 provides a summary of TA operations that closely relate to transport and trade facilitation. These 57 TA grants have had an aggregate cost of $54 million. Project preparatory technical assistance (PPTA) has been dominant, with 37 PPTA grants aggregating to $28 million. Advisory technical assistance (ADTA) comprised 19 grants totaling $21 million. Of this, ADB provided five ADTA grants for the trade facilitation sector amounting to $12 million out of which ADB funding was $2 million. ADTA has included cofinancing from other development partners comprising mainly bilateral donors and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). The thrust on developing physical infrastructure is apparent by the relative size of transport sector TA. The roads subsector has received the majority of the TA funding.

38. ADB entered into the railways subsector with the approval of the Dali–Lijiang Railway Project in the PRC in 2004. Since then, ADB has provided assistance in this subsector to Cambodia and Viet Nam. Aggregate ADB assistance in the railways subsector amounts to $781 million to date. ADB provided assistance for the civil aviation and ports subsectors in the mid-1990s, which was later included within the GMS program. ADB assistance covered the Siem Reap Airport in Cambodia, Saigon Port in Viet Nam, and Fangcheng Port in the PRC (Appendix 2). Supplementary Appendix A provides an assessment of assistance to the ports subsector, and Supplementary Appendix B provides an assessment of assistance to the civil aviation subsector. Since the completion of these projects, ADB has not ventured back into ports or civil aviation. However, the current pipeline of GMS projects shows substantial investments in civil aviation in the PRC: the new Kunming international airport (cost $2.9 billion), expansion of Dali airport (cost $19 million), and Guilin international airport improvement (cost $12 million).

39. ADB assistance for the transport sectors of Cambodia, Lao PDR, and Viet Nam has been a combination of GMS loans and non-GMS loans. Similarly, TA for the transport sector has been split into GMS and non-GMS. For a transport project to be categorized and eligible as a GMS project, it needs to show harmonious economic growth of the region as a whole.[17] While

[16] ADB sometimes provided separate loans for the same project. For example, for the East–West Corridor Project, ADB provided separate loans to Lao PDR and Viet Nam. The number of projects is thus not the same as the number of loans.
[17] ADB Operations Manual on Regional Cooperation. Section B1/BP. Issued on 29 October 2003.

in the other GMS countries there appears to be an appropriate separation of GMS and non-GMS projects, all transport projects in Yunnan and GZAR have been brought under the GMS umbrella. In other words, although some of these projects serve mainly national interests, they have been categorized as GMS projects. The categorization of GMS projects needs to be made consistent.

40. From 1992 until now, GMS transport project lending has accounted for 82% of total ADB transport lending to the GMS countries. For TA, however, the proportion is lower at 57%. Since 2002, there has been an increase in projects classified under the GMS banner. The only exception has been the Lao PDR, where ADB has been supporting the rehabilitation of the country's road network outside the GMS umbrella with six road improvement project loans as part of the country's national program. GMS projects in Viet Nam increased considerably in 2007 with three loans approved by ADB totaling $1.4 billion in the year. Generally, the size of GMS assistance has been much higher than that of non-GMS assistance.

G. Strategies and Plans of Other Development Partners

41. Appendix 6 provides a summary of major regional initiatives in the vicinity of the GMS. Apart from ASEAN, the other initiatives have complementary roles with the GMS program. These initiatives are summarized below:[18]

(i) **ASEAN.** Its initiatives in the transport and trade facilitation sector generally overlap with the GMS CBTA for transport facilitation that is currently being pursued.

(ii) **Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy.** Its activities are complementary to enhancing existing bilateral and regional economic cooperation initiatives including the GMS program.

(iii) **Asia–Europe Meeting.** It is a platform for dialogue whose thrust areas overlap with the GMS program, supporting the ongoing dialogue that relates to trade facilitation, environment, and security.

(iv) **Mekong River Commission.** Its navigation program directly complements the GMS program in transport development. Its focus on maritime shipping and inland waterways fills in the gap of the GMS program, which is focused primarily on land transport. There have been instances where ADB's non-GMS programs have not been coordinated sufficiently with the Mekong River Commission (MRC).

(v) **Asia–Pacific Economic Forum.** Owing to its broader agenda, the Asia–Pacific Economic Forum activities complement rather than counteract the specific objectives of the GMS program.

(vi) **Beibu Gulf Rim Cooperation Initiative.** This includes ASEAN countries and the PRC's Guangdong and Hainan provinces and GZAR. The development of the Guangxi Beibu Gulf Economic Zone covers four Chinese cities, namely Nanning, Beihai, Qinzhou, and Fangchenggang. The GMS program has accepted the initiative as a partner in regional cooperation.

42. The GMS program has reached a stage where it can be compared with other similar regional cooperation initiatives. The closest comparable initiative is the Initiative for the Integration of Regional Infrastructure in South America (IIRSA), which is supported by the Inter-American Development Bank (IDB). IIRSA aims to promote the development of transport, energy, and telecommunications infrastructure from a regional viewpoint, aimed at the physical and economic integration of 12 South American countries. One of the key characteristics of IIRSA is that it was set up by the member countries, and IDB was invited to provide technical support. IIRSA has set

[18] Information obtained from the websites of the respective organizations.

up coordination mechanisms and ensures exchange of information among governments, three of the region's multilateral financial institutions (IDB, Andean Development Corporation [Corporacion Andina de Fomento], and Financial Fund for the Development of the River Plate Basin). GMS program could learn from IIRSA, because the ownership of IIRSA rests within the 12 countries rather than with IDB. Other key aspects of IIRSA applicable to the GMS are summarized in Box 2. As with most other multilateral initiatives, there have been several criticisms of IIRSA in relation to the selection and implementation of its projects. The key aspects provided here are intended to bring out the positive lessons that could be of relevance for the GMS.

Box 2: Key Aspects of IIRSA of Relevance to Greater Mekong Subregion

(i) To overcome the vastness of the South American region, IIRSA developed integration and development hubs (ejes de integración y desarrollo), supplemented by sectoral activities to plan and implement infrastructure projects.

(ii) To overcome the limited capacity for pubic indebtedness, IIRSA focuses its attention on a limited set of projects enhancing execution possibilities. This enables the setting of priorities by governments, in some cases within a context of fiscal restrictions, and ensure a balanced participation of both the public sector as well as the private sector in infrastructure development.

(iii) IIRSA stresses project selection and monitoring combined with knowledge sharing. IIRSA was criticized earlier on this aspect and has undertaken measures to develop information management tools that ensure transparency, knowledge sharing, and ownership within the governments, civil society, and final beneficiaries in each country.

(iv) Besides IDB, there is wide participation from other multilateral organizations including the World Bank and bilateral organizations such as the Brazilian Development Bank. Larger projects such as the Pailon–San Jose–Puerto Suarez Road costing $448 million involved bilateral as well as multilateral organizations. In addition, there has been private sector participation in funding and managing of these roads.

(v) IDB has not set up any new lending instruments or developed a separate project pipeline for IIRSA. These projects do not receive any special treatment, and they have to follow the same set of guidelines that govern any other financing activity of IDB. On the other hand, IDB has introduced a special fund (Fund for the Financing of Technical Cooperation for Initiatives for Regional Infrastructure Integration) of $20 million for technical assistance within the IIRSA framework.

IDB = Inter-American Development Bank, IIRSA = Integration of Regional Infrastructure in South America.
Source: IIRSA's internet website http://www.iirsa.org/ and IIRSA technical support unit.

43. Once the pipeline of projects is identified within the IIRSA portfolio, implementation and financing are handled by each country. When a country decides to present a particular project for financing, it has to follow the usual IDB pipeline. The benefit of being included in the IIRSA portfolio is having access to a special fund (Fund for the Financing of Technical Cooperation for Initiatives for Regional Infrastructure Integration) from IDB and having the regional forum to discuss and coordinate investments among countries. Also, IIRSA is a window for attracting private sector participation. For example, IIRSA is organizing a special business seminar in Colombia where a group of IIRSA projects will be presented to private sector funding agencies. Parallel to IIRSA is another regional cooperation initiative, the Plan Puebla Panama in Central America, which aims to develop ports, highways, airports, and railways with the broad objective of developing the petroleum, energy, manufacturing, and agriculture industries. This initiative has been criticized as likely causing displacement of indigenous people. It provides potential lessons for the GMS program on managing migration.[19] More importantly, it provides lessons on adopting a common strategy to ensure that all projects in its regional integration program

[19] Information drawn from various sources including http://www.planpuebla-panama.org/ and http://en.wikipedia.org/wiki/ Plan_Puebla_Panama.

include sound social and environmental management practices and promote the conservation and sustainable use of natural resources.[20]

44. Other regional cooperation initiatives provide useful lessons that could be used by the GMS program. The Transport Corridor Management Initiative in sub-Saharan Africa intends to explore various funding arrangements for existing transport corridor groups that include membership fees, contributions by governments, traffic-based usage fees, and external support.[21] Since sustainability of such corridors is always a challenge, the sub-Saharan Africa transport policy program plans to charge road tolls to enable better transparency in allocating funds for maintenance. The initial capital investment will be borne by membership contributions and external funding.

III. STRATEGIC AND INSTITUTIONAL (TOP–DOWN) ASSESSMENT

45. The criteria and rating of top–down assessment are shown in Table 5, based on the analysis given in this chapter.[22] The overall top–down rating is "successful."

Table 5: Top–Down Assessment

Top–Down Rating Criteria		Rating
A	Strategic assessment	Substantial
B	Institutional assessment of the sector	Substantial
C	Value addition of the GMS program to the sector	Substantial
D	ADB performance	Substantial

ADB = Asian Development Bank, GMS = Greater Mekong Subregion.
Source: Operations Evaluation Department.

A. Strategic Assessment

46. The criteria for the strategic assessment are (i) alignment of the sector strategy with country and ADB priorities, (ii) positioning of the sector strategy and program, and (iii) complementarities and coordination with other aid agencies' initiatives.

1. Alignment of Regional Sector Strategy with Country and ADB Priorities

47. OED's earlier evaluation (footnote 4) highlighted the question of what constitutes a subregional initiative. The current list of GMS "subregional" projects is not based on ADB's Operations Manual but has been compiled by the GMS Secretariat.[23] The manual does not have a specific definition of what constitutes a regional project but provides a broad policy stating that ADB will give priority "to those regional, subregional, as well as national projects and programs which will contribute most effectively to the harmonious economic growth of the region as a whole." This could include a wide range of projects. For example, while the Siem Reap Airport Project will certainly have subregional impacts, the same could be said for many national transport projects, e.g., the Hanoi to Lang Son road in Viet Nam, which has definitive subregional benefits. This project was added to the list of GMS subregional projects in 2008, 5 years after completion. The development of the Yunnan Expressway (Appendix 2) has the

[20] Source: www.iadb.org accessed on 22 October 2008.
[21] Adzigbey Y., C. Kunaka, and T.N. Mitiku. 2007. *Institutional Arrangements for Transport Corridor Management in Sub-Saharan Africa*. Sub-Saharan Africa Transport Policy Program. Working Paper 86.
[22] The ratings are based on a four-category system of highly successful, successful, partly successful, and unsuccessful.
[23] ADB. 2003. Operations Manual. Section B1/BP: Regional Cooperation. Manila (29 October).

potential to increase subregional transport flows, but ADB assistance involves a specific road section within Yunnan only, with the national government providing majority financing.

48. **Transport.** The strategic assessment in transport is rated "substantial." Feedback from government officials indicates that ADB assistance for GMS transport projects has been fully in line with national development plans (paras. 16–17). This could be attributed to an appropriate level of project identification and appraisal carried out within the governments as well as within ADB. The GMS transport projects have all been priority projects within the individual government public investment programs. For example, Cambodia's First Socioeconomic Development Plan (1996–2000)[24] mentioned that rehabilitation of route national (RN) 5 and RN1 (Phnom Penh–Viet Nam border) constituted the first priorities in transportation for regional development, as they are both part of the Asian Highway (AH) 1 and connect Cambodia to Thailand and Viet Nam. RN5 was rehabilitated first with assistance primarily from ADB. RN1, along the Southern Corridor and leading to HCMC, was implemented subsequently under the GMS program.

49. Transport development in the regional context remains high on ADB's development agenda. Regional and subregional economic cooperation programs form the first pillar of ADB's Regional Cooperation and Integration Strategy (RCIS).[25] The GMS Strategic Framework, GMS Transport Strategy, and ADB's RCSP are all in line with the RCIS (paras. 28–30).

50. The notion of economic corridors is noble and appropriate to the concept of integrated planning. However, the definition of what constitutes an economic corridor is vague. The Eighth GMS Ministerial Conference in October 1998 characterized an economic corridor as a well-defined geographic area where infrastructure development is linked with the development of production and trade potentials through systematic interventions based on a clear economic rationale. Mobilization of private capital was an important feature of the core objective in 1998. Ten years later, this linkage has yet to be established. Transport corridors have been established wherein the roads have been improved. But government officials as well as ADB staff have yet to arrive at a consensus on how a transport corridor can be converted into an economic corridor. The mobilization of private capital for investment as well as maintenance has yet to be mainstreamed. To this end, in June 2008, the GMS members set up the Economic Corridors Forum to enhance collaboration among the countries in developing the areas along the corridors. This is a positive step and needs to be followed up with development and implementation of specific action plans.

51. Under the UNESCAP initiative, all GMS countries have made commitments to contribute to the creation of a complete AH network, and all ADB-funded road projects have been part of the AH network. ADB assistance also conforms to the Subregional Transport Sector Study of 1995,[26] as well as to the more recent GMS Transport Strategy finalized in 2005 (footnote 9). Rehabilitation of the railway sectors under ADB in Cambodia or Viet Nam is consistent with priorities indicated by the UNESCAP Trans Asian Railway and the Kunming–Singapore rail connection originally promoted by ASEAN.

52. The current GMS Transport Strategy, 2006–2015 has room for improvement in two key areas. First, although ADB's RCSP emphasizes careful management of social and environmental dimensions, the GMS Transport Strategy, 2006–2015 has yet to focus on these

[24] *Cambodia First Socioeconomic Development Plan 1996–2000*. Most data for the road sector come from Japan International Cooperation Agency. 2006. *Study of the Road Network Development in the Kingdom of Cambodia*. Final Report Volume II.
[25] ADB. 2006. *Regional Cooperation and Integration Strategy*. Manila.
[26] ADB. 1995. *Subregional Transport Sector Study for the Greater Mekong Subregion*. Manila.

growing issues.[27] The strategy does not even identify these as challenges that need to be addressed as part of the GMS program. The importance of these issues is highlighted in para. 185. Second, the strategy is silent on private sector participation in GMS transport projects. With the increasing scope of the economic corridors, the size of investments has increased. However, there has yet to be any clear strategy on how private sector funds and expertise could be tapped for road improvement as well as for operation and maintenance of economic corridors. Each GMS country has initiated separate and independent plans for bringing in private sector resources.

53. The Cambodian government has passed a law on investment[28] that facilitates private sector development of projects in the country. This has been used for attracting the private sector to fund rail rolling stock and terminals as well as airport facilities. However, the law has limited regional cooperation features and is intended mainly to attract foreign investment in the country. Similar examples exist in the other GMS countries, e.g., Viet Nam is considering a legal framework for private sector participation in expressway development. However, these initiatives need to be coordinated to ensure uniformity in the GMS and to present consistent incentives for private sector entry into the funding and operation of regional road projects. The 13th Ministerial GMS Conference in December 2004 included a specific discussion on the need to improve the enabling environment for private sector development. However, no specific steps have been taken to implement this idea.

54. The main obstacles to private sector participation are summarized below:

(i) Ensuring adequate returns is difficult, taking into consideration the low growth in traffic. However, this could be addressed by innovative financing structures such as viability gap funding[29] as used in India.

(ii) Fiscal limitations as well as legal constraints prevent the governments from providing guarantees to the private sector that ensure minimum financial returns.

(iii) The current investment climate in Lao PDR and Cambodia is not favorable for attracting substantial private investment. Cumbersome entry procedures for new companies are associated with corruption. The World Bank's Doing Business, 2008 report shows the ranking of 178 countries in terms of ease of doing business. Countries such as Singapore and New Zealand are ranked at the top, while Cambodia is ranked 145 and the Lao PDR is ranked 164.[30]

[27] The GMS Transport Sector Strategy prioritizes several TA operations addressing issues associated with cross-border traffic: Inclusion of a Substantive Health and Sanitary/Phytosanitary Regime in the CBTA (prevention of cross-border transmission of communicable deceases); Establishment of a Third Party Motor Liability Insurance Regime (coverage for third party victims of cross-border traffic accidents); Support for Harmonization of GMS Road Signs and Signals (reduces cross-border road traffic hazards); Cooperation between the ADB–ASEAN Regional Road Safety Program and the PRC (harmonization and exchange of best practices); and HIV/AIDS Component for all Road Transport Projects in the GMS.

[28] Law on Investment of the Kingdom of Cambodia (5 August 1994) and its Amendment (25 March 2003). Sourced from website of the Council for the Development of Cambodia at http://www.cambodiainvestment.gov.kh/ (accessed on 18 June 2008).

[29] Viability gap funding is a form of bridge financing from the government that seeks to fill the gap between economic and financial rates of return. In other words, projects that are assessed as commercially unviable but that have high economic benefits will receive specific funding in the form of grants from the government.

[30] Economies are ranked on their ease of doing business, from 1 to 178, with first place being the best. A high ranking on the ease of doing business index means that the regulatory environment is conducive to the operation of business. This index averages the country's percentile rankings on 10 topics, made up of a variety of indicators, giving equal weight to each topic. The rankings are from the World Bank's Doing Business, 2008 report, covering April 2006 to June 2007. Sourced from http://www.doingbusiness.org/ accessed on 18 June 2008.

55. **Trade Facilitation.** The strategic assessment of trade facilitation is rated "substantial." ADB's sector strategy covers the construction of cross-border facilities and the implementation of various measures at border crossings to facilitate the movement of vehicles and people. Among these, the focus has been on obtaining a consensus on the CBTA. ADB has attached appropriate significance to this milestone.

56. Since the early 1990s, GMS countries have developed bilateral trade agreements with their immediate neighbors to enable smoother land border crossings, especially for trade.[31] These bilateral agreements constitute the basis for regulating current border-crossing movements. Only one tripartite agreement was signed—between Thailand, Lao PDR, and Viet Nam in 1999—which became the foundation for the current CBTA. The general view among GMS participating countries is that, although the CBTA has taken a long time to develop and presents difficulties in implementation, it is crucial to developing a uniform system enabling cross-border movement across the region. The alternative to the CBTA would have been to develop a multitude of bilateral agreements followed by tripartite agreements, with the risk that these agreements may have different standards and procedures, making the regulation and management of border-crossing flows difficult. Moreover, bilateral agreements may not guarantee free flow of vehicles and passengers across all GMS countries. The CBTA presents a comprehensive agreement among all the participating nations and is fully in alignment with the sector needs at the country level and at the regional level.

57. A few areas of potential conflict between the CBTA and the existing bilateral agreements need to be resolved. For example, the existing transit agreement between Lao PDR and Viet Nam requires the former to have specific permission from the Viet Nam Government before transporting timber. However, the CBTA does not require any such permission. In addition, the CBTA needs to take on board the differences in the countries' accession to global treaties. Whereas all the GMS countries are members of the World Customs Organization, only PRC and Viet Nam have acceded to the revised Kyoto Convention, i.e., the convention on simplification and harmonization of customs procedures agreed upon at Kyoto on 18 May 1973 and amended on 26 June 1999. The revised Kyoto Convention delves into areas such as reduction of tariff barriers that do not have any overlap with the CBTA. But it also has ramifications in terms of changing customs procedures, an area where the CBTA is likely to make an impact within the GMS. Therefore, the CBTA needs to look at the differences in the existing trading systems of the GMS countries to ensure that smooth implementation.

2. Positioning of the Sector Strategy and Program

58. The positioning of ADB's sector strategy and program is rated "substantial." The RCIS emphasizes the role of physical connectivity. The GMS program targets this appropriately, although the software side has been slow to develop. The CBTA is an appropriate step in this direction. Other software measures that need to be implemented include the steps to enhance competitiveness and the recognition of the significance of the social and environmental issues in the GMS transport sector (para. 185).

59. **Transport.** ADB's strategy for the transport sector has typically focused on cross-border infrastructure, i.e., it is input based. It expects that development of infrastructure will lead to an expansion and integration of agricultural and industrial production within the GMS. The focus on integration has been stronger than that on expansion of production. As a result, ADB's policy initiatives along these lines have been limited to ensuring that the road corridors are included in

[31] Bilateral agreements exist between Viet Nam–Cambodia, Viet Nam–Lao PDR, Viet Nam–PRC, and PRC–Lao PDR.

the countries' national development plans. ADB's positioning in the GMS was restricted to providing physical connectivity without looking at the bigger picture of how this connectivity would be used by the countries. Lately, there has been a minor shift in this stance wherein ADB has recognized the challenges of global manufacturing and the rising domination of Asian industries.[32] It has also identified industrial, agricultural, and other economic activities to transform the transport corridors into economic corridors.[33] However, this shift is merely scratching the surface of the issue. ADB needs to develop a more comprehensive approach to develop economic corridors (para. 20).[34] Appendix 3, Table A3.4 compares economic corridors as envisaged during the Eighth GMS Ministerial Conference in October 1998 and the transport sector strategy for corridor development established to date. It shows that the core objectives established in 1998 have been only partly reflected in the sector strategy. ADB and the GMS countries need to develop a more comprehensive approach to the development of economic corridors that entails complementary nonphysical interventions directed at improving the investment climate and attracting private sector investments along the road corridors, as well as maintaining the corridors.

60. The first GMS transport sector study, which led to the development of the Road Master Plan, prioritized the development of the Southern Corridor, East–West Corridor, and Northeastern Corridor as follows: (i) Bangkok–Phnom Penh–HCMC–Vung Tau; (ii) Thailand–Lao PDR–Viet Nam; and (iii) Chiang Rai–Kunming (through Myanmar or Lao PDR).

61. These corridors are fully aligned with the priorities of the individual countries and the region. The GMS Transport Strategy, 2006–2015 expanded these transport corridors into nine corridors reflecting the aspirations of the GMS countries. While this has increased the scope and size of the GMS program, ADB and the GMS countries need to review the investment requirements and match these against available resources. This calls for prioritization of these projects with a focus on a limited set of projects to enable better execution. This also needs to reflect the fiscal restrictions of the respective countries.

62. In the PRC, ADB has been financing roads and railway projects in Yunnan Province and GZAR (Loans 1691, 1851, 2004, 2014, and 2116), which, though national projects, have indirectly helped traffic and trade with other GMS countries.[35] Only one project links Nanning with the PRC–Viet Nam border (Guangxi Roads Development Project [Loan 1251]). The positioning of ADB's assistance to the PRC as part of the GMS program may not be fully justified. It could be seen more as being part of the PRC's Great Western Development

[32] ADB. 2008. *Emerging Asian Regionalism, A Partnership for Shared Prosperity. Highlights*. Manila.
[33] *Technical Assistance Project TAP 32: Transformation of Transport Corridors into Economic Corridors*.
[34] See Appendix 3, Table A3.4 for further details on analysis of the development of economic corridors vis-à-vis transport corridors.
[35] All these transport projects were accorded high priority by the PRC Government and were consistent with the ADB "subsector" strategy in the 1997 Country Operational Strategy Study and 2003 Country Strategy and Program. However, the assistance to the PRC within the GMS framework is different from that provided to the other GMS countries. In the initial years of the GMS program, assistance to projects in Yunnan Province did not have the justification of the GMS regional cooperation program ingrained in the project rationale, e.g., Loan 1325: Yunnan Expressway Project was justified on the basis of improvement of capacity and integration of the road transport network in Yunnan and Heilongjiang provinces. Subsequent loan projects had specific justifications that ADB assistance should fit within the GMS program. However, almost all the GMS projects in the PRC enable construction of roads and railways in the interior parts of Yunnan Province and GZAR, i.e., away from the international border. Although these projects did form part of the broader GMS corridors, they depended on the government to provide the link with the international borders. In other words, ADB-assisted projects provided mainly national benefits rather than regional benefits.

Strategy,[36] which aims to contribute to regional cooperation among several other purely national objectives.

63. **Trade Facilitation.** Assistance for trade facilitation is closely linked to the development of transport corridors. ADB has appropriately positioned its assistance in this sector to derive synergies and contribute positively to the development of trade. The selection of specific areas for intervention provides a suitable focus for ADB as well as the countries to make changes in policies as well as in administrative processes. Customs procedures, people and vehicle movements across the border, and movement of transit goods are likely to create a positive enabling environment for trade within the GMS. ADB's approach to piloting the new concepts is sound. The pilot testing of the CBTA at selected cross-border points is appropriate, given the fact that this involves overcoming various hurdles within the public sector as well as within the private sector. The provision of TA for this purpose is appropriate and should be continued. Overall, the positioning of ADB's program in this sector is rated "high."

3. Complementarities and Coordination with Other Aid Agencies

64. **Transport.** This is rated "substantial" with some room for further improvement. The RCSP advocates development of complementarity with other regional cooperation initiatives such as ASEAN. There have been some consultations and coordination mechanisms in place among ADB, other development partners, and governments. Rehabilitation of the primary road network in Cambodia and Lao PDR has been cofinanced by other agencies including the World Bank, PRC Government, Japanese Government, and Australian Government.[37] However, currently, transport initiatives within the GMS framework are being seen as mainly ADB-sponsored projects with limited participation from other development partners. Discussions with the development partners indicated that awareness about the GMS program was lacking, and until recently no specific efforts were made to draw them into the GMS fold. Although the World Bank recently identified a regional work program[38] for participation in the GMS program, there has been limited joint funding of the program. Typically, aid projects continue to be rationalized along the national development plans rather than as regional development interventions. For example, the World Bank's recently approved Lower Mekong Program in Viet Nam has a multisector approach dealing with transportation and water management and bringing significant regional benefits to Cambodia. However, the project has been rationalized as a domestic Viet Nam initiative by the World Bank, since it does not fit the World Bank's criterion for a regional project.[39] ADB's Southeast Asia Department differed on this view, indicating that efforts have been made to draw development partners into the GMS program. There is room for improvement from ADB to increase awareness about the GMS program among aid agencies and to enable more cofinancing of regional projects.

[36] The Great Western Development Strategy covers 12 PRC provinces, autonomous regions, or municipalities: Chongqing, Gansu, GZAR; Guizhou, Inner Mongolia, Ningxia, Qinghai, Shaanxi, Sichuan, Xinjiang, Xizang, and Yunnan; and three prefectures: Enshi Tujia and Miao Minority Autonomous Prefecture of Hubei Province, Xiangxi Tujia and Miao Minority Autonomous Prefecture of Hunan Province, and Yanbian Korean Minority Autonomous Prefecture of Jilin Province. Source: Guangxi Roads Development Project (Appendix 2).

[37] Loan 0082: Northern GMS Transport Network Improvement Project (2007) mobilized financing from three cofinanciers—the OPEC Fund for Infrastructure Development, Australia, and Republic of Korea.

[38] The World Bank's regional work program basically complements its country assistance strategies and is focused on four themes: (i) support the development and implementation of a Mekong Water Resources Partnership Program; (ii) continue to work on regional power trade; (iii) facilitate increased transport and trade; and (iv) work on human resource issues, especially labor migration.

[39] As per the International Development Association's (IDA) Performance-Based Allocation System for IDA 13, regional projects are operations that involve three or more countries, all of which need to participate for the project's objectives to be achievable (i.e., the project would not make sense without the participation of all countries). Source: IDA's Performance-Based Allocation System Current and Emerging Issues. Published in October 2003. Accessed from www.worldbank.org.

The GMS program has made efforts in the recent years to attract cofinancing from other aid agencies and such efforts need to be scaled up.

65. Although ADB signed a Partnership Arrangement in March 2000 with the MRC for cooperation in navigation and river works, ADB has had limited dialogue with the MRC prior to project formulation. For example, ADB funded the construction of a floating border gate at the Vinh Xuong (Viet Nam)–Kaom Samnor (Cambodia) border. The MRC is currently developing a legal framework for cross-border movement on the Mekong River that will eliminate the need for any stops at the border. When this legal framework is adopted by the countries, ADB's investment is likely to be made redundant.

66. Other development partners, especially UNESCAP, attend GMS' STF and STFWG meetings. They also participate in development partners' meetings, which are held as part of the annual GMS ministerial conferences. This has enabled better coordination for development of the GMS economic corridors and UNESCAP's AH network. Synergies have also been created in areas such as common road design standards and NTFCs in the GMS countries.

67. **Trade Facilitation.** Complementarity and coordination are rated "substantial" with room for improvement. As is the case in the transport sector, development of the CBTA has been an ADB-led initiative, with little participation from other agencies. The drafting and negotiation of the CBTA's protocols and annexes have been funded mainly by ADB. With the CBTA almost ratified, other agencies such as the Australian Government have committed funding to help its implementation. UNESCAP has a similar set of conventions for harmonization of frontier controls of goods and contract of international carriage of goods by road. UNESCAP provided training on related international transport facilitation conventions prior to the actual negotiation of the annexes and protocols. In Cambodia, the government is working on implementation of the United Nations Conference on Trade and Development Automated System for Customs Data (ASYCUDA) to manage customs transit systems. ASYCUDA is a comprehensive system that supports all the main customs-related transactions from simplifying and harmonizing procedures and formalities and aligning trade documents to risk management, transit operations, and expedited clearance of goods. It also collects data for fiscal and trade policy analysis. These initiatives overlap heavily with the CBTA's aims, but these are well coordinated.

68. The World Bank approved assistance for customs modernization in Cambodia, Lao PDR, and Viet Nam parallel to the GMS program. The assistance in Viet Nam provides consulting services, training, TA, and infrastructure to support three operational components—core technical systems and procedural aspects of the reform program, organizational and resource management of the new systems, and information and communications technology support. Such interventions are in line with ADB's assistance through the GMS program and need to be encouraged. With the increase in demand for trade facilitation assistance for implementation of the CBTA and other downstream activities, it is expected that other agencies will participate in the GMS program. Such increased participation needs to be encouraged by ADB in a manner that ensures synergies rather than overlap. Cofinancing of development assistance is an obvious area where such synergies could be developed.

69. To raise awareness about its activities and agenda among the international development community, the GMS program should develop partnerships, for example with global initiatives such as the Global Facilitation Partnership (GFP) for transportation and trade. The GFP, established in 1999, has a network of 150 members in both developed and developing countries including international organizations, trade associations, and the private sector. The core institutional partners include the World Bank, United Nations Conference on Trade and

Development, International Road Transport Union, World Customs Organization (WCO), United Nations Industrial Development Organization, International Air Cargo Association, and United Nations Economic Commission for Europe. The GFP aims to address all aspects of trade facilitation from customs procedures to transport infrastructure to cross-border operations with a view to cutting red tape, streamlining procedures, and reducing costs, while at the same time increasing the level of confidence in the security of the international trade supply chain. Partners are working together to design and undertake specific programs, create knowledge, and support training (including distance learning initiatives).[40]

B. Institutional Assessment of the Sector

70. Institutional assessment is rated "substantial" based on the following criteria: (i) ownership, (ii) institutional structure, (iii) resource mobilization, and (iv) capacity building.

1. Ownership

71. **Transport.** This is rated "substantial" taking into account the growing participation and high-level commitments demonstrated by the GMS governments. The most recent example of this is funding provided by PRC and Thailand for rehabilitation of the North–South Economic Corridor in the Lao PDR. PRC and Thailand have agreed to share the cost of the international bridge connecting Houayxay in the Lao PDR with Chiang Khong in Thailand. The governments have endorsed the concept of developing the economic corridors and have incorporated these into their development plans (Appendix 4). In Cambodia, the government established a special economic zone (SEZ) in Bavet along the Southern Economic Corridor to take advantage of the cross-border traffic leading up to HCMC, after the completion of the ADB-funded road rehabilitation project (Loans 1659 and 1660).

72. **Trade Facilitation.** Ownership for trade facilitation initiatives is rated "modest." In Cambodia, Lao PDR, and Viet Nam, customs departments are going through restructuring involving simplification and harmonization of customs procedures and introduction of a friendlier attitude toward clients. Training in CBTA implementation and risk management for border officials is being carried out in conjunction with WCO such that the CBTA procedures will be in line with those of WCO. However, despite training courses provided for the cross-border staff, there is general low awareness about the CBTA and its implications.[41] Besides training, there is a need for the benefits of the CBTA to be explained to the stakeholders to ensure ownership. The GMS Joint Committee Action Plan has a confirmed date of 2010 for full implementation of the CBTA at all agreed upon border crossings. Taking into account the teething problems associated with implementing the CBTA, achieving this deadline could be difficult. Discussions with the customs officials in these countries indicated hesitancy in terms of how the CBTA will be implemented.

73. In line with the GMS Strategic Framework, all participating countries, with the assistance of ADB, have put in place NTFCs. This is a positive achievement but needs to be fine tuned to ensure better participation within the governments. These committees had only nominal representation from the trade departments and, in some cases, there was none. In the Lao PDR, the Ministry of Trade is pushing for a separate NTFC and has requested ADB assistance to support secretariat activities. This could create duplication and lead to difficulties in coordination within the government, as well as among development partners. Discussions with

[40] Source: Global Facilitation Partnership for Transportation and Trade website www.gfptt.org, accessed on 18 June 2008.

[41] This conclusion is based on interviews conducted at Lao Bao (East–West Corridor), Moc Bai (Phnom Penh–HCMC Highway), Lao Cai (Viet Nam–PRC border), and the first Friendship Bridge in Vientiane (Lao PDR–Thailand border).

the trade departments of other GMS governments elicited similar concerns about the lack of adequate participation in the decision making of the NTFCs. There is a need for active dialogue with the governments to ensure that there is appropriate consultation with the trade departments by the NTFCs.

2. Institutional Structure

74. This aspect of the institutional assessment is rated "substantial." Para. 19 provides the background for setting up the STF and STFWG. While the STF coordinated the physical infrastructure agenda, the STFWG sought to address nonphysical barriers and to encourage trade facilitation. The STF was tasked with (i) providing a vehicle for the coordination of project planning at the macro level (e.g., studies covering multiple countries); (ii) providing a mechanism for facilitating the implementation of priority subregional projects; (iii) providing a venue for addressing software issues (e.g., issues related to driver and vehicle registration, route licensing, axle load regulations, design standards); (iv) promoting the financing of subregional projects by the governments concerned, various aid agencies, and the private sector; (v) facilitating training projects and other human resource development initiatives in the transport sector; and (vi) providing a vehicle for dissemination and exchange of information on transport-related matters.

75. The STFWG aimed to (i) provide a venue for identifying constraints (e.g., regulatory, legal) that affect procedures, processes, practices, and tools for facilitating trade-related transactions in the subregion; (ii) provide a vehicle for cooperation related to the improvement and coordination of procedures and processes related to the subregion; (iii) provide a vehicle for improving the availability and consistency of trade-related information and the application of information technology to trade facilitation; and (iv) provide a venue for institutional cooperation among participating countries.

76. Both the STF and STFWG have annual meetings to discuss multilateral issues. However, these bodies are seen as basically following ADB's lead, and the main discussions typically revolve around planned and ongoing ADB-funded projects. Admittedly, several bilateral discussions do take place, and the meetings are seen as forums for discussions among countries with varying levels of economic development. The agreements reached at these meetings are ratified at ministerial meetings and at GMS summits. This ensures stronger ownership of the resolutions, increasing the likelihood of smoother implementation. In the case of both transport and trade facilitation, the resolutions passed at the GMS meetings have been implemented or are being implemented.

77. The role of the GMS Secretariat has been limited in the case of the transport and trade facilitation sectors. It has organized meetings and summits without getting involved in the direct operations of the loans and TA. Besides general programming activities, it has been implementing ADB's regional technical assistance (RETA) for the development of economic corridors, given the multisectoral nature of this initiative. Transport sector assistance has been implemented by ADB's Southeast Asia Department's infrastructure division (for transport). Assistance for negotiating and finalizing the CBTA has been provided by the Southeast Asia Department's operations coordination division. This structure has been working appropriately, and feedback from the governments indicates that they have accepted this implementation setup.

78. At the country level, the national coordinators for the GMS program are senior ranking officials within the government and are tasked with programming ADB assistance for the GMS

projects. They have a broad overview of the GMS activities and are the direct counterparts of the GMS Secretariat with the government. Actual responsibility for the implementation of GMS projects and TA rests with line ministries. Although this structure has been working effectively to date and there has been appropriate coordination of the GMS program within the government, there has been a tendency for the GMS national coordinators to become very influential within the governments, deciding various activities such as the selection of government staff to be sent on GMS training courses. Nevertheless, the role of the national coordinators is important to ensure ownership and coordination within the governments.

3. Resource Mobilization

79. **Transport.** This aspect is rated "substantial," implying that the volume and the mix between lending and nonlending assistance have been adequate. But the split between GMS and non-GMS lending could be improved (paras. 39–40). Traditionally, funding for regional projects was a subset of the respective country's national program and has been limited, especially for countries such as Lao PDR and Cambodia. Since 2002, there has been a move toward separately identifying resources for regional cooperation initiatives such as the GMS program to reduce the constraints imposed on the national programs. Commitments of funds from France, Japan, and PRC have augmented the pool of funds available for these initiatives. In addition, ADF X donors of ADB have agreed to increase the share of regional assistance from 5% to 10% of total funds. Appendix 7 provides a summary of funding for regional initiatives. There has been a gradual increase in the resources available for the GMS program. However, with the increase in scope of the economic corridors, the funding demands have increased. Taking into account ADB's limits on concessionary funding, it could be increasingly difficult to fund regional projects unless they are revenue generating or ADB provides relatively more expensive OCR funding. In the first case, ADB could look to opening a new line of lending through the private sector window. In the second case, the fiscal capacities of relatively less developed countries such as the Lao PDR need to be ascertained.

80. Low-income countries such as the Lao PDR are eligible for ADF funding, which also limits the number of projects that can be financed, since ADF financing for regional cooperation projects is subject internally to a ceiling.[42] Converting the transport corridors into economic corridors requires going beyond aid money and concessionary funding and accessing larger sums of capital to accelerate economic development. Although there is potential for growth of private sector activities, they need to be cultivated with appropriate support from development partners. Taking into account the obstacles stated in para. 54, the GMS program needs to adopt a regional strategic outlook to further attract private sector investment as well as expertise in transport infrastructure and services.

81. **Trade Facilitation.** This parameter is rated "high." ADB's strategy to provide TA to support the design and implementation of the CBTA is seen as appropriate and in line with the needs of the countries. ADB has provided TA aggregating more than $5 million for advisory assistance, which is seen as making a positive contribution to the development of the CBTA.

82. Mobilization of resources by ADB for trade facilitation activities has been mainly through the provision of consultants' expertise to finalize the annexes and protocols of the CBTA, as well as to finalize memoranda of understanding between and among the GMS countries for implementing the CBTA. A substantial portion of the assistance has been used for funding national workshops. The outcomes of these initiatives have been (i) finalization of the GMS

[42] The present ceiling is 10% of the ADF budget that can be allocated to regional projects. There have been discussions to increase that ceiling.

customs transit system covering Thailand, Lao PDR, and Viet Nam along the East–West Corridor; (ii) finalization of the Operations Manual for CBTA implementation at Lao Bao–Dansavanh, and training of the border officials; (iii) finalization of the National Action Plan for the PRC; and (iv) start of implementation of the CBTA at the Lao Bao (Viet Nam)–Dansavanh (Lao PDR) border crossing, as well as at the Hekou (PRC)–Lao Cai (Viet Nam) border crossing. The outcome of the workshops has been mainly creation of awareness of the details of the CBTA and its implementation. In addition, provision of resources to support trade facilitation has led to the formulation and preparation of the SFA-TFI, where emphasis has been placed on identifying the gaps in terms of international agreements, benchmarks, and issues related to customs procedures, sanitary measures, logistics development, and business mobility. Many aspects of these areas deal with behind-the-border barriers that need to be tackled for trade facilitation to become effective. An action plan to support GMS integration on trade facilitation has been prepared.

4. Capacity Building

83. **Transport.** This is rated "modest." Institutional strengthening and capacity building have been planned largely within the auspices of the Phnom Penh Plan for Development Management, one of the broad objectives of which is to develop institutional capacities through twinning arrangements—knowledge sharing and knowledge transfer between and among the countries. However, the nature of the learning program continues to be broad. In Lao PDR and Cambodia, ADB assistance to the public works departments has supported project planning and road maintenance management.[43] For instance, more than 20 officers in Cambodia were trained on Highway Development Management. Of these, at least four staff have moved out of the public sector and several more have been transferred to provincial departments. This reduces the effectiveness of the training in particular and ADB assistance in general. As a result, despite this extensive training, road maintenance (financing, planning, and management) remains an issue.[44] One of the major issues in the GMS countries is the governments' ability—or lack thereof—to retain qualified staff. High turnover of government staff that have received technical training is a major issue that needs to be addressed. Apart from training, ADB assistance implemented as part of the GMS program has had limited effects on other aspects such as institutional structuring, development of cross-border institutions, and coordination among institutions within the government as well as between the government and the private sector.[45]

84. One of the key issues facing freight forwarders and truck operators in the GMS countries is cross-border legal transactions such as freight insurance, vehicle insurance, and customs duties for transit goods. The absence of a regional body that brings together the business interests from all the GMS countries has been distinct. The GMS Business Forum provides an entry point for private sector involvement in the GMS program. However, this needs to be further extended to form a regional transport association that can address the needs of the transport and trade companies. For example, it is difficult to obtain vehicle insurance at reasonable prices for a Cambodian vehicle crossing the border into Viet Nam. A regional transport association could address such issues. Para. 86 discusses this further.

[43] Appendix 8 provides details of the ADTA projects.

[44] ADB provided a loan (non-GMS) to Cambodia amounting to $42 million for road asset management to fund maintenance of roads in the country. This is typically the responsibility of the government. However, deficiencies in resources (financial and human) resulted in deterioration of the roads to such an extent that the government has been required to seek assistance for maintenance of the roads (Road Asset Management Project [Appendix 2]).

[45] ADB has approved several social and environmental TA projects including a core environment program. Further details are provided in a separate OED report on the regional public goods including environment and social/health sectors.

85. **Trade Facilitation.** This is rated "substantial." Capacity-building efforts have been focused on training in implementing the CBTA. For instance, the objectives of TA 6307-REG (Appendix 5) are to train staff, conduct a workshop, and prepare training materials. This TA is ongoing. A manual on CBTA practice has been prepared and translated in the Lao PDR, and Vietnamese and custom officers at border crossings have been trained and workshops conducted. There is a mixed feeling about the effectiveness of that training. In Dansavanh–Lao Bao and Bavet–Moc Bai, cross-border staff perceived that the training was insufficient and not sufficiently practical. Customs staff in Lao Cai and Moc Bai had changed recently, resulting in relatively low awareness of the CBTA. However, these are teething problems associated with implementing a new system; and with appropriate training on a sustained basis, these issues could be minimized. One of the distinctive inferences drawn during discussions with border staff was that awareness about the CBTA was high among senior staff in the national capital and the chief of the office at the border. However, awareness among operations staff was low.

86. The GMS Business Forum has been the first step toward developing links between public institutions and private institutions as part of the trade facilitation initiatives, but the effort is still at an early stage of development. The GMS Business Forum has been successful in bringing together the chambers of commerce as well as selected trading and freight forwarding companies.[46] At present, the private sector provides 50% and ADB provides 50% to support the Forum's budget. To address the issues mentioned in para. 84, the GMS Business Forum proposed setting up a GMS transporters association to implement the CBTA transit regime. In addition, the association could issue shippers performance guarantees for cross-border shipments. This is a positive step in developing a regional institution. Although the legal complexities of setting up such an association will need to be looked at closely, it will need to have (i) strong participation from the governments, (ii) sufficiently large funding from the private sector to ensure that it can issue guarantees, and (iii) wider awareness among the relatively small-sized transporters. The latter point is important in the context of bringing local companies into the GMS Business Forum's fold.[47] ADB needs to support the development of such regional institutions to improve the efficiency of trade upon implementation of the CBTA.

C. Value Addition of the GMS Program to the Sector

87. Value addition and contribution to subregional development is assessed "substantial" based on four criteria: (i) subregional benefits and costs, (ii) benefits within the GMS, (iii) benefits outside the GMS, and (iv) net additional benefits for the participating country.

1. Subregional Benefits and Costs

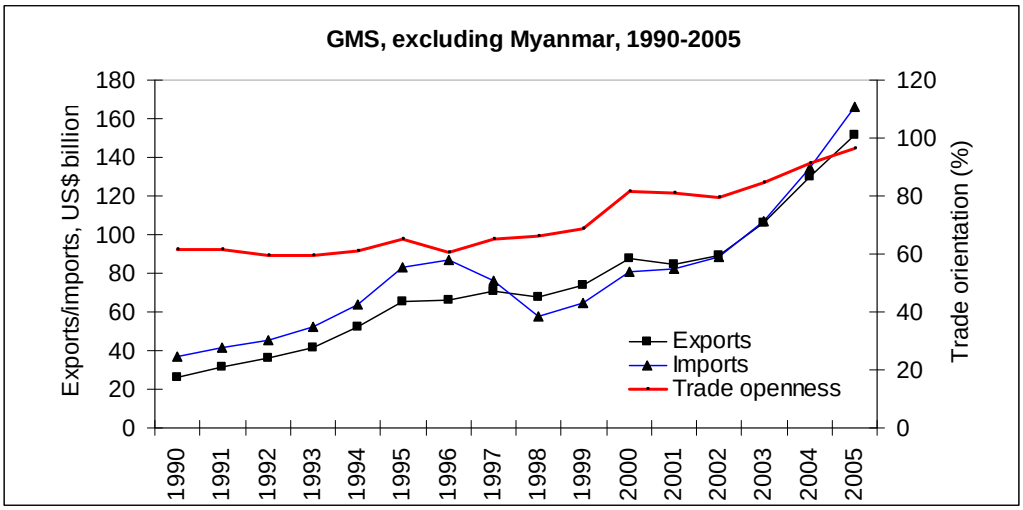
88. Contribution to regional development is rated "substantial." Although several factors contribute to economic growth and regional development, transport infrastructure improvements and trade facilitation are significant. Transport and trade facilitation are seen as necessary conditions for economic growth, especially in the regional context. Economic growth has been strong since 2000 in all the GMS countries (paras. 11–12). Trading volumes have also increased. The value addition of ADB assistance for regional transport and trade facilitation can

[46] The GMS Business Forum's Board of Directors comprises all six chambers of commerce from the GMS countries plus several corporations—Oxiana/Lane Xang Minerals Limited, TNT Express Worldwide NV, AIREEC–Expo and Convention Promotion Inc., Japan Chamber of Commerce headed by ITOCHU, and Swiss–Thai Chamber of Commerce. ADB and UNESCAP are also represented.

[47] For example, in Cambodia, the So Nguon Transport and Service Import Export Company, Ltd. is one of the larger operators on the ADB-funded Phnom Penh–HCMC Highway. However, the owner of the company had not heard of the GMS Business Forum.

be assessed by the growth in trade within the GMS. Para. 11 shows definite growth in the trade levels of the GMS countries. Exports from the six GMS countries rose from $26.2 billion in 1990 to $153 billion in 2005, or at a compound annual rate of 12.3%, twice as fast as the rise in world exports.[48] GMS countries' share of trade among themselves, and especially with the PRC, has risen sharply over the past decade (Appendix 9). Figure 1 shows the rise in trading volumes. The degree of openness to trade, measured by the ratio of trade (exports and imports) to GDP, has increased in most economies. The Lao PDR has been the most dependent on the GMS for its trade, partly reflecting its landlocked geography. As the Lao PDR became more linked with regional and global economies with improvements in cross-border infrastructure and greater market access, the country's dependence on the subregion has been declining. Similar trends have been observed in Cambodia (para. 12). Viet Nam's trade with other GMS countries rose notably over the past decade, reflecting primarily the PRC's increasing importance as an export market and as a source of imports. Overall, the quantum of trade within the GMS as well as that of the GMS countries with the outside world has increased distinctly.

Figure 1 : GMS Trade Trends



GMS = Greater Mekong Subregion.
Source: Asian Development Bank. 2007. *The Mekong Region: Trade Trends, Patterns, and Policy*. Manila.

89. The reduction of nontrade barriers plays a key role in the economic growth of a country. The World Bank's index[49] for "doing business" shows that, although there has been an improvement in scores, Cambodia and Lao PDR rank on the low side. This implies that there is room for further improvement in terms of trade facilitation. In addition, the number of procedures required to start a business is still high in the GMS countries. This requires policy simplification to improve the competitiveness of the economy. It is expected that, with implementation of the CBTA, the number of documents needed for trading across the border will decrease. In addition, it is expected that time and cost of trade indicators will improve. This will improve the overall ranking of these countries for doing business.

90. The costs associated with the GMS program have been emerging after the completion of projects. Experiences from recently completed GMS road corridor projects suggest several negative consequences that need to be addressed. The recent midterm review of the GMS Strategic Framework, 2002–2012 highlights the social issues associated with regional road

[48] ADB. 2007. *The Mekong Region: Trade Trends, Patterns, and Policy*. Manila.
[49] The World Bank Group's Doing Business 2008 Report, http://www.doingbusiness.org.

projects: (i) spread of HIV/AIDS and other communicable diseases, (ii) drug trafficking, (iii) illegal labor migration and related issues of human trafficking and child labor, (iv) environmental degradation, and (v) increase in traffic accidents. These are serious issues, and the next challenge for the GMS program will be to identify solutions and appropriate interventions to tackle them.

2. Benefits within the GMS

91. This criterion is rated "substantial," since GMS TA operations have contributed in an indirect but strong manner to supporting economic development. The adoption of the concept of economic corridors is seen as a key milestone. However, the next step is to channel investment projects and complementary economic development along these corridors. The opportunity for multilateral dialogue that focuses on the core objectives of the GMS economic corridors as identified during the Eighth GMS Ministerial Conference (para. 50) is a key benefit of the GMS program.

92. To capture the magnitude of this benefit, there needs to be a monitoring system that measures to what extent the transport corridor is being transformed into an economic corridor (Appendix 3, Table A3.4). While there is general acceptance that all the countries need to have economic corridors and not transport corridors, ambiguity exists about the nature of an economic corridor and how it will be achieved. ADB needs to lead the way in developing a specific implementation framework that will include policy as well as physical interventions.

93. Another benefit is the GMS Transport Strategy developing a mechanism to prioritize transport projects and TA, and also developing an action plan. It remains to be seen how these projects can be funded and implemented. GMS TA has contributed in several other areas: (i) the CBTA and its annexes and protocols, developed through a series of TA operations; (ii) framework agreements for implementing the CBTA; (iii) setting up of NTFCs (para. 73); and (iv) conducting workshops to discuss the CBTA at the country level.

94. GMS road transport projects have reduced vehicle operating costs (VOCs) and brought significant savings in traveling time for goods and passengers. A strong correlation between expenditures on transport infrastructure and GDP growth has been noted by many authors (Appendix 10).[50] All the studies agree on the positive impact of transport infrastructure.

95. All transport planning studies, whether at the country or the regional level, have recommended a major shift in terms of private sector participation in the delivery, financing, and management of transport infrastructure. The GMS Transport Strategy has limited coverage on developing public–private partnerships (PPPs) or the opportunities for the private sector within the GMS program. While the GMS Business Forum has created a platform for the private sector to voice its opinions, there needs to be a broader opportunity for private firms to finance, build, and operate transport projects. This will require policy reforms coordinated across the GMS, an area where ADB can add definite value. The obstacles to private sector participation identified in para. 54 need to be addressed as part of these reforms. ADB could provide assistance in recommending policy changes that could enable a uniform outlook across the region.

[50] Fujimura, Manabu, and Christopher Edmonds. 2007. Impact of Cross-Border Road Infrastructure on Trade and Investment in the Greater Mekong Subregion, in D. Brooks and J. Menon (eds.), *Infrastructure and Trade in Asia*, London: Edward Elgar (available at http://www.adbi.org/files/cpp.road.infrastructure.paper.pdf).

96. A significant benefit arising out of the improvement in road infrastructure and the opening up of the borders has been an increase in informal trade across the border.[51] This is carried out across informal gates or village paths. Such informal trade has enabled access to a greater variety of goods and at lower prices to the local areas. Other benefits include access to more markets as well as indirect employment opportunities at the border from formal cross-border trade.

97. The success of the CBTA as an initiative will be measured when it is ratified by the respective governments and implemented. There is no doubt that the CBTA is a highly relevant and potentially useful tool for facilitating trade across the GMS countries. It is a policy-level initiative that has ground-level impacts.

3. Benefits Outside the GMS

98. Benefits outside the GMS are rated "substantial" on the assumption that they will grow after implementation of the CBTA. There has been a shift in the nature of the trading partners (para. 12). Cambodia during the 1990s had mainly Asian targets for its exports. This changed in 2005 with an increase in its exports to the United States. This trend has not been replicated in other GMS countries; there seems to be a general inclination toward increased trade with the PRC. However, it would be difficult to attribute all these changes to the GMS program, since the infrastructure connectivity has been created recently or is still being created, and the CBTA is yet to be fully implemented.

99. Benefits in terms of increased trade between GMS countries and the rest of the world have become increasingly obvious (Appendix 9). The share of GMS trade with non-GMS ASEAN countries has also increased. Discussions with a freight forwarder firm in Phnom Penh that uses the GMS Southern Corridor indicated that, while the firm had transported only 20 containers per month in early 2007 to international destinations, it was now transporting 278 containers per month. Similarly, the Lao PDR's exports have increased through the East–West Corridor and have diversified into various commodities such as minerals, garments, furniture, timber, and coffee to Europe and North America.

100. The GMS program has created a demonstration effect that is being replicated in other subregions. The more obvious case is that of the Central Asia Regional Economic Cooperation (CAREC), which has used the GMS program as a model for developing several of its strategies. The CAREC institutional setup resembles that of the GMS program, with similar working groups and forums. Similarly, the South Asian Association for Regional Cooperation is in the process of formulating regional transport and transit agreements along the lines of the GMS. Despite the differences in context, the GMS program has been able to offer several lessons and directions for development to the other regional programs such as (i) identification of road corridors to enable better planning, (ii) regional trade facilitation measures to ensure harmonized cross-border procedures, (iii) use of a secretariat to coordinate the activities of the program, (iv) use of technical working groups to ensure better planning of program activities, (v) ensuring ownership and political will, and (vi) alignment of national and subregional priorities.

4. Net Additional Benefit for the Participating Country

101. This parameter is rated "substantial." The key question to ask is: Without the GMS program, would all the selected projects have been implemented and would trade facilitation

[51] Source: ADB. 2006. Draft of Regional Synthesis Report. *Reviewing the Poverty Impact of Regional Economic Integration in the Greater Mekong Subregion*. Manila.

have taken place? As mentioned in paras. 48–69, GMS projects were in full accordance with government priorities. Therefore, these projects, without GMS ADB support, could have been realized through different financing mechanisms (national budget or other agencies' financing). However, limitations of national budgets and external funds could have created delays and reduction in the size of the projects. There would also have been the risk that national projects, showing greater economic returns, would have been implemented first, displacing projects with regional dimensions. In the case of trade facilitation measures, it is difficult to visualize how major multilateral agreements such as the CBTA could be negotiated without a comprehensive regional cooperation program, in which ADB is playing an active catalytic role.

102. Currently, bilateral agreements exist among the GMS countries for trade and vehicle movements. Despite being landlocked, the Lao PDR has gained access to seaports with the signing of the Lao–Thai Transit Agreement in 2004.[52] This agreement enables Thai and Lao trucking companies to operate between the two countries as well as to carry goods in transit from the Lao PDR to a third country. With further relaxation of the regulations relating to the number of freight forwarder agents allowed to operate across the border, trade costs have declined for the Lao PDR.[53] So the key question here is what would be the incremental value addition brought about by the CBTA. The current agreement favors the Thai transporters, who can invest in large-sized trucks. The procedures for listing Lao trucks and drivers to operate in Thailand are less clear. Despite the agreement, the customs procedures of both countries need improvement. The current agreement is helpful but not fully supportive of the Lao PDR's needs. The CBTA is expected to resolve these issues and ensure a harmonized system across the GMS countries. The initial results of pilot implementation of the CBTA at Lao Bao–Dansavanh have been positive and encouraging (para. 129). This is a key value addition, and ADB's assistance in achieving the CBTA is commended.

103. The GMS program has contributed positively in several ways that supplement the benefits of the national program. First, the provision of additional concessionary funding through the ADF-supported regional pool for Cambodia, Lao PDR, and Viet Nam has reduced their cost of financing and freed up public resources for other sectors. Second, the program has generated economies of scale for the smaller countries by expanding access to new markets including the development of transit traffic, which can potentially create new opportunities. This has led to an expansion of trade as well as domestic markets to cater to the new demands. In addition, these countries have been able to receive additional funding for regional projects over and above the funding provided for national programs. Finally, with the development of new subregional links, countries such as PRC and Thailand have access to alternate means of trade that are more efficient and cost effective than traditional sea routes.

104. Trade costs across the GMS are being reduced with the recent cross-border agreements and with the improvement in infrastructure (footnote 48). However, such arrangements enable bilateral movements only, and those too within a limited context, viz., trucks from the PRC can drive into a limited zone in Viet Nam and vice versa. This provides limited benefits, as it encourages cross-border trade only between the two countries. It does not directly encourage trade among three or more countries, transiting one or more countries, or trade between the Lao PDR and non-GMS countries. The CBTA aims to address these issues, thus adding value to the

[52] World Bank. 2006. *Building Export Competitiveness in Laos.* East Asia Poverty Reduction and Economic Management Network.

[53] A recent study carried out by the Center for Logistics Research in Bangkok found that the trade cost on the Bangkok–Kunming Corridor via the Lao PDR had declined from $563 per ton in 2000 to $392 per ton in 2006. The total corridor time had been reduced from 78 hours in 2000 to 51 hours in 2006. This is even before the CBTA has been implemented. Source: Final draft of Banomyong, Ruth. 2008. *Logistics Development Study of the North–South Economic Corridor*. Bangkok: Center for Logistics Research.

development process. It intends to harmonize various aspects of trade among the six countries—customs, registration of vehicles, licensing of transport operators, road standards, multimodal transport, container logistics, transit traffic, etc. Once the CBTA is implemented, the trade cost on the Bangkok–Kunming corridor is expected to further decline to $210 per ton by 2015, and the travel time could be reduced to 30 hours. The CBTA is expected to add distinct value to trade facilitation in the region. The GMS program thus has the potential to provide substantial additional benefits to the participating countries.

D. ADB Performance

105. ADB's performance is rated "substantial," taking into account feedback from the governments as well as the implementation performance. This is based on the following criteria: (i) portfolio management, (ii) responsiveness to clients' needs, (iii) honest brokering, (iv) capacity building (paras. 83–86), and (v) coordination with the other aid agencies (paras. 64–69).

1. Portfolio Management

106. Portfolio management of ADB's assistance is rated "modest." ADB's lending and nonlending services have met several challenges. General observations of the transport sector project loans are as follows:

(i) Projects experienced delays after loan approval at the start of construction and, more importantly, additional delays during construction. As a result, completion of civil works fell behind schedule, and the borrowers requested postponement of the closure date for loan withdrawal.

(ii) Submitted prices by successful bidders for road construction projects were significantly below original estimates at appraisal, and so large volumes of additional works were added to the original scope. While this was a good feature, it implies flaws in cost estimation at appraisal.

(iii) Additional works approved to use the loan savings were not subjected to rigorous economic analysis at the approval stage.

(iv) A notable feature of implementation was that administration of the loans was transferred from ADB headquarters to the resident missions. This enabled a better hands-on approach to loan administration.[54]

107. A majority of GMS transport projects have suffered from implementation delays as a result of a combination of factors and issues encountered during the project cycle. Appendix 11 summarizes the implementation issues faced by the GMS transport projects. One of these issues is slow startup. Significant implementation time was lost on most projects due to delays in fulfilling conditions for loan effectiveness. Of the eight currently active loans, 75% were declared effective more than 90 days after signing. The average elapsed time from signing to loan effectiveness for these eight loans was 6.6 months. Another factor is slow project implementation. Almost all completed projects have needed extensions of their closing dates due to implementation delays. Similarly, a number of mature ongoing projects either have been extended or are behind schedule and likely to need extension due to a number of factors, including preconstruction delays, inadequate equipment and unsatisfactory performance by contractors, change or additions to

[54] The Viet Nam component of Loan 1660: Phnom Penh–HCMC Highway Project was originally administered and supervised from ADB headquarters but was transferred in April 2002 to the Viet Nam Resident Mission. The frequency and quality of supervision missions was considered satisfactory. Nevertheless, ADB supervision was effected by a total of six project officers from 2000 to 2006. The role performed by ADB missions in providing advice on technical issues, preparation and evaluation of bid documents, and matters of loan administration was recognized by the government as significant.

project scope, and other issues relating to efficient project management. Due to implementation delays, disbursements have also been slow in many cases (Appendix 11). The progress of loan disbursement appears to be less than satisfactory compared with the elapsed time from loan approval, which, in turn, affects physical progress of projects.

108. The fact that construction contracts were significantly lower than appraisal estimates had other consequences. Contractors had difficulties providing required equipment, causing delays in construction. ADB resident missions in the GMS countries did not have in-house engineering and transport planning expertise and could not respond quickly to technical and procurement issues. This situation has been rectified in the Lao PDR and Viet Nam resident missions, where technically qualified staff have now been posted. Overall, despite the shortcomings, the projects were completed in a satisfactory manner with, in some cases, adjustments being carried out during the defects liability period.

2. Responsiveness to Clients' Needs

109. This point is rated "substantial," as ADB has responded appropriately to clients' needs. Typically, ADB resident missions have been acting as catalysts without being actively involved in the implementation of transport and trade facilitation assistance. Until 2007, all loan processing and administration were carried out from ADB headquarters in Manila. Discussions with government staff indicated that this did not create any major problems in implementing projects. The Viet Nam Resident Mission initiated the first move toward delegating loan administration and then loan processing for roads projects. In addition, the recent shift of the trade facilitation unit within ADB from Manila to Bangkok indicates an appropriate response to the practicality surrounding the implementation of trade facilitation TA.

110. The transport and trade facilitation portfolio is changing with the increased size of the portfolio as well as the shift toward implementing the CBTA. There is a need for ADB to review its in-house expertise in view of the following evolving needs:

(i) ensuring that ADB staff have a combination of transport and trade facilitation experience to enable integrated project designs;
(ii) basing more technically qualified ADB staff in the resident missions to increase interactions with other development partners; this could facilitate better communications and exchange of information, leading to more participation of other agencies in GMS projects; and
(iii) encouraging ADB staff to create wider awareness of the GMS program among the government, development partners, and other stakeholders.

3. Honest Brokering

111. ADB's past performance under this criterion of honest broker (i.e., neutral development partner) is rated "substantial." The signing of the CBTA and the conduction of negotiations relating to its protocols and annexes are seen as significant achievements of ADB. This multilateral dialogue is complex, and the GMS governments have appreciated the catalytic role played by ADB in bringing diverse countries to the same forum. It has also helped in bringing together different participants working on transport and trade facilitation in separate agencies and countries to reach a consensus on diverse issues such as customs inspections, transit regime, road standards, and vehicle movements. However, moving forward, given the critical importance of the CBTA to reap the benefits of regional cooperation, and the inherent difficulties in implementing the CBTA, it appears that ADB as an honest broker and adviser should encourage the countries to move toward a more rule-based institutional arrangement with respect to CBTA.

112. ADB transport sector assistance to the PRC's GZAR and Yunnan Province up to April 2008 aggregates to $1.5 billion. The demand for funds in the sector in the PRC is not necessarily determined by the GMS program. The funding for transport sector in the PRC is determined under the PRC CPS indicative planning figure and those assigned to GZAR and Yunnan Province are added to the GMS program. Of the eight GMS projects (completed and ongoing) in the PRC, only one connects to the country's international borders (para. 62). ADB's role as an honest broker could be to facilitate the cross-border linkages and the related supporting facilities.

113. ADB's assistance to Lao PDR and Cambodia aggregates to $306 million until date. This assistance is in the form of concessional loans and grants from the ADF. However, the allocation of ADF resources is based on the broad performance of countries and penalizes those which score lower than average on a range of indicators for governance, portfolio performance, policy reforms, and institutional performance. As a result, there has been a ceiling on the use of ADF resources in these countries. While this constraints the funding of transport projects, it also highlights the need for new funding mechanisms to be explored to narrow this gap (para. 79).

114. Taking into account the potential for higher development effectiveness (para. 184), there is a need for catalyzing funding for transport projects in Lao PDR and Cambodia, since this could yield higher marginal benefits in these countries relative to the current development levels and at the same time contribute to regional benefits. ADB has the opportunity as well as the challenge to catalyze financing for these countries by mobilizing funds from the private sector and other development partners. In addition, through the national CPSs, ADB can facilitate more synergies between the regional transport projects and national road projects, as well as generate economic activities along side of the road projects.

IV. BOTTOM–UP ASSESSMENT OF THE SECTOR PROGRAM

115. The bottom–up assessment rates the sector on the five criteria of relevance, effectiveness, efficiency, sustainability, and impact. The assessment is based primarily on the case studies of two completed GMS road projects: the Phnom Penh–HCMC Highway in the Southern Corridor (referred as the Phnom Penh–HCMC Highway Project) and the Kaysone Phomvihane–Dong Ha Road on the EWEC. It also incorporates the findings from other completed and ongoing regional projects listed in Appendix 2. Evidence to substantiate the assessment is drawn from interviews and surveys conducted in Cambodia, Lao PDR, and Viet Nam. In addition, secondary data have been used to support the analysis for both the transport and trade facilitation sectors. Table 6 summarizes the bottom–up rating. Appendix 12 provides an analysis of these ratings for the loan projects. Appendixes 8 and 13 provide the analysis for TA.

Table 6: Bottom–Up Ratings

Segment	Aggregate Loan Amount ($ million)	Weight (% of total)	Relevance (scale of 0–3)	Effectiveness (scale of 0–6)	Efficiency (scale of 0–3)	Sustainability (scale of 0–6)	Impact (scale of 0–6)	Overall Rating
Overall project rating		67	3	4	2	4	4	17 Successful
TA rating		33	2	4	3	5	4	18 Successful
Total			**3**	**4**	**2**	**4**	**4**	**17 Successful**

TA = technical assistance.

Note: Aggregate bottom–up rating (BR) is assessed as highly successful if the BR ≥ 20, successful if 16 ≤ BR ≤ 19, partly successful if 11 ≤ BR ≤ 15, and unsuccessful if BR ≤ 10.

Source: Operations Evaluation Mission.

A. Relevance

116. **Transport.** The sector is rated "highly relevant" in terms of the assessment of completed projects: (i) consistency of ADB assistance with coordinated country programs, GMS transport strategy, and ADB priorities; (ii) extent to which ADB's interventions were balanced across objectives, selective, and focused; and (iii) degree to which the sector assistance was harmonized with that of other development partners.

117. Providing connectivity among GMS member countries and developing transport corridors have been the core objectives of the GMS program since the beginning but more specifically with the Third GMS Ministerial Conference in April 1994, which accorded high priority to the development of the three transport corridors (para. 60). This was followed by feasibility studies and construction of these corridors, most of which are now complete.

118. ADB's assistance for the East–West Corridor, Southern Coastal Corridor, and Northern Economic Corridor has been in line with the needs of the countries as well as with the GMS program. The focus of ADB's earlier assistance was on developing the regional roads between Lao PDR–Viet Nam and Cambodia–Viet Nam. These were appropriately designed to serve the economic centers in these countries. The East–West Corridor serves longer term aspirations of connecting Thailand with Viet Nam across the Lao PDR.

119. The key objectives of all ADB-funded GMS roads projects have been to encourage traffic and trade flows across the international borders; to improve facilities at the border crossings; and, in certain cases, to strengthen the institutional capacity of the executing agencies. The project designs have been oriented toward mainly improving the cross-border roads. The achievement of the objectives depends on implementation of the CBTA. ADB's assistance has been consistent with the sector strategies, but the development of institutional capacity could have been addressed more comprehensively. Para. 83 describes the limitations of the capacity-building programs within the roads subsector. Although the project designs could be assessed as appropriate, there is a need to improve the quality of the capacity-building components.

120. The GMS Transport Strategy, 2006–2015 encourages the use of different modes of transport. The assistance to railways has been in line with this aim. The three ADB railway projects in Cambodia, PRC, and Viet Nam are designed to reduce congestion on the roads as well as enable bulk freight traffic by railways. The ports and civil aviation projects in PRC and Cambodia have been highly relevant to the GMS program, as well as to the needs of the countries. Assistance to the civil aviation subsector has been especially relevant in terms of boosting the tourist traffic in Siem Reap, Cambodia. The PRC has undertaken structural reforms in this subsector to provide an opportunity for its airports to seek funding from the capital markets. This needs to be reflected in the GMS program in a way that acts as a catalyst for development of PPPs in civil aviation.

121. Taking into account the growth of the private sector and the potential for PPPs in these subsectors, the GMS program needs to develop better links with the private sector. The need for direct ADB assistance in these subsectors could be reduced provided appropriate PPP structures are developed and implemented. The key point here is that ADB and the GMS program need to focus on specific areas where value can be added. In other areas that are not the core competencies of ADB, it needs to act as a catalyst to enable other players to coordinate and manage. For example, MRC is a key player in river navigation, and ADB needs to work closely with MRC in supporting its efforts.

122. As regards coordination with other development partners, Appendix 6 provides an analysis of the potential overlaps of other programs with the GMS. While there has been a move toward building synergies, ADB needs to work harder to increase awareness of the GMS program and encourage aid agencies to participate in the cofinancing of GMS transport projects, which require large-scale funding. In addition, best practices from other regional initiatives (paras. 42–44) could be brought in to improve the quality-at-entry of projects.

123. **Trade Facilitation.** ADB's assistance for trade facilitation is rated "highly relevant." It has been consistent with ADB's national and regional strategies as well as with the broader GMS Strategic Framework. In the earlier years between 1996 and 2000, ADTA was appropriately designed to assess the viability of international agreements and to prioritize cross-border issues. Subsequently, RETA focused on supporting negotiations for the CBTA's annexes and protocols. From 2006, these TA projects moved on to develop systems for implementing the CBTA. Thus, ADB's assistance has been evolving with the changing circumstances arising from the varying patterns of trade, proliferation of health standards, and need to integrate the entire supply chain and address border issues.

124. The medium-term development plans[55] for 2006–2010 of Cambodia, Lao PDR, and Viet Nam all mention increase in trade as the key strategy to achieve their development objectives. The importance of intra-GMS trade varies among participating countries. And the importance of land route-based trade also varies significantly, being close to 100% for landlocked Lao PDR and important for Thailand and Cambodia.[56] In the 1990s, when GMS countries started to open their borders to their neighbors, trade and transit through border crossings was limited and regulated by restrictive bilateral agreements. The importance of facilitating border crossing was endorsed in the 2002 Second GMS Summit where the adopted GMS Strategic Framework 2002–2012 explicitly stated it as an objective.[57] In view of this, there is no doubt that trade facilitation remains an important sector to which ADB should continue to provide assistance.

125. While most completed TA operations were rated successful and highly successful by the TA completion reports, some weaknesses in their design can now be discerned in light of the issues and complications encountered in CBTA implementation. For example, the preparation of the CBTA annexes and protocols under TA 5850 was not sufficiently supported by an analysis of the context in which these regulations were expected to operate. Legal, institutional, and other impediments have been considered and addressed only as they are encountered. It seems that the objective then was narrowly focused on having the countries sign and ratify the CBTA legal documents, while there was little understanding among them of what they needed to do to make these agreements operational. A case in point is the planned initial implementation of the CBTA at Mukdahan in Thailand and Kaysone Phomvihane in the Lao PDR. Signing of the memorandum of understanding to effect the CBTA at the border crossing was put off several times because extraterritorial inspection by Thai officials, required under the single-stop model, is not allowed under their laws. Also, the piecemeal approach to dealing with the needs and issues has adversely affected the capacity building of border officials, the formulation of cross-border operation guidelines, and the overall efficiency of the implementation process. In hindsight, the programming of activities under succeeding RETA, including TA 6098 and 6307, had room for improvement.

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[55] Quoted from ADB. 2007. *The Mekong Region, Trade, Trends, Patterns and Policies*. Manila.

[56] More than 90% of Cambodia's imports from Thailand are cross-border (ADB. 2007. *The Mekong Region Trade: Trends, Patterns, and* Policies. Manila).

[57] "GMS programs will contribute to realizing the potential of subregions through enabling policy environment and effective infrastructure linkages that will facilitate cross-border trade investment, tourism, and other forms of cooperation" (ADB. 2007. *Midterm Review GMS Strategic Framework 2002–2012*. Manila).

126. Nevertheless, the TA objectives have been aligned closely with those of the GMS program and the transport strategy in terms of connecting and integrating the GMS transport network. The continued support provided by ADB through the conduct of these TA operations has not only ensured the high-level commitment of the GMS countries, but also recently attracted other international agencies to participate in the trade facilitation activities. Although the CBTA has been seen as primarily an ADB-driven initiative, other agencies have recently begun participating in related activities (para. 64).

B. Effectiveness

127. ADB's assistance for the transport sector is rated "effective." The rating for the trade facilitation sector is also considered "effective" on the assumption that the CBTA will be implemented soon. Effectiveness refers to the extent to which the outcomes of ADB's assistance have been realized. In terms of achievement of the outputs, the project completion reports (PCRs) as well as the Operations Evaluation Mission confirmed that roads have been built to planned standards, with the rehabilitated roads characterized by a roughness index between 2.2 and 2.5. This is a considerable improvement[58] over the past. This improvement has resulted in significant savings in VOCs (varying approximately between 10% and 20% among projects and vehicle types) and reduced travel time. The rating of effective is based on a combination of project-level and corridor-level benefits. Although several benefits are apparent for the completed projects, two main issues hamper the full delivery of benefits: the implementation of the CBTA and the absence of road links (paras. 130 and 132–133). This has reduced the overall effectiveness of the corridors and, hence, the sector assistance.

128. **Road Transport Improvements (project-level benefits).** Average travel time on the Phnom Penh–HCMC Highway has been reduced by half (Table 7). Average vehicle speed has increased to around 48 kilometers (km)/hour at evaluation from 22 km/hour before road improvement. A sample perception survey of households along the Phnom Penh–HCMC Highway (RN1 in Cambodia) indicates that a higher number of families think that quality of travel along the road has become easier and safer, albeit there are now more accidents.[59] The time taken by a freight truck to cross the border has been significantly reduced from an average of 2 hours before the project to 30 minutes now. The average time for the freight forwarder's truck to travel from Phnom Penh to the border has also been decreased from 7 hours before the road improvement to about 3 hours.

Table 7: Travel Time on Select Project Roads

	Distance	**Average Travel Time** (hours)	
Project Road	(km)	**Before Project**	**After Project Completion**
East–West Corridor Project			
From Kaysone Phomvihane to Dansavanh	236	10–12	4
From Dong Ha to Lao Bao	83	4	2
Total	**319**	**14–16**	**6**
Phnom Penh–Ho Chi Minh City Highway			
From Phnom Penh to Bavet	158	7	3
From Moc Bai to Ho Chi Minh City	80	4	2
Total	**238**	**11**	**5**

km = kilometer.
Source: Operations Evaluation Mission interviews of road users.

[58] Before, roughness as measured by the international roughness index was 7.0 on RN1 (Cambodia), 5.8–6.0 on national highway (NH) 22 (Viet Nam), 3.3–3.7 on NH1A (Viet Nam), 11.8 on RN9 (Lao PDR), and 5.8 on NH9 (Viet Nam).

[59] The survey showed that 78% of respondents said travel along RN1 is easier and safer now as compared with 55% before the project. Eighty-six percent of respondents said that there are more accidents now as compared with 2% who said there were more accidents before the project.

129. In the case of Lao Bao–Dansavanh border crossing, pilot implementation of the CBTA began in 2005 (para. 102). The reduction in border-crossing time could be partly attributed to this pilot implementation. Border-crossing time at Lao Bao–Dansavanh is now between 0.5 and 1 hour as compared with 1–2 hours before. This indicates distinct benefits attributable to the GMS program. At Bavet–Moc Bai, although the time taken to process the documents is about 40 minutes, the overall border-crossing time is much higher, since trucks cannot physically cross the border between Cambodia and Viet Nam and need to transship their goods. Average transshipment varies between 3 hours and 5 hours depending on the type of commodity.

130. Despite the positive outcomes, the Cambodia component of the project road could not operate fully as an efficient and effective regional corridor due to the absence of a bridge over the Mekong River (thereby requiring the need for ferry service or the use of alternate routes) and the section between Phnom Penh and the Mekong (at Neak Loeung), which was still under major rehabilitation at evaluation. This, of course, is expected to change with full implementation of the CBTA and construction of the bridge.[60]

131. On the Viet Nam side, the national traffic picked up quickly due to the presence of established SEZs in the road influence areas. Traffic growth also varied between urban and rural sections. In the HCMC suburbs, traffic was already high in 1996 and continues to be dominated by motorcycles and trucks. The benefits in terms of national traffic could be seen as high. However, the international traffic has been slow to grow, partly due to the absence of an agreement to facilitate cross-border movement of trucks. The existing bilateral road transport agreement between Cambodia and Viet Nam applies to both passenger and cargo vehicles. However, up to now, a maximum of 40 vehicles per day from either side have been allowed to cross international borders. These include passenger bus services and cargo trucks. This is the real limitation, which the two countries are trying to address. There is agreement in principle that the maximum will be increased to 150 vehicles per day. Currently, tourist buses dominate the cross-border traffic, since there is an understanding between the tourist agents on both sides of the border. However, since the CBTA has yet to be implemented, the freight trucks have not been able to ply across the international border.

132. The Champasack Road Improvement Project (Loan 1369) in the Lao PDR was completed in July 2001 as part of the GMS program. As shown in Appendix 14, Table A14.6, there has been a distinct increase in traffic, but this has been mainly national traffic. The number of vehicles traveling up to the border with Cambodia in 2005 was as low as 172 trucks per day. The goods traded with Cambodia were transported by truck to Veun Kham and then transferred onto boats for onward shipment. The main bottleneck in this case was the absence of a 9.6 km link road on the border between Lao PDR and Cambodia at Veun Kham. This bottleneck was rectified in June 2008, about 7 years after project completion. The average speed of vehicles before the road improvement was estimated at 25–30 km/hour. After project completion, the average speed increased sharply to about 50 km/hour. The resulting 40–50% reduction in travel time is a significant indicator of the achievement of one of this project's objectives. With the construction of the link road on the border and implementation of the CBTA, cross-border movement of vehicles could take place in the future.

133. The Northern Economic Corridor Project (Loan 1989) was completed in March 2008 linking Boten on the Lao PDR–PRC border with Houayxay on the Thailand–Lao PDR border. This contributes to the development of the North–South Economic Corridor. Traffic started

[60] A new bridge is being designed now with financing from the Japan Bank for International Cooperation.

flowing on the road in 2006 when phases of the project were completed. The time taken to travel from Houayxay to Boten was reduced from 18 hours in 2000 to 12 hours in 2006.[61] It is expected that, with the completion of the all-weather road, this could be further reduced to 6 hours.[62] However, one of the main bottlenecks on the North–South Economic Corridor is the absence of the bridge across the Mekong River at Houayxay. As a result, ferry boats have to be employed. This acts as an impediment to the growth of traffic.

134. The Yunnan Expressway Project (Loan 1325) completed the construction of an expressway between Chuxiong and Dali in June 2000, reducing congestion on the existing national highway besides lowering travel time and the number of accidents. Similarly, the Southern Yunnan Road Development Project (Loan 1691) completed the construction of the Yunnan Yuanmo Expressway, which helped reduce the travel time between Kunming and Simao from 12 hours before the project to less than 6 hours after project completion. For both projects, there have been plans to connect these expressways with the international border, but this has yet to be completed. However, the condition of the existing national highways is sufficient for the current level of traffic. It remains to be seen whether these highways will be able to handle the increased traffic levels after implementation of the CBTA.

135. Appendix 14, Table A14.6 provides a comparison of the annual average daily traffic forecast at appraisal, at completion, and the current estimate for the completed PRC projects. The figures indicate that the traffic forecast at completion has been distinctly scaled down because the forecast at appraisal was optimistic. Subsequently, the traffic has grown in the recent period in line with the increasing economic activity in the two provinces.

136. The recently completed Guangxi Roads Development Project (Loan 1851) connects Nanning in the PRC with its international border with Viet Nam. This project has direct impact on regional integration and cross-border trade. The immediate benefits as stated by the PCR include reduction in travel time between Nanning and Yougiyuan from 5 hours in 2001 to 2 hours in 2008. The ongoing projects in the PRC, as well as those in other GMS countries, are expected to provide similar results in terms of benefits from the road improvements.

137. **Enabling Cross-Border Movement of People and Freight in GMS (corridor-level benefits).** The transport projects have been partly successful in improving trade in the region. The main hindrance has been the restriction of vehicle movements across the borders, which is expected to improve with implementation of the CBTA. Currently, the beneficiaries include mainly national or localized traffic rather than international traffic. The majority of international shipments need to stop at the border and transfer goods into local vehicles for the onward journey.

138. Appendix 14 shows the change in the movement of people and vehicles across the key border points of Cambodia–Viet Nam, Lao PDR–Viet Nam, and Lao PDR–PRC over the last decade. The figures indicate a consistent increase in the number of persons and vehicles after the completion of the projects between 2004 and 2007. This shows that the benefits are visible even before the CBTA, perhaps due to the existing bilateral agreements.

139. The benefits at the corridor level can be measured using time and cost analysis drawn from a recent study[63] (Table 8). Currently, there is no continuous traffic flowing on any of these

[61] ADB consultant's report (Banomyong, Ruth. 2008. *Logistics Development Study of the North–South Economic Corridor*. Bangkok: Center for Logistics Research. Final draft).
[62] The PCR is pending.
[63] ADB. 2005. *Proposed Technical Assistance for Enhancing the Development Effectiveness of the Greater Mekong Subregion Economic Cooperation Program*. Manila (TA 6262-REG, for $2.5 million, approved on 11 October).

corridors except some traffic across the Lao Bao–Dansavanh border crossing. In the case of the North–South Economic Corridor, the study estimated the historic values using industry sources. The analysis of the East–West Corridor between Da Nang and Tak indicated that nearly half of the corridor time was spent in customs clearances or at border crossings.[64] From a cost perspective, it was found that 43% of the trade costs were attributed to customs and border crossings. In other words, implementation of the CBTA could have a major impact on the trade costs and corridor time. A time-release survey initiated at the Lao Bao–Dansavanh crossing on the East–West Corridor showed that the most significant causes of delays in clearance of cargo are the failure of importers or their agents to provide the necessary documents in a timely manner, and the failure of vehicles to report for inspection. This indicates the need to create better awareness of the customs procedures.

Table 8: Trade Costs and Time on GMS Economic Corridors

Corridor	Route	Distance (km)	Average Trade Cost[a]	Corridor Time (hours)
East–West Economic Corridor	Da Nang (Viet Nam)–Kaysone Phomvihane (Lao PDR)–Mukdahan (Thailand)–Tak (Myanmar)	1,110	$1,847 per TEU	41
North–South Economic Corridor	Bangkok (Thailand)–Houayxay (Lao PDR)–Mohan (PRC)–Kunming (PRC)	1,906	In 2000: $563 per ton of para-rubber	In 2000: 78
			In 2006: $392 per ton (actual) of para-rubber	In 2006: 51 (actual)
			In 2015: $210 per ton (forecast) of para-rubber	In 2015: 30 (forecast)
	Nanning (PRC)–Hanoi (Viet Nam)	440	In 2000: $37 per ton of steel	In 2000: 37
			In 2006: $27 per ton (actual) of steel	In 2006: 19
			In 2015: $9 per ton (forecast) of steel	In 2015: 8 (forecast)

GMS = Greater Mekong Subregion, km = kilometer, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China, TEU = twenty-foot equivalent unit.

[a] Trade costs are the aggregate cost of transport, transshipment, customs clearances, and other border-crossing charges and transit fees.

Sources: *The GMS East–West Economic Corridor Logistics Benchmark Study* and *Logistics Development Study of the North–South Economic Corridor* (draft reports) by the Center for Logistics Research in Bangkok. These studies were carried out as part of ADB TA 6262-REG.

140. Analysis of the North–South Economic Corridor indicates that with the improvement in physical infrastructure, trade cost and corridor time were reduced from 2000 to 2006. However, with implementation of the CBTA, this could be further reduced in the future. Border crossing and transit fees formed 60% of the trade cost on the North–South Economic Corridor. However, the border-crossing time was about 15% of the total corridor time, indicating that, although it does not take a long time to cross the border, it is more expensive.

141. The Nanning–Hanoi route has been funded under two separate ADB loans. The Guangxi Roads Development Project (Loan 1851) connecting Nanning in the PRC with the Viet Nam border had a corresponding project in Viet Nam—the Second Road Improvement Project (Loan 1487)—that supported the construction of the highway from Lang Son to Hanoi. While there was an improvement on this route between 2000 and 2006, it is expected that the trade cost and corridor time will decrease distinctly after implementation of the CBTA.

142. **National Benefits vis-à-vis Regional Benefits.** Currently, the majority of the traffic on the GMS economic corridors is national rather than international. Comparing a sample of vehicles on the East–West Corridor and the Phnom Penh–HCMC Highway, it was found that

[64] Source: *The GMS East–West Economic Corridor Logistics Benchmark Study* by the Center for Logistics Research, Bangkok. The study was carried out as part of TA 6262-REG (footnote 62).

international traffic was a small percentage of the overall traffic (Table 9). While this in itself is not necessarily a negative feature, it shows the reduced effectiveness of cross-border trade. Growth in the cross-border trade is expected with implementation of the CBTA.

Table 9: Distribution of National vis-à-vis International Traffic

Country	Project	International Traffic (%)	National Traffic (%)	Total Number of Vehicles Surveyed in March 2008
Viet Nam	National Highway 9 (East–West Corridor)	26	74	2,067
	National Highway 22 (Phnom Penh–Ho Chi Minh City Highway)	7	93	5,019
Cambodia	Route National 1 (Phnom Penh–Ho Chi Minh City Highway)	20	80	2,367
Lao PDR	Route National 9 (East–West Corridor)	36	64	39,132[a]

Lao PDR = Lao People's Democratic Republic.
Note: Figures are based on surveys carried out by the Operations Evaluation Department's consultants in March 2008.
[a] These figures are based on the records of a weigh station located on the East–West Corridor.
Source: Operations Evaluation Mission survey.

143. The story on the East–West Corridor is different from that of the Phnom Penh–HCMC Highway,[65] since there is a continuous uninterrupted link across the Lao PDR. Discussions with the freight forwarders indicated that traffic from Thailand to Viet Nam has grown since the completion of the ADB-funded road improvement (Loan 1727). Currently, both Thai and Vietnamese vehicles can ply in the Lao PDR owing to bilateral agreements. However, Thai vehicles cannot cross into Viet Nam and vice versa. As a result, the Lao PDR is developing into a transshipment area, with Lao-based companies acting as intermediaries between Thai and Vietnamese freight operators. However, with implementation of the CBTA, it is expected that Thai trucks will be able to drive through the Lao PDR and into Viet Nam. This could reduce business opportunities for Lao-based companies.

144. International traffic on the Mohan–Boten border between Yunnan and the Lao PDR increased with the implementation of the bilateral agreement between PRC and Lao PDR in 2005. As a result, there was a gradual increase in traffic until 2007, when there was a major rise in traffic due to the opening of the northern economic corridor[66] linking PRC with Thailand. This project road witnessed distinct growth in traffic in the first year after completion.[67] Preliminary information on this road indicates that international traffic linking PRC with Thailand has increased distinctly. With implementation of the CBTA, there is a high likelihood that Chinese and Thai trucks will ply on this road, increasing its benefits and promoting trade. Of course, this also has several downsides as discussed in para. 185.

145. Three road projects have been completed in the PRC within the GMS program. The Yunnan Expressway (Loan 1325), Southern Yunnan Road (Loan 1691), and Guangxi Roads (Loan 1851) involved constructing new expressways in Yunnan Province. The majority traffic on these roads continues to be national, indicating that the benefits within the PRC are distinctly higher than regional benefits (para. 135).

146. Ongoing projects in Cambodia, Lao PDR, and Viet Nam provide links to border crossings. With implementation of the CBTA, these projects are expected to generate sufficient

[65] On the Cambodia side, the Phnom Penh–HCMC Highway does not have a bridge across the Mekong River. As a result, a ferry service is used to cross the river.
[66] ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Lao People's Democratic Republic for the Greater Mekong Subregion: Northern Economic Corridor Project*. Manila (Loan 1989-LAO[SF], for $30 million, approved on 20 December).
[67] The PCR has not yet been prepared.

traffic and witness increased economic activity. Ongoing projects in the PRC aim to develop roads and expressways in the Yunnan Province and GZAR away from the international borders. Discussions with government officials indicated that the government intends to complete the links to the border, e.g., the Mohei–Simao road upgrading commenced in 2006 and is expected to be completed in 2009; and the Simao–Xiaomengyang was completed 1 year ahead of schedule in June 2006. In the case of GZAR, the Guangxi Roads Development II Project (Loan 2094) and the Western Guangxi Roads Development Project (Loan 2345) are also expected to contribute positively to regional cooperation efforts.

147. **Technical Assistance.** PPTA has comprised the majority of TA operations in the GMS transport sector. As of April 2008, a total of 37 PPTA grants had been approved, with ADB funding amounting to $29 million. Twenty-one projects have so far resulted from these PPTA operations, of which eight have already been completed. Two PPTA operations in Thailand did not result in any loan project. The rest are still ongoing or yet to result in a loan. These PPTA grants mainly involved carrying out feasibility studies and detailed designs. A key aspect that appears to be lacking in the PPTA is the assessment of capacity within the government to implement and sustain the projects. The Phnom Penh Plan focuses on general development management concerns related to regional cooperation and integration (para. 83). Taking into consideration the broad profile of program components within the Phnom Penh Plan, there is a need for PPTA to incorporate suggestions to strengthen capacity-building components within the project designs, and for RETA to implement them.

148. ADTA operations have mainly targeted finalizing the CBTA and its annexes and protocols. ADB also funded two TA grants (TA 5535 in 1993 and TA 6195 in 2004) for planning transport systems in the GMS. TA 5535 enabled subregional studies within the transport sector and led to the development of the first Transport Master Plan, which was adopted by all the GMS countries in 1995. TA 6195 provided an important contribution in preparing a new transport sector strategy for the GMS. This strategy has been approved by all the GMS countries and is currently being implemented. The TA for restructuring of railways in Cambodia is ongoing.

149. **Trade Facilitation.** The outcomes of trade facilitation assistance will be apparent after implementation of the CBTA. ADB assistance to support the preparation and negotiation of the CBTA and its annexes and protocols is seen as a positive contribution to the development effort. However, since the CBTA has yet to bear fruit, it is difficult to see any specific outcomes of the effort. The preliminary view at this stage is that, taking into consideration the appropriateness of the CBTA and its ownership at the top levels of the GMS governments, the benefits of the trade facilitation assistance are likely to be positive.

150. A significant amount of RETA was used for conducting workshops and seminars on varied themes including (i) country workshops on formulation and implementation of cross-border agreements, (ii) development of bilateral and multilateral agreements aimed at reducing nonphysical impediments to cross-border transport, (iii) establishing a guaranteeing and issuing organization, and (iv) implementation of annexes of the CBTA. Since all these topics are still under implementation, it is difficult to assess the effectiveness of the TA at this stage.

151. The ADTA for Mitigation of Nonphysical Barriers and Cross-Border Movement of Goods and People (Appendix 8) for trade facilitation approved between 1996 and 2000 were successful in laying the foundation for the CBTA. The prioritization of issues and the preparation of the basic framework for a multilateral agreement were useful contributions to the downstream activities. More importantly, these ADTA grants enabled the setting up of NTFCs in each country. Although there is room for improvement in terms of how these committees are

functioning (para. 73), the ADTA grants have achieved their intended outcomes. TA 5850, approved in 1999, provided assistance in preparing the bilateral agreements as well as the annexes and protocols of the CBTA. With full ratification of the CBTA in 2003, subsequent ADTA (6098 and 6307) focused on preparation for implementation of the CBTA. This work is ongoing.

C. Efficiency

152. Efficiency measures the extent to which ADB resources have been used in an optimal way to achieve the desired outcome. Efficiency is measured by looking at three interrelated factors: the degree to which the direct net economic benefits of ADB's assistance have reached the targeted beneficiaries, the degree to which projects as investments bring substantial economic returns, and the degree to which ADB's assistance has been used to the optimum level. The common indicator at the project level is the economic internal rate of return (EIRR). Where possible, this indicator has been raised to the country level to measure the differential benefits at the national level. Although measuring the efficiency of transport sector assistance is relatively less complicated, it is difficult to quantify the efficiency of trade facilitation sector assistance. In this case, the efficiency of TA is measured using broad indicators.

153. **Transport Project-Level Evaluation.** Traffic surveys were conducted along ADB-assisted roads in Cambodia, Lao PDR, and Viet Nam, enabling updating of the economic analyses[68] conducted for the PCRs. Appendix 15 provides details of the economic analyses of the following road projects, which are used as case studies for assessing efficiency:

(i) Loans 1659/1660: Phnom Penh–HCMC Highway Project linking Cambodia and Viet Nam, and
(ii) Loans 1727/1728: East–West Corridor Project linking Lao PDR and Viet Nam.

154. At appraisal, the two road projects were assessed to be highly economically justifiable, with EIRRs ranging[69] from 16% to 34%. The PCRs of the two projects, completed in 2007, confirmed the projections at appraisal, with EIRRs at completion ranging[70] from 18% to 29%. However, the assumptions used by the PCRs could be debated, since the increase in the EIRRs could be attributed to higher traffic at some locations, which could be different from the ones chosen at appraisal.[71] To the extent possible, the assessment of traffic as part of this SAPE was conducted at locations that are representative of the average traffic on the entire project road, capturing national as well as international traffic. In addition, price conversion of VOCs and construction costs into 2006–2007 figures could be a reason for the improved results shown by the PCRs.

155. The recalculation of the economic analysis in April 2008 as part of this SAPE found that most of the project components had EIRRs around the threshold of 10–12%, implying marginal benefits. Table 10 shows the comparison of the EIRRs. It would be incorrect to compare the EIRRs of the two projects, since the capital costs and traffic levels are very different.[72] Among the reasons for the lower EIRRs is the fact that traffic has not increased as fast as expected,

[68] Economic analysis is based on 2007–2008 constant prices.
[69] For the Phnom Penh–HCMC Highway Project, RN1 (Cambodia) was 22%, NH22 (Viet Nam), 18%; and NH1A (Viet Nam), 34%. For the EWEC, RN9 (Lao PDR) was 16–19%, and NH9 (Viet Nam) was 16–23%.
[70] For the Phnom Penh–HCMC Highway Project, RN1 (Cambodia) was now 24.1%; NH22 (Viet Nam), 25.4%; and NH1A (Viet Nam), 28.7%. For the EWEC, RN9 (Lao PDR) was 20.6%, and NH9 (Viet Nam) was 17.6%.
[71] Locations of traffic surveys in the PCRs are not clearly identified and, therefore, the assumption could be optimistic.
[72] Findings from economic analyses are sensitive to traffic intensity forecasts and assumptions on international road roughness and VOCs. These background details are often not fully available and, therefore, caution is suggested when comparing EIRR and net present value from previous sources.

since trade through the land route has yet to pick up strongly, and estimates of VOC are conservative. The EIRR is especially lower on the Viet Nam side for the Phnom Penh–HCMC Highway Project owing to the fact that the incremental benefits of the road improvement have been limited. The project road was in good condition before it was rehabilitated but it was heavily congested. The project enabled road widening, which was costly and led to high capital costs. The incremental benefit in terms of higher traffic was not sufficient to raise the EIRR. In view of this, the Phnom Penh–HCMC Highway Project is rated less efficient. However, the EIRR does not incorporate the benefits of reduction in congestion. This is a significant benefit for HCMC, which is difficult to quantify. The East–West Corridor Project is rated efficient in light of the sufficiently high EIRR.

Table 10: Summary of EIRRs

Project	Project Components	EIRR at Appraisal (in 1998/1999) (%)	EIRR at Completion (in 2005) (%)[a]	EIRR at Postevaluation (in 2008) (%)
Phnom Penh–Ho Chi Minh City Highway (Loan 1659/1660)	V1 (Thu Duc to Hoc Mon) Viet Nam	34	28.7	(2)[b]
	V2 (Hoc Mon to Moc Bai) Viet Nam	18	25.4	11
	C2 (Mekong River ferry to Bavet) Cambodia	22	24.1	12
East–West Corridor (Loan 1727/1728)	Phin–Dansavanh (Lao PDR)	16	20.6	13
	Lao Bao–Dong Ha (Viet Nam)	16	17.6	16

EIRR = economic internal rate of return, Lao PDR = Lao People's Democratic Republic.

[a] The project completion reports were completed in 2007, but the traffic data were collected in 2005.

[b] V1 is a relatively short section (approximately 22 kilometers). Being basically urban, traffic is high on V1 near Ho Chi Minh City but varies widely as one moves away from the city. Comparison with past numbers is difficult, since the exact locations of past traffic counts are not known. Different locations in this type of urban road may exhibit large fluctuations in traffic. The more important reason for the negative figure is that the V1 section incurred a large construction cost to expand the carriageway from 6 meters to 28 meters or from 2 lanes to 6 lanes. The road roughness was low (at 3.5) before the project. As a result, the incremental vehicle operating cost savings were not significant after road improvement.

Sources: Project completion reports and Operations Evaluation Mission's estimates.

156. The situation is more optimistic on other GMS projects. Drawing on the results of an earlier PPER for the Champasack Road Improvement Project in the Lao PDR,[73] it was found that the EIRR at postevaluation was 26.3%, up from 15.9% at appraisal and 19% at project completion. The crucial difference in this case is that the traffic is all national. Although the road was designed to link with the border, there was no international traffic moving between Lao PDR and Cambodia on the Champasack Road, but the EIRR had improved.

157. The above figures indicate that, while national traffic has increased rapidly, international traffic has been slow to grow. This implies that, although the cross-border roads were rehabilitated, efficiency in the use of resources can be realized only if the supporting regulatory and policy framework is in place. Without this framework, the full benefits of ADB's assistance cannot be realized. Even after full implementation of the CBTA, diversion of freight traffic, i.e., trade, will depend on reduction of net road costs, which currently are higher than river or sea shipping costs.

158. **Country-Level Evaluation.** There is no major imbalance in the sharing of economic benefits between the two participating countries for each project, which reinforces the regional cooperation aspect of the two projects. On the Phnom Penh–HCMC Highway (Table 11), Cambodia benefited marginally more than Viet Nam, since the latter contributed to 58% of the

[73] ADB. 2005. *Project Performance Evaluation Report for Champasack Road Improvement Project in the Lao PDR*. Manila.

cost while getting 56% of the benefits. On the East–West Corridor (Table 12), projects are economically justifiable even though the traffic growth in the Lao PDR has been less than expected. Viet Nam has benefited more than the Lao PDR, getting 54% of the total benefits while contributing 47% of the cost. The relatively high economic benefits on the Viet Nam side are caused by the fact that the project was delayed until 2003, when the Lao PDR side was nearing completion.

Table 11: Benefit Distribution of Phnom Penh–Ho Chi Minh City Highway Project

Item	Total Project ($ million)	Cambodia RN1 ($ million)	Viet Nam NH22 ($ million)
Discounted Economic Cost	55.83	23.35	32.48
Discounted Economic Benefits	52.39	23.24	29.15
Net Economic Benefits	(3.44)	(0.11)	(3.33)
B/C	0.94	1.00	0.90
EIRR	11%	12%	11%

B/C = benefit/cost ratio, EIRR = economic internal rate of return, NH = national highway, RN = route national.
Source: Operations Evaluation Mission's estimates.

Table 12: Benefit Distribution of the East–West Corridor Project

Item	Total Project ($ million)	Lao PDR RN9 ($ million)	Viet Nam NH9 ($ million)
Discounted Economic Cost	29.11	15.43	13.68
Discounted Economic Benefits	36.68	16.99	19.70
Net Economic Benefits	7.58	1.56	6.02
B/C	1.26	1.10	1.44
EIRR	15%	13%	16%

B/C = benefit/cost ratio, EIRR = economic internal rate of return, NH = national highway, RN = route national.
Source: Operations Evaluation Mission's estimates.

159. **Efficiency in the Use of Loan Savings.** Loan savings on recently completed GMS projects have resulted from differences between lowest bidder cost estimates and ADB appraisal estimates. This has enabled the borrowers to propose additional works to be financed under the same loan.

160. Some of the additional works were clearly in line with the original scope and are in fact enhancing the original project design—putting asphalt concrete pavement in urban areas along RN1 in Cambodia instead of double bituminous surface treatment; providing an 18 meters carriageway on some parts of NH22 in Viet Nam for safer separation of traffic between vehicles and motorcycles; street lighting in Kaysone Phomvihane for safety reasons; widening of roads in urban areas along RN9 in Viet Nam for safety reasons and to reduce congestion; and installation of weigh bridges along RN9 to detect overloading. The approvals for the reallocation of loan proceeds were carried out as per ADB's Project Administration Instructions 5.05.[74]

161. However, several additional works fall short of being fully justified. In the Lao PDR, instead of the three original rural roads, a total of nine roads were rehabilitated with the extra loan savings. These roads were along RN9 and were selected locally by the district authorities. There was no clear rationale for selection of the 9 roads from the 20 candidates. Rehabilitation of the Kaysone Phomvihane–Xeno Road (additional work) meant that a substantial part (Table 13) of the loan expenditures were outside the original scope and beyond economic justification. In addition, the use of loan savings for the Kaysone Phomvihane–Xeno Road depleted the

[74] ADB. 2003. *Project Administration Instructions for Reallocating Loan Proceeds*. Manila. PAI 5.05. Revised August 2005.

funds to finance the construction of the border facility at Dansavanh, which could be better justified in the context of regional integration. Finally in Viet Nam, on the Lao Bao–Dong Ha Road, a southern Dong Ha bypass of 10.7 km at $4.1 million was constructed as part of the additional works for heavy trucks to ply between Da Nang and the Lao PDR. Recent traffic surveys show that the heavy truck traffic is low. This Dong Ha bypass was part of the Dong Ha urban network but not part of the East–West Corridor.

Table 13: Proportion of Additional Works

Project	Additional Works as % of Total Project Cost
Phnom Penh–Ho Chi Minh City Highway Project	39
East–West Corridor Project	32[a]

[a] This figure has been derived based on the fact that the additional works comprised the Kaysone Phomvihane–Xeno Road (cost $5.4 million), Dong Ha bypass (cost $7.76 million), and increased cost of rural community access infrastructure comprising nine rural roads.

Source: Project completion reports.

162. The PCRs for the Phnom Penh–HCMC Highway Project and for the East–West Corridor Project concluded that the additional works were all positive additions to the original project scope. However, at postevaluation, it is found that the additional works requested by the borrower were not subjected to the same economic analysis as original road projects at completion. While including the additional works could have been justified, ADB did not carry out adequate due diligence at completion to check whether the loan savings had been used efficiently. On the other hand, the additional works, if not financed by loan extension, would in all likelihood have been financed by relatively more expensive commercial loans or alternatively financed from public money. In that case, it is likely that funds would not have been sufficient, with delays occurring, thus reducing economic benefits to road users. However, the point relating to the PCR needing to check the level of economic returns of the additional works remains.

163. **Other GMS Projects.** In the PRC, although the Yunnan Expressway Project (Loan 1325) witnessed slower growth in traffic at completion, the project EIRR stated by the PCR was higher at 18.2% as compared with 14.7% estimated at appraisal. The main reason for this was that the PCR included accident cost savings in the EIRR. In the case of the Southern Yunnan Road Development Project (Loan 1691), the EIRR decreased to 16.8% at completion from 17.4% at appraisal. Similarly, for the Guangxi Roads Development Project (Loan 1851), the EIRR was lower at 19.4% at completion as compared with 20% at appraisal. Although there was a dip in the EIRRs, they are all above the benchmark 12% rate. In other words, these projects are rated efficient.

164. The efficiency of ongoing projects can be measured only after they are completed. Taking into account the relatively slow growth in traffic on certain sections of the completed projects, the economic returns have been lower at completion and at postevaluation. Nevertheless, these economic returns are higher than the benchmark 12% rate, implying that the ongoing projects are also likely to be efficient upon completion.

165. Overall, the transport sector assistance is rated “efficient,” taking into account the lowering of the EIRRs. The country-level distribution of benefits is almost on par, indicating that regional projects do provide comparable benefits to both countries.

166. **Trade Facilitation.** ADB assistance for construction of border facilities was realized within budget and within the time schedule for most of them. The construction of border facilities in Cambodia has been delayed. ADB assistance to the design and implementation of cross-

border agreements has been through a series of TA operations that have all been rated satisfactory. More than $5 million has been spent on finalizing the CBTA's annexes and protocols. This does not include the time costs of ADB staff. The output in the form of ratification of these agreements is evidence enough to state that these funds have been used appropriately and efficiently. However, additional assistance will need to be allocated to ensure successful implementation of the CBTA. The signing of the CBTA and the ratification of its annexes and protocols are the key outputs for measuring efficiency. In view of the fact that ratification by Cambodia, PRC, and Lao PDR is complete and that ratification by the other countries will be completed in the short term, ADB assistance for the trade facilitation sector is rated "efficient."

D. Sustainability

167. Sustainability measures the likelihood that the benefits achieved by ADB-assisted projects will be sustained in the future. It reflects the adequacy of resources allocated by the government to prevent the deterioration of assets created.

168. **Transport.** As per figures for budget allocation received from the ministries of transport of the GMS countries, the current levels of allocation are lower than the requirements. There has been an effort to increase these allocations in recent years. Viet Nam[75] is spending the equivalent of $1,300/km/year for routine maintenance on the East–West Corridor Project, although the expressed requirement was for $1,875/km/year. In the Lao PDR, the 2008–2010 maintenance budget allocated $900/km/year for the same corridor. In Cambodia, in 2002–2003 (before road completion), the total maintenance budget for the country was $2 million–$3 million, which meant a maximum of $1,000/km/year for the primary road network. However, in the last 2 years, Cambodia has been able to spend $1,500/km/year for routine maintenance on rehabilitated roads.

169. Despite the increase in the budgetary allocations by Cambodia, maintenance continues to be a major issue that has yet to be resolved in a manner similar to the Lao PDR.[76] The issue in Cambodia is highlighted by the fact that ADB provided a loan of $6 million for the Road Asset Management Project.[77] ADB's justification for providing this assistance to Cambodia was, "Inadequate road maintenance is primarily due to a shortage of financial resources, poor organization of road management, and weak technical capacity. Other consequences of this situation include a limited capacity for planning and implementing road maintenance and a scarcity of capable domestic road works contractors who could undertake maintenance works and who would require a reliable and reasonably predictable market for their services" (footnote 78). This has increased the risk of poor maintenance in Cambodia causing a downgrading of the SAPE rating for GMS projects in Cambodia to "less likely to be sustainable."

170. Viet Nam has been debating the use of a road fund for several years. ADB initiated a road information management system as part of the Third Road Improvement Project (Loan 1653). Subsequently, the World Bank and the Japan Bank for International Cooperation funded a downstream project to continue the application of this system as well as to focus on maintenance activities. Based on the current activities, the main issues are being targeted, and it is reasonable to anticipate a phased stepping up of road maintenance financing in Viet Nam.

[75] The maintenance budget has been increasing slowly over the years. It was $400/km in 2005 (before completion of the road) and is now $1,300/km.

[76] The Lao PDR government established a road maintenance fund (RMF) in January 2001, with RMF collections beginning in February 2002. These consist of (i) fuel levy; and (ii) road and bridge tolls, heavy vehicle surcharge, and overweight fines. This provides a focus on maintenance allocations.

[77] ADB. 2008. *Report and Recommendation of the President to the Board of Directors for the Proposed Loan and Administration of Grant for the Road Asset Management Project*. Manila (Loan 2406[SF], for $6 million, approved on 21 January).

171. The PRC presents a different story from the rest of the GMS countries. Robust financial returns driven by substantial traffic growth underpin the long-term viability of the expressways in Yunnan and GZAR. Human and financial resources are available to manage operation and maintenance of the toll roads, and pavement management systems are in place to schedule maintenance interventions at optimal times. Institutional strengthening activities under ADB projects were assessed as most likely to be sustainable. However, the PRC is an exception to the issues faced by the other GMS countries.

172. Despite recent increases in road maintenance budgets among the other GMS countries, spending for routine maintenance is still approximately 50–66% of what should be spent.[78] Rehabilitated project roads are in good condition, but they will require major resurfacing on a 6–7 year cycle. Resurfacing is expensive, and there are doubts that required budgets will be readily available for all the newly rehabilitated roads. However, awareness of the need for larger allocations for maintenance has been increasing. In the case of the Lao PDR, the government has set up a road fund, which receives revenues from the fuel tax as well as external funding. Viet Nam has received $224 million in assistance from the World Bank to maintain its roads as well as to improve its institutional capacity in this area.

173. With the exception of Cambodia, all other GMS countries have initiated measures to improve maintenance allocations, developed a regime for planning and prioritizing maintenance activities, and created the policy frameworks for bringing focus on road maintenance. This, combined with the efforts of the development partners, signifies that ADB assistance for the transport sector is "likely to be sustainable."

174. **Trade Facilitation.** Newly constructed border-crossing facilities are symbolic of a country's national pride, and the chances that they will be maintained adequately are high. It is too early to assess the sustainability of the CBTA. However, the gains in process time (customs, immigration) already observed at border crossings (largely due to measures put in place before the CBTA) will be sustained. Overall, ADB assistance for trade facilitation is "likely to be sustainable."

E. Impact

175. Impact is assessed based on the degree of contribution to long-term changes in development conditions. The long-term changes are reviewed at the transport and trade facilitation levels as well as at the economic development and socioeconomic levels. Overall, the combined impact of ADB assistance for the transport sector and trade facilitation sector is rated "substantial."

176. **Literature Review.** Extensive studies have been carried out to measure the significance of trade facilitation and logistics in stimulating trade flows.[79] These studies show that trade is boosted due to improved transport efficiency, reduced travel time, shortened cross-border delays, and decreased informal payments. A recent draft report by Weiss, Zhang, and Zhang on

[78] For instance, the Lao PDR is currently spending $17.5 million per year on road maintenance, while estimates for the whole network put the need at $30 million or 2% of the asset value (Williams, K. 2007. *Capacity Development in Lao PDR's Transport Sector*. Washington, DC: World Bank).

[79] Ivankov, T., and C. Kirkpatrick. 2007. *Trade Facilitation and Manufactured Exports: Is Africa Different?*. Mimeo IDPM, Manchester. UK; Poncet, S. 2006. *Economic Integration of Yunnan with the Greater Mekong Subregion*. Asian Economic Journal, 20, 3; Wilson, J., C. Mann, and T. Otsuki. 2003. *Trade Facilitation and Economic Development*. World Bank Policy Research Working Paper 2988.

Yunnan and the GMS found that closer regional cooperation has been a key contributor to increasing the trade between Yunnan and Thailand to 50–90% higher than expected.[80] Edmonds and Fujimura, in their assessment[81] of the impact of cross-border road infrastructure on trade and investment in the GMS, concluded that the GMS policies (specifically cross-border economic corridors) did boost intra-GMS trade above what would be expected in the absence of the GMS program. This study did not find any significant impact of the trade facilitation measures, which have yet to be implemented. Appendix 10 provides a summary literature review of several studies that have focused on the GMS program.

177. **Project-Level Impacts of Economic Activities on the Phnom Penh–Ho Chi Minh City Highway Project.** New economic activities have emerged that could be partly attributed to the road improvement and trade facilitation activities:

(i) Cambodia's border town of Bavet has an SEZ that relies heavily on road transport across the border with Viet Nam. As of March 2008, four companies had begun operations in the Bavet SEZ.[82] In total, they employ 2,700 workers and generate more than $7 million equivalent in salaries per year. They get their raw materials from Viet Nam, largely in transit from PRC and Taiwan, China and export overseas through HCMC. Two additional SEZs in Bavet are under construction.

(ii) Bavet has now seven casinos of international repute, employing approximately 100–200 people each, and more are under construction. Hotels and restaurants have also been expanding in Bavet. After road completion, Bavet's population has increased by approximately 70%.

(iii) On the Viet Nam side, in Moc Bai, economic development has been concentrated around three large duty free shopping centers claiming to receive on average 2,000–3,000 visitors per day.

(iv) Along the road (NH22) from the border to HCMC, a new industrial estate has been established at Trang Bang. The Trang Bang Industrial Park[83] is a 700-hectare (ha) project initiated in 2001. It is conveniently located between HCMC and the Moc Bai border. So far, a total of 400 ha has been developed to serve 38 domestic and foreign-invested companies. The main foreign-invested companies are from Taiwan, China and Republic of Korea, and an estimated 80% of the workers are from nearby areas within Tay Ninh Province. The companies produce various items including clothing, textiles, industrial tubes, tires, lighters, and bags. The majority of the goods are for export.

178. **Project-Level Impacts of Economic Activities on the East–West Corridor.** Major economic achievements generated by the road rehabilitation are the following:

(i) Economic development in the Lao PDR has been slow as compared with Viet Nam and Cambodia. Initial steps have been taken to build the Savan–Xeno SEZ to take advantage of its strategic position on the EWEC. In addition, 270 ha have been allocated to Thai Air Ground Services to develop a new airport

[80] Weiss, John, Jinkang Zhang, and Jihong Zhang. 2008. *Yunnan and the GMS: Some Trade Estimates*. Draft Report. May.

[81] Edmonds, Christopher and Manabu Fujimura. 2006. *Impact of Cross-Border Road Infrastructure on Trade and Investment in the Greater Mekong Subregion.* Paper presented at the Third Annual Conference of the Latin America Asia-Pacific Economics and Business Association. Seoul, Republic of Korea, 16–17 November 2007.

[82] Best Way from Taiwan, China manufacturing bicycles; S.V.G. Steel from Taiwan, China manufacturing nuts and bolts; Knightmaker from Taiwan, China manufacturing shoes; and Galaxy Textile from the PRC manufacturing trousers.

[83] Information on the Trang Bang Industrial Park comes from the Viet Nam Benefit Monitoring and Evaluation report on the Phnom Penh–HCMC Highway Project, MOT PMU Report 5. March 2006.

infrastructure and other facilities around the existing airport. Another 211 ha have recently been allocated to Malaysia Pacific Streams Development to develop light industries. As many as 300 investors from PRC, Japan, United States, Republic of Korea, Malaysia, and Thailand have expressed interest. Various financial incentives are being offered to attract the private sector. The government also plans to develop a free trade area in Dansavanh, but implementation has been slow and its future is not guaranteed.

(ii) The Lao–Kaysone Phomvihane Cement factory in Atsaphangthong District, constructed in 2003, has been in operation since August 2004. The factory's capacity is 150,000 tons per year, which averages at 7,000–9,000 tons per month. The factory requires certain materials imported from Viet Nam, so improved road access was vital to production.

(iii) The Australian mining company Oxiana, producing copper cathodes and gold, started operation in March 2005 in Xepon, Lao PDR. Completion of RN9 was a determining factor in starting the mining activities. Between March 2005 and mid-2007, Oxiana sent 5,300 truckloads of copper cathodes to Thailand and Viet Nam. In addition, supplies to the mine constitute a large trucking movement, accounting on average for 10 trucks per day.

(iv) In Lao Bao on the Viet Nam side, the government established the Lao Bao Free Trade Area Zone (FTAZ) about 10 years ago. The FTAZ occupies an area of 15,800 ha. Fifty investment projects have been confirmed in the FTAZ, with seven under operation or construction. The FTAZ has so far generated 2,500 jobs. Small industries and shops in the vicinity have also profited from the incentives offered by the FTAZ and have been expanding.

179. Road rehabilitation has had a definite positive impact on communities along the roads. In Cambodia and Lao PDR, life in the border communities has changed for the better. Households have taken the opportunity to become traders and are crossing the border more frequently.[84] In the Lao PDR, interviews with farmers living along the EWEC claimed that that their income had risen by 20% and that they were getting on average 20–30% better prices for their production. The socioeconomic impact, however, varies among road projects. In Viet Nam, along the EWEC, more than 80% of households interviewed perceived an increase in production, selling volumes, and income after road completion. However, the incremental impact on Vietnamese farmers along the Phnom Penh–HCMC Highway (NH22) has been marginal. One reason for this could be that NH22 was previously in good condition, and the road improvement provided only small incremental benefits.

180. In Cambodia, all respondents to the socioeconomic survey said that their living conditions improved after road completion and that more job opportunities became available. The survey also noted that better road conditions facilitate access to health services. Before road improvement, households made an average of 2.7 trips per month to health centers; but since road improvement, the number has climbed to 4.7 trips per month. The price of land has also increased sharply in Cambodia as well as in Viet Nam. Appendix 14 provides a summary of the case studies, demonstrating how road improvement has changed the lives of the farmers.

181. An OED evaluation study[85] carried out a socioeconomic impact assessment of the Champasack Road Improvement Project (Loan 1369) in the Lao PDR. It shows that road

[84] In the Lao PDR, 70% of households interviewed were crossing the border more than five times a month.

[85] ADB. 2005. *Project Performance Evaluation Report for the Champasack Road Improvement Project in the Lao People's Democratic Republic*. Manila.

improvement creates several impacts, which are enumerated in the PPER. First, there has been a general reduction in poverty in the project impact area with improvement in household income, land ownership patterns, health care, education, access to markets, and access to credit. Second, the electricity network was expanded in the project area after project completion. Third, with a diversification of their economic activities, the people living in the project-influenced area can supplement their traditional agricultural income with off-farm income. Finally, the participation of women in road maintenance activities has provided new opportunities for women to play a greater role in the economic development of their villages. While these changes cannot be entirely attributed to the project, there appears to be a causal chain linking them to it indirectly.

182. **Corridor-Level Impacts of Transport Pricing.** Buses operating along NH1A and NH22 in Viet Nam are reported to have reduced their fares. Using survey data, a detailed analysis of taxi/bus fares was conducted on RN1 in Cambodia. Fares before and after road completion were solicited at Phnom Penh central market, Svay Rieng market, and Bavet. "Before fares" were then adjusted for inflation using the consumer price index. The differences between the "after fares" and the "before fares" were then attributed to consumer gains. There were benefits on most routes for bus passengers and taxi/van passengers. Fare reductions varied between 4% and 14% for bus passengers and were 4–8% for taxi/van passengers. More specifically, the bus fare was reduced by 6.5% for Phnom Penh–HCMC Highway and by 14% for Phnom Penh–Svay Rieng at project completion in 2005. Correspondingly, the VOC saving was calculated to be 6.37% in 2005 and 5% in 2006. Transport cost reductions have thus been passed to consumers. In a different perspective, vegetables[86] originating from the project road area and sold in the Phnom Penh market have shown cost reductions, attributable to transport cost reductions.

183. In the case of the Champasack Road Improvement Project (Loan 1369), the project road witnessed a dip in passenger transport prices in 2002 on the Pakxe–Veun Kham section.[87] While this reduction could be partly attributed to the improvement in road conditions, causing a decrease in VOCs, it could also be attributed to the static fuel prices during the period. Diesel prices in 2002 remained unchanged from 2001. This provided some relief to the transport operators in terms of opportunity cost. While this relief was only partial, the improvement in road conditions brought about a reduction in operating costs, some of which appear to have been passed on to the passengers.

184. **National-Level Impacts of Trade Growth.** Para. 11 shows a distinct growth in the exports and imports of the GMS countries. In addition, trade within the GMS has grown, indicating that a combination of general physical improvements as well as trade facilitation measures outside the GMS program could have contributed to this growth. Table 14 provides an analysis of the trade volumes at two key border points that have been the focus of the GMS program—Lao Bao–Dansavanh and Bavet–Moc Bai. The figures show that the border points have a relatively higher impact on small economies—Lao PDR and Cambodia. The impact on the Lao PDR is distinct, taking into account the fact that it is landlocked. The impact on Cambodia is relatively less, since it is not landlocked. The impact is least on Viet Nam, since it is the largest economy and has several other trade points including seaports.

[86] For instance, the price of 1 kilogram of tomatoes is now $0.45 in Bavet and $0.5 in Phnom Penh, while before it was $0.37 and $0.20, respectively. Tomatoes originate from Viet Nam. The reduction in the gap between Phnom Penh and Bavet markets is a measure of the saving in transport cost largely passed to consumers.

[87] The fall in passenger transport prices was in terms of both the Lao PDR kip and the US dollar (nominal and real).

Table 14: Relative Impact at the National Level

Year	Lao Bao–Dansavanh Border Crossing: Trade Value ($ million)	Bavet–Moc Bai Border Crossing: Trade Value ($ million)	Impact on Lao PDR: % of Trade Value at Dansavanh to Lao PDR's Total Trade Volume	Impact on Cambodia: % of Trade Value at Bavet to Cambodia's Total Trade Volume	Impact on Viet Nam: % of Trade Value at Lao Bao and Moc Bai to Viet Nam's Total Trade Volume
1999	129	10	10.15	0.44	0.60
2000	58	8	5.37	0.31	0.22
2001	46	7	4.20	0.25	0.17
2002	22	5	1.99	0.16	0.07
2003	29	24	2.33	0.69	0.12
2004	46	22	2.89	0.52	0.12
2005	68	22	3.46	0.40	0.13
2006	136	43	4.91	0.66	0.21
2007	148	68	4.53	0.72	0.20

Lao PDR = Lao People's Democratic Republic.

Source: Trade values at Lao Bao–Dansavanh obtained from Lao Bao Customs; trade values at Bavet–Moc Bai obtained from Tay Ninh Customs Office. Total trade volumes obtained from the International Monetary Fund Direction of Trade Statistics CD ROM.

185. **Negative Impacts of Transport Improvement and Trade Facilitation.** The GMS Transport Strategy, 2006–2015 is silent on how it will handle social and environmental issues for GMS' transport projects (para. 52). The impacts of the recently completed projects are coming to light and indicate the need for concerted action. These impacts are summarized below:

(i) **Impact on environment.** There are several direct and indirect impacts on the environment along the completed and ongoing corridors as summarized below:

(a) Upgrading of roads has facilitated illegal logging in the Lao PDR. Deforestation has been caused mainly by the new demand from PRC, Thailand, and Viet Nam for hardwood logs and lumber.[88] The volume of illegal logging is difficult to quantify owing to its illicit and clandestine nature. Such logging serves various purposes: local use for firewood and construction; industrial requirements, which take up 5–10% of the protected forest areas; and export of logs from Cambodia and Lao PDR to Yunnan Province and GZAR.

(b) Transportation and increased cross-border trade have led to increased illegal wildlife trade in the GMS. A study found that 43 species of live wildlife have been traded across the PRC–Viet Nam border.[89]

(c) Deforestation in the GMS is caused by high agricultural and timber prices, road construction, and incentives offered for the agriculture sector. Land clearing for agriculture adjacent to improved roads is a common occurrence across the GMS.[90]

(d) Watershed damage and increased soil erosion have been caused during the construction of road and railway projects in the GMS. Concerns about this impact caused by the Northern Economic Corridor Project (Loan

[88] United Nations Development Programme. 2006. *National Human Development Report International Trade and Human Development*. Vientiane.

[89] Li Yiming, and Dianmo Li. 1996. The Investigation on Wildlife Trade Across Guangxi borders between China and Viet Nam. In: *Conserving China's Biodiversity* (John Mackinnon, Wang Sung, eds.). China Environmental Science Press. Beijing. Also see the website of World Wildlife Fund—www.wwf.org.

[90] On the Champasack Road Improvement Project (Loan 1369) in the Lao PDR, the forest area between Ban Seng Village and Ban Pao Village was cleared using slash-and-burn techniques at a rapid pace, because the soil in this area is more fertile for rice fields.

1989) were raised during discussions with nongovernment organizations (NGOs) in the Lao PDR.

(e) In case of the Dali–Lijiang Railway Project (Loan 2116), the summary environmental impact assessment (EIA) stated that, although the railway will run along the shores of Erhai Lake, an important source of water supply, the railway will not transport toxic and hazardous chemicals. However, the freight forecast in the loan document states that it will carry petroleum, chemicals, manganese, lead, and zinc ores. This casts doubts on the quality of the EIA. The issue will need to be reviewed after project completion, when the actual impact of the traffic on the adjacent Erhai Lake will be known.

Appendix 16 provides a summary of the implementation of environmental safeguards. ADB's ongoing project performance reports and completion reports state that environmental safeguards have been implemented appropriately at the project level in the GMS transport sector. However, close monitoring is needed of the indirect impacts that become apparent after project completion.

(ii) **Resettlement impacts.** Resettlement became an issue in Cambodia with the rehabilitation of RN1 from the ferry (Neak Loeung) to the border (Bavet).[91] Numbers of affected persons claimed, with NGO support, that they had never received the compensation that was promised. This issue was resolved in May 2008, about 3 years after project completion. Compensating affected persons is a government responsibility. However, because of its role in supervision and monitoring, ADB bears some responsibility for not being able to prevent such occurrences.[92] This calls for careful implementation of projects. Although this could be perceived as a one-off case, the GMS program needs to stress the importance of appropriate resettlement. ADB is currently providing assistance to formulate and implement a new resettlement decree that will strengthen resettlement management. Appendix 16 provides a summary of compliance with social safeguards for ongoing and completed projects.

Upon completion of the Southern Yunnan Road Project in the PRC (Loan 1691), it was found that ethnic minorities were adversely affected by land acquisition and resettlement. In addition, loss of business was reported on the old road after completion of the expressway and the resulting shift in traffic to the expressway.

(iii) **Road safety.** With the improvement of the roads, there has been a distinct deterioration in safety. Road safety emerged as a key topic during discussions with local villagers, who perceived a significant increase in the risk of accidents due to high vehicle running speeds.[93] This safety issue is commonly experienced in rural road improvement projects in other countries. This issue could have been addressed better at the formulation stage by including additional signage and pavement markings into the design and construction. Potential road safety issues that are likely to arise in the future include (a) lack of enforcement of posted speed limits and lack of appreciation by drivers of the rationale for speed limits;

[91] The location of the resettlement has been reported to be Kampong Soeung Village in Cambodia on the Phnom Penh–HCMC Highway.

[92] ADB is processing a TA for the Livelihood Stabilization for Poor Households Living Along National Highway aimed at improving the livelihood of affected persons.

[93] The Lao PDR's local transport department in Champasack Province estimated a 71% increase in the number of accidents since project completion in 2001.

(b) increased pedestrian traffic, both crossing and along the roadway; (c) lack of adequate shoulder width for vehicular stops and parking; and (d) continued breakdown of the edges of shoulders. A number of earlier PPERs[94] highlighted road safety as an integral part of all road designs.

Rapid increase in the number of vehicles combined with increased vehicle speeds has led to deterioration in road safety. Road traffic injuries have emerged as a major but neglected public health challenge that requires concerted efforts at the institutional as well as project levels. Factors contributing to this deterioration comprise road geometric features, vehicle design, road users' behavior, traffic and pavement characteristics, and environmental aspects.[95] Although most of the GMS countries have appropriate legislation that addresses road safety, it is rarely enforced. The decline in road safety affects the economy adversely. For example, it has been estimated that road accidents in Cambodia cost its economy an average of $116 million every year, which is about 3.21% of its GDP (Table 15). In the case of the Lao PDR, although this cost was $47 million in 2004, it could go up to $168 million in the future unless specific measures are taken to address this issue.[96] The impact on the macroeconomics of the other GMS countries is comparable.

Table 15: Economic Losses due to Road Accidents in GMS Countries

	Annual Economic Losses of Road Accidents	
Country	**$ Million**	**% of GDP**
Cambodia	116	3.21
Lao PDR	47	2.70
Thailand	3,000	2.10
Viet Nam	885	2.45

GDP = gross domestic product, GMS = Greater Mekong Subregion, Lao PDR = Lao People's Democratic Republic.

Source: ADB–ASEAN. 2005. Arrive Alive ASEAN Commits to Cutting Road Deaths. *Association of Southeast Asian Nations Regional Road Safety Strategy and Action Plan (2005–2010)*. Manila.

(iv) **HIV/AIDS.** The link between infrastructure development, mobility, and the spread of communicable diseases including HIV/AIDS is well established.[97] Increase in the prevalence of HIV/AIDS cases has been recorded along most major transport routes, in cross-border areas, as well as in areas with high population mobility. Several GMS countries have implemented large road construction projects that offer better economic opportunities and thus attract migrants from various parts of the region. The interaction among the construction workforce, local communities, and sex workers can create a potentially high-risk environment for the spread of HIV and other sexually transmitted infections (STIs) through unprotected sex and/or injecting drug use.

[94] For example, ADB. 2005. *Project Performance Audit Report on the Champasack Road Improvement Project in Lao PDR.* Manila; and ADB. 2004. *Project Performance Audit Report on the Road Overlay and Improvement Project in Bangladesh*. Manila.

[95] Chakraborty, S., and S.K. Roy. 2005 *Traffic Accident Characteristics of Kolkata, Transport and Communications Bulletin for Asia and the Pacific. No. 74*. Kolkata.

[96] ADB–ASEAN. 2005 Regional Road Safety Program – Accident Costing Report.

[97] United Nations Regional Task Force on Mobility and HIV Vulnerability Reduction. 2006. *Regional Strategy on Mobility and HIV Vulnerability Reduction in South–East Asia and Southern China 2006–2008*; and World Bank Global HIV/AIDS Program. 2005. *Lessons Learned to Date from HIV/AIDS Transport Corridor Projects*.

A recent study[98] carried out under ADB-administered TA[99] shows that increased transport activity and mobility actually increase opportunities for risky behavior and thus may facilitate the spread of HIV/AIDS along these road corridors. This is the case in particular for cross-border transport corridors, and adequate measures need to be taken to mitigate these risks. New cases of HIV infections have been diagnosed/identified in the border district of Luang Namtha among young ethnic women. The increase in the number of roadside businesses and restaurants is a positive economic impact attributed to the improvement of the Northern Economic Corridor in the Lao PDR. However, there has been a corresponding rise in the alcohol trade and human trafficking along the corridor. This is closely linked with the spread of communicable diseases. Another study found a link between economic development in rural areas, mobility, and HIV/AIDS along the EWEC.[100]

ADB has initiated several programs to tackle HIV/AIDS. It is one of the signatories of the Joint Initiative of Development Agencies for the Infrastructure Sectors to Mitigate the Spread of HIV and AIDS.[101] As a follow-on to this initiative, ADB is working closely with other agencies in developing capacities within the GMS governments to tackle increased HIV/AIDS risks linked to the development of infrastructure projects especially transport projects. Governments' involvement is important to sustain the interventions. For example, the PRC Government, with support from ADB, initiated the Baolong Healthy and Safe Action TA to help prevent the spread of HIV during construction. In other countries, the typical ADB response in the past has been to include (a) an HIV-prevention component in the project design; and (b) a requirement for construction contractors, outlined in the bidding and contract documents, to deliver an HIV and STI information and education campaign to construction workers. These were initially necessary but were short-term measures, unlikely to have a sustainable impact on the spread of communicable diseases. The next step—building the capacities within the countries—is crucial to ensure sustainability.[102] This requires concerted action from all stakeholders: governments, NGOs, and aid agencies. ADB needs to continue generating multilateral and multiorganization effort to sustain these measures for countering the spread of HIV/AIDS.

Case studies carried out in the GMS (footnote 99) provide key lessons and recommendations for tackling this issue. These case studies cover the Northern Economic Corridor Project (RN3) in the Lao PDR; Western Yunnan Roads Development Project in the PRC; Cambodia Road Improvement Project (RN5–6, RN56, and RN68); and EWEC (RN9) in Lao PDR and Viet Nam. These

[98] Lyttleton, C. 2008. *Build It and They Will Come: Lessons for Mitigating Exploitation, HIV, and Other Diseases from the Construction of Lao Route 3*. ADB Study Series. HIV and Infrastructure in the GMS - Technical Report Number 2. Manila: ADB (draft).

[99] ADB. 2007. *HIV and Infrastructure: ADB Experience in the Greater Mekong Subregion ADB Synthesis Paper*. Manila.

[100] Handicap International. 2006. *Development, Mobility and HIV in South East Asia: A Preliminary Study for the Implementation of a Development Based HIV Prevention Programme along the East West Corridor/Highway 9 in Laos and Vietnam.* Paris.

[101] Signed by African Development Bank; ADB; Department for International Development; Japan Bank for International Cooperation; Kreditanstalt für Wiederaufbau, and World Bank at Toronto in August 2006. Available: http://siteresources. worldbank.org/INTTSR/Resources/060811JointstatementHIV_final.pdf

[102] A TA initiated in 2006 is a step in this direction (footnote 99).

recommendations should be implemented in close coordination with other development partners as well as the GMS governments.

(v) **Land grabbing.** In northern Lao PDR, an ADB study (footnote 100) found an indirect but distinct link between road corridor development and land grabbing. The study found an increase in the rubber plantations in the vicinity of the Northern Economic Corridor in the Lao PDR. With the increased demand for rubber caused by growth of the Chinese automobile industry, businessmen from the PRC have been alleged to have turned communal land into private land using local middlemen. This includes conversion of forest land being managed by Chinese companies as per contractual agreements. Since there are no clear land ownership titles in the area, such contracts tend to favor the external businessmen. This also leads to exploitation of labor and rise of conflicts between Lao ethnic minorities and Chinese businessmen (footnote 100).

V. OVERALL ASSESSMENT AND LESSONS FOR FUTURE ASSISTANCE

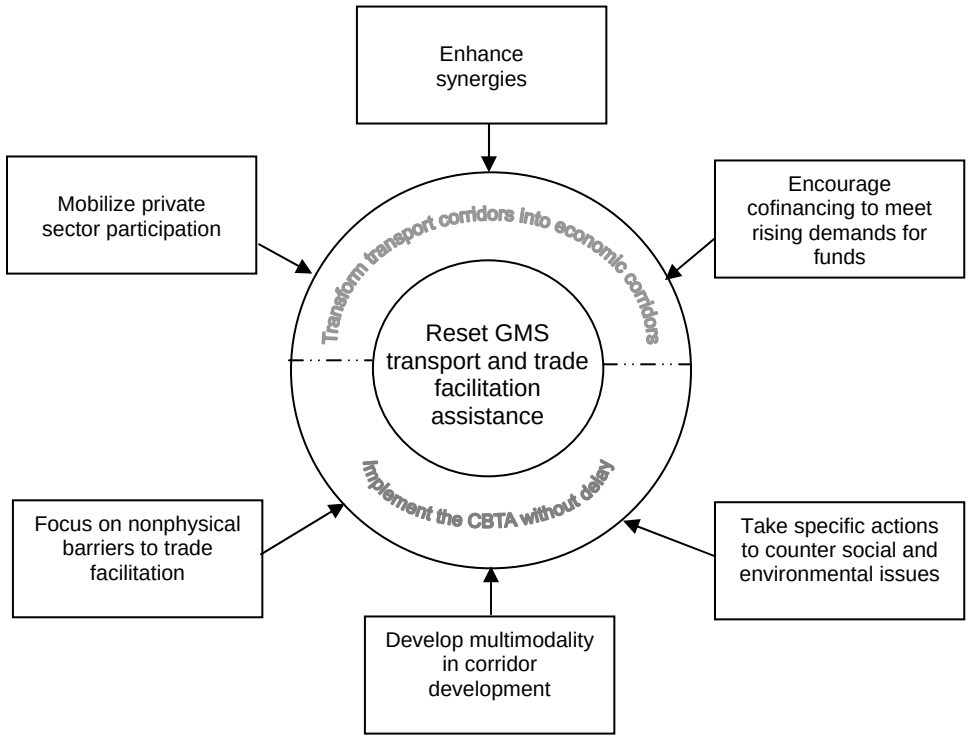
186. In the foregoing chapters, this SAPE has addressed several questions. How well did ADB respond to the evolving regional development challenges in transport and trade facilitation? What is the value addition of the GMS projects? What has been the performance of ADB's assistance? What have been the factors leading to the success of the GMS program, and what have been the shortfalls?

187. Combining the top–down and bottom–up assessments, ADB's overall performance in the transport sector as well as in the trade facilitation sector is rated "successful." Several positive factors support this rating. First, ADB has successfully played a lead role in pushing through multilateral dialogue among the GMS countries. Second, there has been an appropriate mix of lending and nonlending assistance to support and sustain the dialogue. Third, the combination of transport and trade facilitation assistance has ensured synergies. Fourth, the selection and implementation of the physical infrastructure improvements have been appropriate to the needs at the national level as well as the subregional level. Finally, the focus on cross-border issues and the diligence in preparing the CBTA are appropriate. Para. 188 highlights several factors that need to be strengthened to further improve this rating.

A. Key Findings

188. The GMS program was initiated in 1992, with the first loan for the transport sector approved in 1998. ADB now has the opportunity to strengthen the GMS program, taking into consideration the experience of the last decade. Various issues that were not foreseen earlier have now become obvious and need to be addressed. Figure 2 shows the factors that require resetting in ADB's assistance for transport and trade facilitation within the GMS program.

Figure 2: Resetting GMS Transport and Trade Facilitation Assistance



CBTA = Cross-Border Transport Agreement, GMS = Greater Mekong Subregion.
Source: Operations Evaluation Department.

189. The GMS program has grown over the years to become a major regional cooperation initiative of ADB as well as of the GMS countries. The transport sector initiatives have been highly relevant for the GMS program. However, the benefits of the improvement of the road corridors have been mainly national, since national traffic has grown rapidly, while international traffic has been slow to grow. Since the CBTA has yet to be fully ratified and implemented, this situation is expected to change. Although the cross-border roads were rehabilitated, efficiency in the use of resources can be realized only if the supporting regulatory and policy framework is in place. Without this framework, the full benefits of ADB's assistance cannot be realized.

190. The transformation of transport corridors into economic corridors is the principal issue facing the GMS countries. Para. 52 shows that the core objectives established in 1998 have been only partly reflected in the sector strategy. Each country has drawn separate plans to address this issue. ADB and the GMS countries need to develop a more comprehensive regional approach to the development of economic corridors that entails complementary nonphysical interventions directed at improving the investment climate and attracting private sector investments along the road corridors. This development will need to be cognizant of the other issues shown in the rectangular boxes in Figure 2.

191. The GMS program has the potential to further enhance synergies across countries. The benefits of the regional program need to be seen in a more realistic context, especially when comparing the potential impact of a regional project with that of a national project. Currently, the size of GMS assistance is much higher than non-GMS assistance (para. 40). ADB needs to ensure that there is balanced development by providing an appropriate mix of assistance for

regional versus national projects that enhances synergies. Moreover, Lao PDR and Cambodia have been receiving ADF assistance, which is limited by the performance-based allocation. Taking into account the increasing demand for regional road projects, ADB should scale up its assistance to these countries to ensure higher development effectiveness and enhance its catalytic role to cofinance investments with other development partners.

192. The GMS program is commended for initiating the CBTA. However, the CBTA has yet to be ratified by two GMS countries. Assuming that this ratification takes place in the near future, the next hurdle for ADB and the GMS governments is to implement the CBTA. ADB needs to work closely with the GMS governments, other development partners, and NGOs to implement the CBTA. The focus needs to be on nonphysical barriers encountered at the borders, as well as those related to national procedures and institutional strengthening.

193. While ADB and the GMS governments can take pride in the positive impacts of cross-border roads, there needs to be concerted action on the social and environmental concerns raised within a short period after project completion. For example, on the risk of HIV/AIDS, the action and recommendations of recent ADB TA[103] are appropriate and could be replicated. These actions include designing self-contained HIV prevention components rather than relying on external or parallel projects, integrating HIV prevention into contractors' occupational health and safety programs, partnering with other specialized agencies for antidrug and human trafficking activities, synchronizing the implementation schedules of HIV activities to coincide with the program of construction, and ensuring condom availability during and after construction (footnote 99).

194. Although the GMS program includes investments for the railways subsector, there has been limited multimodal planning. Generally, road sector interventions have been discrete from railway and other transport modalities. Future assistance for the transport sector needs to bring together different modalities to ensure synergies and reduce transport costs. Private sector participation for operations and maintenance should be encouraged to bring in best practices (para. 198).

B. Lessons Identified

195. Subregional projects in the transport sector have successfully provided benefits at the national level. This is expected, since subregional benefits take more time to crystallize. Experience from the GMS program highlights the importance of ensuring that the softer aspects of trade facilitation (e.g., the CBTA including harmonization of regulations, procedures, and standards) are addressed to ensure that the full benefits of the harder infrastructure (e.g., road improvement) can be enjoyed by the participating countries.

196. Subregional projects have enabled cooperation among the countries that might not have been achieved in the absence of the GMS program. First, development of road corridors providing logistic routes across three or more countries has been made possible by the GMS program. Connecting Nanning with Bangkok across Viet Nam and Lao PDR has become an all-weather reality. Second, the efficiency of transport has improved with the reductions in cost of transport and in travel time. This has created the enabling environment for reducing trade bottlenecks. However, for these benefits to achieve their full potential, the GMS countries need to implement the CBTA soon. Finally, these projects have successfully brought together all the countries of the subregion and have created a favorable climate for dialogue and exchange of

[103] ADB. 2006. *Proposed Technical Assistance for Fighting HIV/AIDS in Asia and the Pacific*. Manila (TA 6321-REG, for $8.67 million, approved on 6 June).

information. More than merely leading to improvement of roads and trade ties, this has created a more amenable atmosphere for future economic growth and interface.

197. The setting up of NTFCs in each country has been a positive step toward coordinating the GMS transport planning and implementation process. However, these committees need to become more inclusive by including the trade departments in the decision making and prioritization process. Para. 73 highlights the concerns raised by the trade departments in Cambodia, Lao PDR, and Viet Nam. ADB needs to work closely with these governments to ensure better participation of other departments in this process. Moreover, various agencies that have a direct bearing on cross-border trade within each GMS country as well as across the GMS countries need to collaborate more closely.

198. The private sector has had limited participation in the financing, operation, and maintenance of transport projects. The GMS Transport Strategy has limited coverage on developing PPPs or the opportunities for the private sector within the GMS program, namely (i) the GMS Business Forum, which is a platform for the private sector to voice its opinions; and (ii) rehabilitation of roads within the defined parameters of design and construction activities. With the increase in the scope and size of the transport networks, the GMS countries need to encourage larger participation from the private sector in financing of road improvements as well as in their maintenance. In the case of the PRC, the private sector has responded positively to the corporatization of expressway operations. In Viet Nam, ADB has initiated steps to develop a framework for private sector participation. These efforts need to be widened to cover the entire GMS. Support for policy reforms is important to achieve this. In addition, ADB's Private Sector Operations Department could develop suitable mechanisms for entry of the private sector into transport activities on a regional basis, e.g., developing uniform transaction structures that could be replicated among the GMS countries. This will require policy reforms coordinated across the GMS, an area where ADB can add definite value.

199. With the increasing scope of the GMS program, there will be new areas for interventions by ADB and other development partners. However, the interventions should match the available resources and the organizations' agenda. ADB has demonstrated its strengths in infrastructure development and trade facilitation. It is important at this stage to identify its key focus areas so that other areas can be devolved to other development partners that are in a better position to add value. ADB could act as a catalyst in bringing in other development partners that can participate in the GMS program and develop synergies. For example, the MRC is a key player in river navigation; ADB should work closely with it and support its efforts rather than provide any direct assistance to the inland waterways subsector.

200. The GMS Transport Strategy, 2006–2015 should be further improved by recognizing the importance of the social and environmental repercussions of regional transport projects (para. 185). Private sector funding and expertise need to be incorporated in the strategy not only to bridge the funding gap but also to bring in international best practices. The issues of roles and responsibilities of transit countries and of related benefits and costs need to be clearly identified and understood by all participating countries. ADB needs to develop specific action plans for handling these issues to ensure appropriate implementation of the social and environmental safeguards. The completed projects have provided a sample of the likely impacts of regional roads. These experiences should be taken seriously and incorporated into the future strategy. Moreover, the implementation of these projects has revealed several lessons that can be taken on board by the GMS program—prepare realistic traffic forecasts and cost estimates, improve procurement procedures, and prepare realistic implementation schedules (Appendix 11 provides a summary of these implementation lessons).

201. While the concept of economic corridors is noble, it requires a clear definition and monitoring. ADB should work closely with the GMS countries to develop a monitoring system that measures to what extent a transport corridor is being transformed into an economic corridor. While there is general acceptance that all the countries need to have economic corridors and not merely transport corridors, ambiguity exists about what the nature of an economic corridor will be, how that will be achieved, and what the nature of the outcomes and impacts will be. ADB needs to lead the way in developing a specific results-based monitoring framework that will cover policy as well as physical interventions. Moreover, this framework will need to measure the impact of external interventions as well as that of transport infrastructure development while defining an economic corridor. Parallel activities initiated by the government or other development partners will contribute to the development of the economic corridor. Appropriate indicators should be included in the GMS Transport Strategy to measure the change in light of such interventions.

C. Recommendations for Future Assistance

202. **Fill Gaps in Transport Infrastructure and Trade Facilitation.** The overall effectiveness of the GMS program as well as ADB's assistance is reduced due to gaps in the road infrastructure. The lack of bridges across the Mekong River on the Phnom Penh–HCMC Highway as well as at Houayxay is a stark example of long-drawn planning and insufficient rigor in implementation. Until recently, the international border between southern Lao PDR at Champasack and Cambodia lacked a 6.9 km link, which discouraged international traffic on the corridor. This link was constructed in June 2008, about 7 years after project completion. While some of these issues relate to funding, others relate to policy dialogue among the countries. ADB is uniquely positioned to act as an honest broker to resolve these issues. It is recommended that ADB initiate action on identifying all such gaps in infrastructure across the GMS program and provide solutions to fill them. The CBTA should be implemented as per the agreed upon timetable with appropriate mechanisms.

203. **Facilitate Institutional Development.** As stated in paras. 84 and 86, transport and trade companies face problems in carrying out cross-border legal transactions such as freight insurance, vehicle insurance, and customs duty for transit goods. For example, the International Road Transport Union represents the global road transport industry and provides guarantees under the Transports Internationaux Routiers carnet system (para. 25). ADB should work, in conjunction with the governments, to set up a regional body that brings together business interests from the GMS countries. A regional transport association is currently being discussed within the GMS Business Forum. ADB can add further value to its assistance by promoting such regional institutions, which will enable more efficient trade within the GMS countries.

204. **Develop Strategic Partnerships and Harness Synergies with Other Regional Cooperation Initiatives.** The GMS program has typically been inward looking in its approach to regional development. ADB should encourage relationships between the GMS program and other regional cooperation initiatives outside Asia such as the GFP for transportation and trade (para. 69), which could enable transfer of best practices, create knowledge in areas such as logistics management, and ensure synergies with global trade processes. The current partnership with ASEAN is a step in this direction. But with globalization of trade and transport movements, the GMS program needs to look at the bigger picture. Deriving lessons from other regional cooperation initiatives (paras. 42–44) is a useful starting point to building closer ties.

205. **Mobilize Alternate Forms of Financing.** A key issue facing the GMS program is the supply gap in investment for the transport sector. This gap has widened with the expanded

scope of the corridors. This indicates that ADB should mobilize alternate forms of funding, either from the private sector or from other development partners—bilateral and multilateral. In the case of private sector participation, the GMS program could add further value by creating innovative contractual structures that ensure appropriate risk sharing and prove attractive for private sector investments. Moreover, cofinancing from other development partners can provide an important supplement for projects that are economically viable but financially less so.

EVALUATION FRAMEWORK AND METHODOLOGY

1. This sector assistance program evaluation (SAPE) for the transport and trade facilitation sectors of the Greater Mekong Subregion (GMS) program is aimed at assessing the strategic, institutional, as well as lending and nonlending project initiatives. More specifically, the SAPE assesses the effectiveness of Asian Development Bank (ADB)-funded projects in terms of their regional benefits and impacts. Based on these findings, the SAPE suggests future directions for ADB assistance.

A. Assessment Framework

2. The assessment framework drew on the guidelines for preparing country assessment program evaluation reports and was based on the following evaluation questions:

(i) Bottom–Up

(a) **Relevance.** Were the strategies pursued by ADB relevant in terms of:
   i. evolving economic circumstances in the GMS countries;
   ii. supporting essential sector policy and institutional reforms;
   iii. the transport needs as perceived by the national governments, as well as the development plans;
   iv. ADB's country strategies and programs;
   v. ADB's comparative strength; and
   vi. harmonizing and coordinating with other development partners and the private sector?

(b) **Effectiveness.** Achievement of short-term outcomes:
   i. What was the extent to which the results defined under the country strategies and programs and the project designs were actually achieved?
   ii. Using a framework for assessment, what is the effectiveness of the GMS program at various levels from project to corridor to country and to the subregion.

(c) **Efficiency.** Has the regional program been successful in using ADB assistance resources efficiently?
   i. For completed projects, were the costs and benefits commensurate with the initial plans and project designs?
   ii. For ongoing projects, what has been the progress of implementation?

(d) **Sustainability.** What is the likelihood of sustaining the planned outputs? Are the policies and sector interventions likely to contribute to sustainable development gains?

(e) **Impact.** A framework was used for assessing the impact at various levels from project to corridor to country and to the subregion.

(ii) Top–Down

(a) **Subregional positioning context.** How well did ADB respond to the evolving regional development challenges in transport and trade facilitation?
   i. Were the timing and scope of ADB's interventions appropriate in addressing the major infrastructure priorities of the countries?
   ii. Was the selection of the transport and trade facilitation sectors appropriate, taking into account the countries' development strategies and ADB's comparative assistance advantage?

iii. Was the mix of lending and nonlending services correctly designed to serve cross-border interests?
iv. What is the progress in implementing the GMS plan of action?
v. Was ADB able to forge productive relationships with other development partners within the GMS framework?
vi. To what extent was the success of the regional projects affected by the capacity, commitment, and implementation performance of the GMS countries?

(b) **Value addition.** What has been ADB's value addition to regional development?
i. How has ADB contributed to improving policies, institutional capacity, mobilization of finance, and generally bringing the GMS countries together for the common goal of economic growth and poverty reduction?
ii. Has the overall performance of GMS' transport and trade facilitation improved?

(c) **ADB performance.** How has ADB's corporate performance contributed to or inhibited the success of regional initiatives?
i. What has been the quality of lending and nonlending services?
ii. Has ADB demonstrated and adhered to good corporate governance practices in the infrastructure sector?
iii. Has ADB been sensitive and responsive to the needs of varied clients?
iv. Have the funding instruments mobilized by ADB for infrastructure development been appropriate and adequate?
v. Has ADB fulfilled the role of an honest broker in addressing regional cooperation in infrastructure development in the GMS, taking into account the interest of all the participating countries?
vi. Has ADB fostered client ownership?

3. The assessment of technical assistance projects focused on two aspects mainly:
(i) Have the targeted outputs and outcomes been achieved?
(ii) What has been the overall success of the technical assistance projects?

B. Methodology

1. Bottom–Up Assessment

4. The bottom–up assessment focused on relevance, effectiveness, efficiency, sustainability, and impact of the completed projects. The SAPE evaluated these differential economic benefits using data from two recently completed projects:
(i) Loans 1659/1660: Phnom Penh–Ho Chi Minh City Highway Project linking Cambodia and Viet Nam; and
(ii) Loans 1727/1728: East–West Corridor Project linking the Lao People's Democratic Republic (Lao PDR) and Viet Nam.

5. **Traffic Count and Origin–Destination Survey.** This was conducted along the above project roads. The location of the surveys was the same as those used by the project completion reports. The traffic count survey was conducted for 18 hours over a 5-day period. The origin–destination survey covered a sample of vehicles. The survey generated data on

local; national; cross-border (bilateral); and international (multilateral, outside GMS) traffic for both goods and passengers.

6. **Border-Crossing Point Survey.** This survey collected data on the progress and initial results of trade facilitation and cross-border movement of goods and people attributable to ADB assistance to the GMS program. It was conducted at the following points:

(i) from Viet Nam side: Lao Bao (on East–West Corridor), Moc Bai (on Phnom Penh–Ho Chi Minh City Highway); and
(ii) from the Lao PDR side: Kaysone Phomvihane Mukdahan (on Lao PDR–Thailand border) and the first Friendship Bridge in Vientiane (on Lao PDR–Thailand border).

7. The survey was mainly a perception survey to assess the changes in various parameters such as customs and immigration clearances, border infrastructure, and unofficial payments. It interviewed a sample of people crossing the border including those traveling by truck and bus.

8. **Freight Forwarder Survey.** This survey measured the savings in trade costs and time, and identified the constraints to trade movement. It was carried out at major ports and the national capitals, where the offices of these companies will be located. This was a perception survey to measure the effectiveness of trade facilitation measures.

9. **Border Community Survey.** This survey was carried out in parallel with the border-crossing point survey. It covered a sample of people resident or working in the border towns (about 50 persons per town) using focus group discussions. It reviewed the impact of the road on the border communities, as well as the impact of trade facilitation measures on the local border trade.

10. Apart from the above surveys, the SAPE mission had discussions with government and private sector officials to obtain their opinion of the impact on socioeconomic parameters, gender, and environment of the transport and trade facilitation measures and the potential constraints for trade movement. Use of secondary information was an important supplement to the primary data.

11. The above methodology focused basically on completed projects in the roads sector, since that has received the majority of ADB assistance. Ongoing projects in the roads sector were evaluated based on a review of back-to-office reports, project performance reports, and discussions with ADB staff and government staff. The other subsectors were handled as follows:

(i) **Civil aviation.** ADB provided a loan for the Siem Reap Airport Project (Loan 1503-CAM). The SAPE reviewed the findings of the project completion report without carrying out any separate survey.
(ii) **Ports.** ADB provided loans for the Saigon Port Project (Loan 1354-VIE) and the Fangcheng Port Project (Loan 1427-PRC). The Operations Evaluation Department produced project performance evaluation reports on these projects in 2003 and 2006, respectively. The SAPE used the findings of these project performance evaluation reports, without carrying out any separate survey.
(iii) **Railways.** Ongoing projects in the railways sector were evaluated based on a desk review of back-to-office reports, project performance reports, and discussions with ADB staff and government staff.

2. Top–Down Assessment

12. The assessment of the sector strategy and positioning was mainly a desk-based exercise. It was supported by perceptions drawn from meetings with government officials. Structured questionnaires were used to draw generic conclusions. The assessment of sector strategy provided a top–down perspective by asking questions as drawn from the evaluation framework.

13. The questions identified above were addressed as follows:

(i) A literature review was carried out to assess the empirical and analytical data available from other aid agencies, as well as academic sources.

(ii) A review of ADB documents was carried out in Manila, as well as in the GMS countries' resident missions. This included project documents related to the report and recommendation of the President and related feasibility reports for GMS countries.

(iii) Perception surveys were conducted during the Operations Evaluation Mission to assess ADB performance.

SUMMARY OF GMS LOANS AND GRANTS FOR TRANSPORT AND TRADE FACILITATION (1992–2007)

Loan No.	Project Name	Date Approved	Total Project Cost ($ million)	Financing							Date Closed	Rating	
				ADB		Government	Cofinancing		Parallel Financing			PCR	PPER
A. Cambodia													
1. 1503	Siem Reap Airport	12-Dec-96	17.0	15.0	ADF	2.0					17-Apr-03	PS	
2. 1659	Phnom Penh–Ho Chi Minh City Highway	15-Dec-98	52.7	40.0	ADF	12.7					20-Jul-06	S	
3. 1945	GMS: Cambodia Road Improvement	26-Nov-02	77.5	50.0	ADF	17.5	10.0	OPEC Fund			Ongoing		
4. 2288	GMS Rehabilitation of the Railway in Cambodia	13-Dec-06	73.0	42.0	ADF	15.20	15.8	OPEC/Govt of Malaysia			Ongoing		
5. 2373	GMS Southern Coastal Corridor	28-Nov-07	18.7	7.0	ADF	3.70	8.0	Australia			Ongoing		
Subtotal A (5 Loans)			**238.9**	**154.0**		**51.1**	**33.8**						
B. Lao PDR													
1. 1369	Champassak Road Improvement	31-Aug-95	60.1	48.0	ADF	12.1					26-Jul-01	S	HS
2. 1727	East–West Corridor Project	20-Dec-99	205.0	32.0	ADF	28.0			145.0	JICA and JBIC	28-Feb-07		
3. 1989	GMS: Northern Economic Corridor	20-Dec-02	95.8	30.0	ADF	7.3			58.5	Governments of PRC and Thailand	Ongoing		
4. 0082	GMS–LAO: Northern GMS Transport Network Improvement	27-Sep-07	103.5	42.0	ADF Grant	13.6	47.9	OPEC Fund, Australia, Republic of Korea			Ongoing		
Subtotal B (4 Loans and Grant)			**464.4**	**152.0**		**61.0**	**47.9**		**203.5**				
C. PRC													
1. 1325	Yunnan Expressway	29-Sep-94	461.4	150.0	OCR	311.4					6-Sep-00	HS	
2. 1427	Fangcheng Port Project	19-Jan-96	135.0	52.0	OCR	83.0					15-Oct-01	HS	S
3. 1691	Southern Yunnan Road Development	24-Jun-99	770.3	250.0	OCR	520.3					5-Jan-05	S	
4. 1851	Guangxi Roads Development	9-Oct-01	455.2	150.0	OCR	194.8	110.4	EIB and China Devt Bank			12-Mar-08		
5. 2014	Western Yunnan Roads Development	28-Oct-03	582.0	250.0	OCR	174.1	157.9	AFD and domestic commercial bank			Ongoing		
6. 2094	Guangxi Roads Development II	16-Sep-04	726.0	200.0	OCR	254.6	271.4	China Devt Bank			Ongoing		
7. 2116	Dali–Lijiang Railway Project (Yunnan Province)	2-Dec-04	548.0	180.0	OCR	328.0	40.0	AFD			Ongoing		
8. 2345	Western Guangxi Roads Development	14-Aug-07	1,566.0	300.0	OCR	720.0	546.0	CBC/MOC			Ongoing		
Subtotal C (8 Loans)			**5,243.9**	**1,532.0**		**2,586.2**	**1,125.7**						
D. Viet Nam													
1. 1354	Saigon Port	2-Mar-95	40.0	30.0	ADF	10.0	0.0				1-Nov-00	S	S
2. 1487	Second Road Improvement	21-Sep-96	237.0	120.0	ADF	53.0	64.0	OECF			20-Mar-03	HS	
3. 1660	Phnom Penh–Ho Chi Minh City Highway	15-Dec-98	144.8	100.0	ADF	44.8	0.0				12-May-06	S	
4. 1728	East–West Corridor Project	20-Dec-99	387.0	25.0	ADF	72.0			290.0	JBIC and World Bank	31-Mar-07		
5. 2222	GMS Kunming–Haiphong Transport Corridor–Noi Bai–Lao Cai Highway Technical Assistance	19-Dec-05	8.0	6.0	ADF	2.0	0.0				Ongoing		
6. 2302	GMS Kunming–Haiphong Transport Corridor: Yen Vien–Lao Cai Railway Upgrading Project	19-Dec-06	160.0	60.0	ADF	22.5	77.5	AFD/DGTPE			Ongoing		
7. 2372	GMS Southern Coastal Corridor	28-Nov-07	208.7	75.0	ADF	58.2	75.5	Republic of Korea			Ongoing		
8. 2391	GMS: Kunming–Hai Phong Transport Corridor—Noi Bai–Lao Cai Highway	14-Dec-07	1,016.0	896.0	OCR	0.0	120.0	Viet Nam Expressway Corporation			Ongoing		
9. 2392	GMS: Kunming–Hai Phong Transport Corridor—Noi Bai–Lao Cai Highway	14-Dec-07	200.0	200.0	ADF	0.0	0.0				Ongoing		
Subtotal D (9 Loans)			**2,401.5**	**1,512.0**		**262.5**	**337.0**		**290.0**				
			8,348.7	**3,350.0**		**2,960.8**	**1,544.4**		**493.5**				

ADF = Asian Development Fund, AFD = Agence Française de Développement, CBC = China Bank of Communications, DGTPE = Treasury and Economic Policy General Directorate of the French Ministry of Finance, EIB = European Investment Bank, GMS = Greater Mekong Subregion, HS = highly successful, JBIC = Japan Bank for International Cooperation, JICA = Japan International Cooperation Agency, LAO/Lao PDR = Lao People's Democratic Republic, MOC = Ministry of Communications, OCR = ordinary capital resources, OECF = Overseas Economic Cooperation Fund, OPEC = Organization of Petroleum Exporting Countries, PCR = project completion report, PPER = project performance evaluation report, PRC = People's Republic of China, PS = partly successful, S = successful.

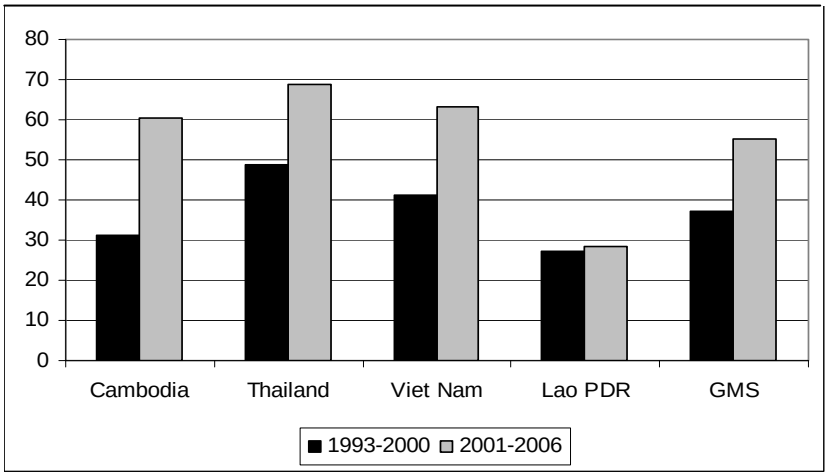
Source: Asian Development Bank project management database.

TRANSPORT AND TRADE FACILITATION SECTOR

A. Economic Growth and Trade Linkage

1. Economic growth in the Greater Mekong Subregion (GMS) since the early 1980s has been underpinned by rapid expansion in manufacturing exports, thus making these countries among the fastest-growing economies in the world. From 2000 to 2007, the rate of growth of gross domestic product (GDP) in the GMS averaged 8.6%. While strong export orientation has been the marked feature of growth and development in East and Southeast Asia, diverging trends can be observed across the GMS countries in terms of the relative importance of trade to economic growth. In almost all GMS countries, the share of exports relative to GDP has grown significantly since 2000 from their level in the 1990s (Figure A3.1). From 2000 to 2006, merchandise exports of GMS grew by an average of 17% in value terms.

Figure A3.1: Average Share of Exports to GDP (%)



GDP = gross domestic product, GMS = Greater Mekong Subregion, Lao PDR = Lao People's Democratic Republic.
Note: GMS in the figure excludes the People's Republic of China and Myanmar.
Source: World Development Indicators Development Indicators online database (downloaded 23 April 2008).

2. Growth of imports of the GMS countries generally outpaced export growth, with the exception of Lao People's Democratic Republic (Lao PDR) and Thailand (Table A3.1). The softening of domestic demand in those two countries has largely put imports growth on check. Meanwhile, rising oil prices and increasing domestic demand for inputs for export production have boosted the level of imports in Cambodia and Viet Nam.

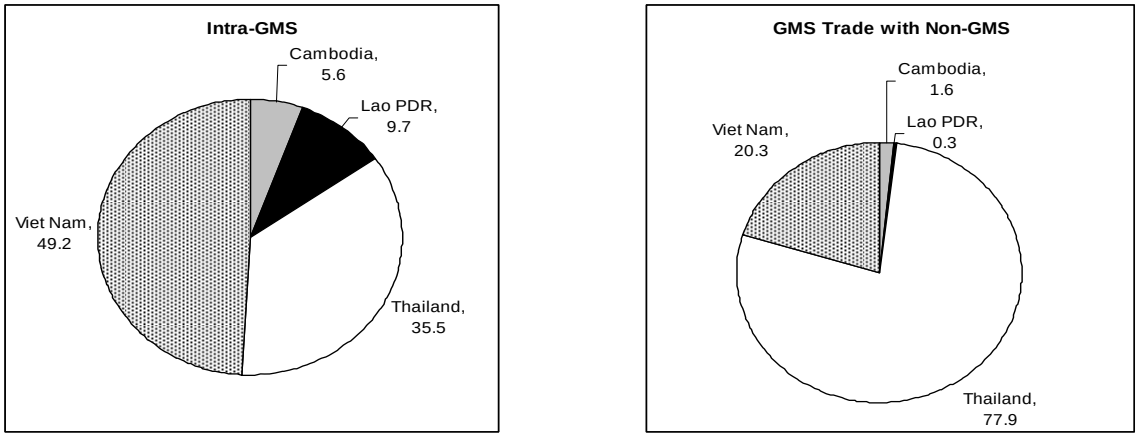
Table A3.1: Growth in Value of Exports and Imports in the GMS (%)

	Exports		Imports	
Country	**Average 2000–2006**	**2007**	**Average 2000–2006**	**2007**
Cambodia	18.6	9.5	17.0	14.1
Lao PDR	14.4	50.6	12.0	(1.7)
Thailand	12.7	18.1	15.7	9.6
Viet Nam	20.0	21.5	22.2	35.5
GZAR, PRC	17.4	—	31.1	—
Yunnan, PRC	18.8	—	25.3	—

GMS = Greater Mekong Subregion, GZAR = Guangxi Zhuang Autonomous Region, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Sources: Asian Development Bank. Various years. *Asian Development Outlook*. Manila; Guangxi Statistical Yearbook 2007; and Yunnan Statistical Yearbook 2007.

3. The figures in Table A3.1 show that there has been a general increase in trade activity in the region. The direction of trade over the past few years exhibited not just a rapid expansion of trade with the rest of the world but also of GMS economies' trade among themselves. From 2000 to 2006, total trade by the GMS with the rest of the world rose at an average rate of 15%, but trade flows within the GMS increased even faster at a rate of 20.6%. Figure A3.2 compares the structure of intra-GMS and GMS trade with non-GMS trade.

Figure A3.2: Structure of Intra-GMS Trade and GMS Trade with Non-GMS Trade



GMS = Greater Mekong Subregion, Lao PDR = Lao People's Democratic Republic.
Source: International Monetary Fund Direction of Trade Statistics.

4. Across the GMS countries, considerable variation in direction of trade can be observed. As shown in Table A3.2, the share of intra-GMS trade in total trade is higher for smaller economies than for larger ones, the Lao PDR having the highest share. From 2000 to 2006, no significant increase in the share of intra-GMS trade was observed for Thailand and Viet Nam. The Lao PDR's intra-GMS trading temporarily dipped in 2004 as the country's trading with Cambodia and Viet Nam declined. Cambodia, on the other hand, showed a downward trend in its trading within the subregion, as garments exports to non-GMS countries expanded in recent years. In 1995, 74% of Cambodian exports headed to neighboring Asian countries. In 2005, only 27.2% of the exports were to other Asian countries and 50% of the exports were destined for the United States, up from just 1% in 1995.[1]

Table A3.2: Direction of Trade in 2006 (% of total)

	GMS		Other Asia		United States		Europe		Others	
Country	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**
Cambodia	2.5	23.1	20.1	66.0	53.3	0.9	0.4	0.2	23.6	9.8
Lao PDR	54.7	76.5	9.3	15.4	0.7	0.5	0.8	0.3	34.4	7.3
Thailand	4.1	1.2	38.7	38.4	15.0	7.5	1.9	1.6	40.3	51.2
Viet Nam	5.0	10.2	19.3	60.3	21.2	2.6	2.3	1.8	52.2	25.1
GZAR, PRC	22.3	24.3	37.6	23.3	11.3	5.8	18.1	12.0	10.7	34.6
Yunnan, PRC	15.4	6.7	63.0	26.1	6.4	4.4	10.7	12.9	4.5	49.8

GMS = Greater Mekong Subregion, GZAR = Guangxi Zhuang Autonomous Region, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Note: GMS here excludes Myanmar.
Sources: International Monetary Fund, Direction of Trade Statistics CD-ROM (March 2008); Guangxi Statistical Yearbook 2007; and Yunnan Statistical Yearbook 2007.

[1] United Nations Economic and Social Commission for Asia and the Pacific. 2007. *Review of Developments in Transport in Asia and the Pacific 2007: Data and Trends*. New York.

5. These statistics show that there has been an increase in the quantum of trade, as well as a diversification in trading partners. This puts added pressure on the transport infrastructure and exposes the constraints in the existing system.

B. Transport Sector in the GMS

6. Transport infrastructure and services in the GMS are in various stages of development. While standard indicators, such as road density and proportion of paved roads are good measures of the maturity of a country's road network, they are also largely a function of geography and demography. In the GMS, for example, although Thailand's road length per capita is much lower than its comparators in the subregion, the proportion of paved roads is much higher, thus putting the country ahead in terms of road development (Table A3.3). In contrast, the Lao PDR may have fewer paved roads, but this is principally on account of its having sparsely populated land. Overall, although the last decades have seen rapid economic development in the subregion, transport network conditions and standards in a large part of the GMS remain inadequate to meet rapidly growing demands for transport facilities and services.

Table A3.3: Comparative Transport Indicators 2006

Item	Cambodia	Lao PDR	Thailand	Viet Nam	GZAR, PRC	Yunnan, PRC
Population density (people/km^2)	81.60	24.70	126.40	258.80	198.20	113.80
Road Density						
km per 1,000 people	2.64	5.44	0.83	2.64	1.11	4.34
km per km^2	0.22	0.13	0.11	0.68	0.22	0.49
Rail density						
km per 1,000 people	0.04	—	0.06	0.03	0.07	0.04
km per 1,000 km^2	3.41	—	7.95	7.99	13.67	4.89

GZAR = Guangxi Zhuang Autonomous Region, km = kilometer, km^2 = square kilometer, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.

Sources: Asian Development Bank. 2006. *GMS Transport Sector Strategy*. Manila; World Bank. 2007. *World Development Indicators*; Guangxi Statistical Yearbook 2007; and Yunnan Statistical Yearbook 2007.

7. Movement of freight and people faces two main constraints in the GMS countries—lack of adequate physical infrastructure, and cross-border barriers. The GMS program, along with other regional programs, has addressed both these issues to a certain extent, but it has yet to achieve the goal of "a GMS that is more integrated, prosperous, and equitable."[2] Physical infrastructure continues to be inadequate in Cambodia, Lao PDR, and Viet Nam. Movement of vehicles across the border continues to be an issue, although the current multilateral dialogue is likely to address this in the near future.

C. Institutional Framework

8. **Cambodia.** The transport sector contributes 7.6% to the GDP. Road transport is the most dominant mode of transport within the country, accounting for 65% of all passenger traffic and 70% of all cargo traffic, with rail, river, and air transport accounting for the rest. Subregional traffic is dominated by road and river modes catering to cargo traffic, and air and road transport catering to passenger traffic. The Cambodian road network covers about 39,400 kilometers (km), including seven national roads, which are considered the primary highways and have a combined length of 4,800 km; provincial roads, which are considered secondary highways and have a combined length of 6,600 km; and about 28,000 km of rural roads.[3] While much of the primary road network is in good condition,

[2] Asian Development Bank (ADB). 2002. *Building on Success: A Strategic Framework for the Next Ten Years of the Greater Mekong Subregion Economic Cooperation Program*. Manila.

[3] ADB. 2007. *Report and Recommendation of the President on the Proposed Loan and Administration of Grant from the Government of Australia to the Kingdom of Cambodia of the Road Asset Management Project.* Manila.

most of the secondary roads and rural roads are in a very poor state, often making them impassable during wet season.

9. The management of the road network is split between the Ministry of Public Works and Transport (MPWT), which is responsible for about 11,400 km of national and provincial roads, and the Ministry for Rural Development, which is responsible for about 28,000 km of rural roads. In addition, MPWT also administers rural roads with relatively high traffic loads[4] on behalf of the Ministry for Rural Development. MPWT is responsible for road transport, and its Directorate General of Public Works is responsible for road maintenance management. Specifically, MPWT's responsibilities are to (i) manage and develop national policies on public civil works and coordinate with stakeholders; (ii) improve, maintain, and manage roads and other transport infrastructure; (iii) develop road and other transport infrastructure regulations; and (iv) assist in development of laws, rules, and regulations relating to construction. Meanwhile, under the Directorate General of Public Works are the (i) Road Infrastructure Department, which is responsible for the management and administration of the national and provincial road networks; (ii) Heavy Equipment Center, which is an operations unit involved in road and bridge reconstruction and major construction works; and (iii) Technical Research Center, which is responsible for road standards and specification development.

10. The key institution involved in the trade sector is the Ministry of Commerce (MOC), in particular its directorates of Foreign Trade and of Domestic Trade. MOC, together with Directorate of International Cooperation under the Ministry of Foreign Affairs and International Cooperation and the Directorate of Economic Cooperation under the Ministry of Planning, is also responsible for multilateral and bilateral trade negotiations.

11. **Lao People's Democratic Republic.** Transport in the Lao PDR is almost exclusively by road. Roads carry about 70% of freight and 90% of passenger traffic and provide the basic infrastructure for domestic and international trade. The country has a road network of about 32,600 km, of which 22% are national roads, 28% are provincial roads, 4% are urban roads, and 46% are district or community roads. Only 14% of the total road network is paved, while the rest have gravel or earth surfaces. Due to its relatively sparse population, the Lao PDR's road network density is low. Most roads remain in very poor condition and are often impassable during the wet season. While road links between Vientiane and the provincial capitals are improving, four of the 18 provincial capitals are yet to have all-weather road access. Availability of transport services is also uneven across provinces due to the remoteness of access roads. The sector contributes 6.3% to GDP.

12. The MPWT, earlier called the Ministry of Communications, Transport, Post, and Construction, is the main agency responsible for the transport sector. It is responsible for the development of national and provincial roads, civil aviation, urban development, telecommunications, river wharves, and river and road transport. The Department of Roads in MPWT is responsible for the administration, planning, construction, and maintenance of national roads. The Department of Roads monitors maintenance programs for national roads and assists the provinces with implementation and monitoring of roads improvement and maintenance programs for the local road network, while execution of all routine and periodic maintenance is delegated to the provincial offices of MPWT.

13. MOC is the central-level government agency responsible for managing the overall development of commerce in the country, including domestic and foreign trade. Under MOC is the Foreign Trade Department, which is responsible for (i) planning and implementing the party policies related to foreign trade, border trade, and goods transit; (ii) coordinating with foreign agencies, including negotiating with trading partners to promote export; and (iii) capacity building of trade departments at provincial level. For the promotion of export, the Lao Trade Promotion Center was

[4] Currently defined as having more than 300 vehicles per day.

established in November 2001 under MOC to assist the minister in planning and implementing the rules and regulations of the government related to export and trade promotion.

14. **Thailand.** Among the countries in the GMS, Thailand has the most developed transport network. The total length of national roads in 2006 was 57,403 km, of which 98.5% were paved.[5] All of the country's provinces are interlinked with a good interregional and interprovincial transport network, and services are mostly available even for isolated and remote rural areas. Roads constitute the most dominant mode of transport, accounting for 88% of freight traffic and 92% of passenger traffic. The direction, composition, and volume of traffic flows reflect the geographical distribution of economic activities, the importance of Bangkok as the country's principal port and consumption center, and the dominance of the Central Region in agricultural production. Freight traffic is concentrated mostly in the corridor along the axis radiating from Bangkok to the south and northeast. Despite the relatively higher level of transport development in the country, logistics costs in Thailand are high at 20% of GDP (compared with 11% in Japan, 10% in the United States, and 7% in the European Union).[6] Logistic costs relate to the transport, storage, and handling of goods.

15. The Ministry of Transport (MOT) is responsible for transport policy, investment planning, and budgeting for the transport sector. The Department of Highways under MOT is responsible for administration, planning, and maintenance of all major and minor national roads. The 76 provinces and municipalities are generally responsible for urban and rural roads. The Department of Highways' activities cover a majority of the overall investment for the road subsector, while also catering to majority of traffic.

16. Government functions related to trade, service-related businesses, and intellectual property are assumed by MOC or its agencies. MOC's principal roles and duties include (i) promoting and developing trade and businesses, both trade in goods and trade in services including insurance; (ii) promoting intellectual property; (iii) engaging in international trade negotiations; (iv) regulating and administering imports and exports, including government-to-government trading in rice, cassava, and goods under international agreements; (v) solving trade problems and protecting trade benefits; and (vi) promoting and accelerating exports. Three departments are responsible for foreign trade, namely the (i) Department of Foreign Trade, (ii) Department of Export Promotion, and (iii) Department of Trade Negotiations.

17. **Viet Nam.** The transport sector contributes 4.5% to GDP. The total length of the road system in Viet Nam is about 251,786 km, of which 17,295 km are national roads; 23,137 km are provincial roads; and the remainder comprise district, commune, and village roads. Of the total length, only 32.0% has a sealed surface. The national roads form the major arterial network. However, as of 2004, only 44.8% of the national roads were reported to be in good condition. Moreover, only about 3.9% have four lanes and 66% have two or three lanes, thereby limiting the road system's capacity. Bridges are also a weak link in the system. About half of the total of 4,100 bridges are either restricted to relatively low roads or are narrow. Many sites along the Mekong River still have no bridges.[7] Although freight transport is dominated by roads, accounting for 65% of traffic by weight, rail also plays an increasingly significant role, particularly in the transport of bulk cargo over long distances.

18. Administration of the road network in Viet Nam is based on the administrative classification of the road. National roads are administered at the central level by the Viet Nam Road Administration under MOT. In 2004, the Viet Nam Expressway Corporation was established under MOT as a fully state-owned enterprise to develop expressways. Provincial roads are managed by the provincial

[5] International Road Federation. 2007. *World Road Statistics 2007.* Geneva.
[6] Japan External Trade Organization. 2003. *Study of Thailand's Logistics System*. Bangkok.
[7] ADB. 2007. *Report and Recommendation of the President to the Board of Directors for the Proposed Loan to the Socialist Republic of Viet Nam for the Ho Chi Minh City–Long Thanh–Dau Giay Expressway Technical Assistance Project.* Manila.

transport agencies; district roads are the responsibility of the district level agencies; urban roads are managed by cities and towns; and commune roads are managed at the commune level.

19. The Ministry of Trade is the lead government agency involved in the trade sector. It is supported by several departments, which are responsible for specific functions such as trade policy development, trade promotion, competition management, domestic and foreign trade activities, and trade research. The Ministry of Trade also coordinates with foreign trade offices, Ministry of Trade state-owned enterprises, local trade departments, and the Office of the National Committee for International Economic Cooperation.

20. **People's Republic of China.** Road length in the People's Republic of China (PRC) has been among the fastest growing in the world, with an average growth rate of 4.9% from 1993 to 2005 (footnote 5). In the Guangxi Zhuang Autonomous Region, the length of roads totaled approximately 90,318 km in 2006. From 2000 to 2006, the road network in the province grew at an average annual rate of 10.8%. In 2006 alone, total road length grew by about 73% from its level in 2005.[8] However, a majority of these roads were still unclassified and in poor condition. In Yunnan Province, the length of roads totaled approximately 198,496 km in 2006 and having grown at an average annual rate of 11.5% from 2000 to 2006. While a majority of these roads are already classified, many were poorly designed and in fair to poor condition.[9]

21. Road administration in the PRC is decentralized to local governments. At the provincial and autonomous region level, communications departments are responsible for highway network development and maintenance. The Ministry of Communications provides guidance and support to communications departments through the development of national policies, regulations, and standards. The provincial communications departments are also responsible for regulating the road transport industry by licensing drivers, vehicles, and intercity bus services.

22. MOC is the main government agency responsible for the country's overall external relations, which covers trade, administration of the PRC's aid to foreign countries, foreign investment administration, and foreign economic cooperation. Under MOC are departments and bureaus directly responsible for trade-related activities, which include the Foreign Trade Department, Department of International Trade and Economic Affairs, Department of Trade in Services, and Bureau of Fair Trade for Import and Export.

D. Development of Economic Corridors

23. The Eighth GMS Ministerial Conference in October 1998 agreed on the concept of economic corridors. However, the subsequent transport sector strategy and the interventions have not been in line with this concept. Table A3.4 assesses the development of economic corridors vis-à-vis transport corridors.

[8] Data from the Guangxi Statistical Yearbook 2007.
[9] ADB. 2003. *Report and Recommendation of the President to the Board of Directors for the Proposed Loan to the People's Republic of China for the Western Yunnan Roads Development Project.* Manila.

Table A3.4: Assessment of the Development of Economic Corridors vis-à-vis Transport Corridors

Core Objectives of GMS Economic Corridors	ADB Sector Strategy for Corridor Development	Assessment
As defined in 1998, an economic corridor is a well-defined geographic area where infrastructure development is linked with the development of production and trade potentials through systematic interventions based on a clear economic rationale. Its purpose is to promote economic cooperation between contiguous regions or countries.	The earlier GMS transport sector study of 1995 focused mainly on physical interventions. The current GMS Transport Strategy, 2006–2015 has five goals: • Exploit synergies in the GMS transport system. • Move toward an open market and open borders for transport services. • Improve economic efficiency to reduce transport costs. • Complete the GMS transport network and improve links with South Asia. • Encourage use of different modes of transport (multimodalism).	The GMS Transport Strategy is focused on physical connectivity, and there is no specific feature that defines the methodology for the development of economic corridors. Separate interventions by the countries and by ADB have been initiated to encourage economic activities along GMS roads.[a] However, these initiatives are national rather than regional. They lack integrated regional planning.
An economic corridor has several components: (i) a defined space or location; (ii) physical infrastructure, including a central transport system; (iii) nodal points such as industrial estates or border towns around which economic production and service activities are clustered; and (iv) policies, programs, institutions, and agreements, that will facilitate cooperation and allow the clustered economic activities to draw strength from each other through scale economies, externalities, and public goods.	The GMS program includes the Cross-Border Transport Agreement, which enables freer movement of people, vehicles, and transit goods. However, there is no specific strategy to develop economic production or create synergies along the road corridors.	The notion of economic corridor is noble and appropriate to the concept of integrated planning. However, the definition of what constitutes an economic corridor is vague. Discussions with government officials indicated that there needs to be a clearer definition of how a transport corridor can be converted into an economic corridor at the country level.
An economic corridor aims to increase mobilization of private capital by increasing the attractiveness of investing in areas traversed by the corridor	No specific strategy identified	This is an area for improvement in the future wherein mobilization of private resources for capital investment as well as for operation and maintenance activities could be mainstreamed in the GMS transport sector.
An economic corridor aims to increase development of remote areas through employment generation and technology transfer, which will reduce poverty, urban primacy, and regional income inequality.	No specific strategy identified	Separate interventions have been initiated by the countries. However, the development of economic corridors remains mainly a road development initiative.

ADB = Asian Development Bank, GMS = Greater Mekong Subregion.

[a] The Cambodian and Vietnamese governments have developed special economic zones along the GMS roads. ADB has initiated TA for the Lao PDR entitled *Building Lao PDR's Capacity to Develop Special Economic Zones*.

Sources: Core objectives of GMS's economic corridors (ADB. 1999. *Technical Assistance for the Greater Mekong Subregion Preinvestment Study for the East-West Economic* Corridor. Manila (TA 5885-REG, for $350,000, approved on 22 December); and ADB sector strategy for corridor development (ADB. 2007. *GMS Transport Strategy 2006–2015*. Manila).

SUMMARY OF NATIONAL DEVELOPMENT PLANS OF GMS COUNTRIES

A. Cambodia

1. The central focus of the First Socioeconomic Development Plan (SEDP I), 1996–2000 was on the development of rural areas. Development of the road network was intended to ensure improvement in social and administrative services for achieving national integration. Linking Cambodia with the external markets was also seen as an important goal. SEDP I recognized the exceptional opportunity that Cambodia had in terms of developing into a "hub" of the Greater Mekong Subregion (GMS). The fact that it recognized and accepted the existence of the GMS as early as 1996 and evolved its development plans in line with the trade corridors indicates the level of ownership within the country.

2. The rehabilitation of Route National (RN) 5 and RN1 linking Thailand with Viet Nam across Cambodia was considered as the first priority. The Asian Development Bank provided funds for rehabilitating part of this network. SEDP I also highlighted the opportunity to link the landlocked Lao People's Democratic Republic with the sea through Cambodia. SEDP I also indicated the longer term need to develop the railway system and provide a link between Thailand and Viet Nam.

3. Among its long-term objectives identified in SEDP I, the government aimed to
   (i) reconstruct and develop the road network of the country;
   (ii) reconstruct the international highways to international standards;
   (iii) develop missing links with the Thai and Vietnamese rail networks; and
   (iv) create self-sustaining entities to own, manage, and maintain the international ports of Phnom Penh, Sihanoukville, and Koh Kong.

4. These objectives, especially those related to the road network, are in line with the GMS program. SEDP I's other objective of ensuring that the maintenance of the roads becomes self-financing is yet to be achieved.

5. The Second Socioeconomic Development Plan (SEDP II), 2001–2005 proposed to accelerate the rate of expansion of the road network. The importance of linking the borders with Thailand and Viet Nam remained high on SEDP II's list of priorities. The need to ensure road maintenance was recognized, although an action plan to achieve it was not specifically identified. The construction of a regional railway system was supported, especially the Kunming–Singapore rail link initiated by the Association of Southeast Asian Nations (ASEAN). Besides rehabilitation of Sihanoukville port, SEDP II highlighted the importance of waterways navigation as a means to reduce the congestion on the sea port.

B. Lao People's Democratic Republic

6. The Fifth Socioeconomic Development Plan, 2001–2005 focused on providing paved roads from the capital city to the provinces. It included several projects targeted at providing international links as summarized below:
   (i) the north–south economic corridor linking Houayxay with Boten,
   (ii) the link between Huay Heung and the Vietnamese border,
   (iii) a third Mekong Bridge at Kaysone Phomvihane and another one in the north, and
   (iv) construction of railway lines.

7. The Fifth Plan laid down goals for increasing trade. However, there was no clear link between the transport strategy and the trade strategy. In other words, the transport priorities were distinct from the trade initiatives.

8. In an effort to improve domestic and international trade, the government set up 209 large markets, including 11 markets at international border-crossing points and 28 markets at local border-crossing points by end-2003. However, it was recognized that the use of infrastructure in the activities of many sectors is still very low, since production has not developed at the same pace as the development of physical infrastructure. In other words, despite improvements in infrastructure, economic development has been slow. Exports per capita have been low due to constraints in large-scale commercial production and in processing higher quality products. Another reason is the weak coordination between central and local authorities on exports and imports.[1]

9. The Sixth Socioeconomic Development Plan, 2006–2010 continues on the infrastructure expansion theme and plans to combine it with efforts to boost production in rural areas. It aims to

(i) develop border markets particularly those bordering Viet Nam and Cambodia, developing tourism within and between the areas;
(ii) develop the district roads and roads to Viet Nam and Cambodia, with attention to roads connecting to the seaports through these countries;
(iii) construct the rail road from Vientiane to Non Hai;
(iv) develop cities along the East–West Corridor of Kaysone Phomvihane such as Outhoumphon, Atsaphangthong, Thapalanaxay, Phin, and Xepon to link developed and underdeveloped provinces (such as Ban Km. 52, Vieng Kham [Vientiane Province], Thaphabath, Phakadinh [Bolikhamxai], and Xebangfai [Khammouan]); and
(v) rehabilitate RN8 and RN12 (section Thakhek Gnommalat) to the seaport in the central part, and construct RN11.

C. People's Republic of China (Yunnan Province and Guangxi Zhuang Autonomous Region)

10. In the People's Republic of China, there was increased emphasis on improving the lower levels of the road network, with rapid growth in rural and township roads from 2000 onward. This reflected the objectives of the 10th Five-Year Plan, 2000–2005, and particularly the 11th Five-Year Plan, 2006–2010, to reduce inequalities of income by providing improved people access to markets and services. Subsequently, increased emphasis was given to developing highway connectivity in the western part of the country. This reflected the Western Development Strategy, which was introduced by the government under the 10th Five-Year Plan to promote growth and development in the western region and reduce disparities compared with the more prosperous coastal areas. The Western Development Strategy includes Guangxi and covers efforts to develop key national highways besides developing railways, civil aviation, pipelines, and water transport. However, the focus has been more on developing internal connectivity rather than international links. With the increasing participation of the People's Republic of China in the GMS and the broader ASEAN, there has been increased awareness of the need for developing international corridors.

[1] Committee for Planning and Investment. 2006. *National Socioeconomic Development Plan (2006–2010)*. Vientiane.

11. The Yunnan Provincial Highway Development Plan, especially three international corridors, is summarized as follows:

(i) **Kunming to Hanoi Highway.** The total length is 647 kilometers (km), 400 km of which is located in Yunnan. The 78 km Kunming–Shilin Expressway has opened to traffic; the 183 km Class II Shilin–Mengzi Road will be rebuilt to the expressway level; and the Mengzi–Hekou Expressway is under construction and will open to traffic in 2008.

(ii) **Kunming to Bangkok Highway.** The total length is 1,807 km, 688 km of which runs in Yunnan Province. The 350 km Kunming–Yuxi–Mohei Expressway has opened to traffic; the 65 km Class II Mohei–Simao Road is being improved to the expressway level and will be opened to traffic in 2009; the 98 km Simao–Xiaomengyang Expressway has opened to traffic; and the 175 km half lane of Xiaomengyang–Mohan Expressway opened to traffic in 2008.

(iii) **Kunming to Rangoon Highway.** The total length is 1,870 km, 731 km of which is located in Yunnan. The 497 km Kunming–Baoshan Expressway has opened to traffic; the 80 km Baoshan–Longling Expressway has opened to traffic in 2008; and the 154 km Class II Longling–Ruili Road will be improved to the expressway level and opened to traffic in 2011.

D. Thailand

12. The earlier Ninth Economic Development Plan for 2002–2006 aimed to

(i) promote the development of infrastructure for a communications and transport network, which will serve as the basis for improving production, creating employment, and creating income;

(ii) modernize the telecommunications system and enable it to reach all parts of the country for the benefit of receiving and sending information and knowledge to the people, with linkages to other countries, and lay the foundation for the liberalization of the telecommunications business;

(iii) improve and develop the mass transit system, as well as the domestic communications network linking the two together efficiently, conveniently, swiftly, and safely;

(iv) promote cooperation in building a transport and communications network linking Thailand with her neighbors, with a view to making Thailand the center for land transport in the region, and assist in economic development and enhancing the quality of life of the people;

(v) promote the development of the merchant marine in a systematic and earnest manner in order to support the country's export sector; promote the establishment of a Thai merchant marine fleet and related industries; and ensure that the development, construction, and management of deep seaports are adequate and of a good standard;

(vi) forge closer cooperation with neighboring countries with a view to protecting the right, freedom, and safety of navigation through the seas in neighboring countries; and

(vii) develop the quality and improve the efficiency of air transport services to keep pace with the needs of customers, tourism promotion, and economic growth; and ensure that Thailand will remain the central hub of air transport in Southeast Asian.

13. The 10th National Economic and Social Development Plan for 2007–2011 emphasizes the path to a more competitive, productive, and open economy. It aims to make larger investments in economic capital including physical, financial, and human dimensions. The

government has identified road network connections to neighboring countries as a priority area. It intends to upgrade the entire length of the East–West Corridor, as well as the Southern Corridor located in Thailand.

E. Viet Nam

14. The Central Committee of the Communist Party of Viet Nam stated to the Ninth Congress, "….As for roads, to complete the upgrading of National Highway 1 and building of the Ho Chi Minh Highway. To upgrade and build other national highways, with attention given to border roads, beltways and roads connecting various regions with major development centers, major river bridges, and roads connecting with countries of the GMS. To develop and upgrade the transport system in individual regions, including rural transport, with smooth traffic ensured all the year round. To upgrade the existing railway network, open new railways leading to economic centers. To complete the national seaport system and the local port network as planned. To develop river transport and increase the maritime transportation capacities linked with ship building and repair industries. To modernize international airports and upgrade domestic ones….."[2]

15. Viet Nam's Socioeconomic Development Plan, 2006–2010[3] advocates "Proactive, wide, and in-depth economic integration in the region and in the world should be facilitated." As per the national plan of the Ministry of Transport, the infrastructure targeted for upgrading includes trans-Asia roads (such as the Hanoi–Lao Cai 70 national road and the Hanoi–Hai Phong 5 national road); the East–West Economic Corridor road surfaces; the trans-Asia railway (including the Hanoi–Lao Cai and Hanoi–Hai Phong segments); and the Hai Phong, Cao Lanh, and Da Nang seaports. Efforts are also targeted at liberalizing the logistics industry, especially in view of the country's bid to join the World Trade Organization.[4] These efforts are in line with the GMS program and provide distinct synergies with the regional cooperation initiatives.

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[2] The Seventh Party Congress had endorsed the 1991–2000 Strategy for Socioeconomic Stabilization and Development. The Ninth Congress is to evaluate the implementation of that strategy and decide upon the Strategy for Socioeconomic Development during the first decade of the 21st century, Strategy for Accelerated Industrialization and Modernization along the Socialist Line, laying the foundations for Viet Nam to become an industrialized country by 2020.

[3] *The Five Year Socioeconomic Development Plan 2006–2010* published in July 2006.

[4] Border development is another government focus, in particular with regards to the two border towns at Lao Cai and Lao Bao along the North–South Corridor and East–West Economic Corridor, respectively. There are many preferential policies for both border towns, especially with respect to facilitating and encouraging trade, investment, and tourism. For example, agricultural imports at Lao Cai do not usually require phytosanitary/fumigation papers which are mandatory at other channels. Lao Bao is currently more developed, having had a longer operating history, while infrastructure development had just started in Lao Cai.

TECHNICAL ASSISTANCE OPERATIONS FOR TRANSPORT AND TRADE FACILITATION FOR THE GMS PROGRAM (1992–2008)

(as of 30 April 2008)

TA No.		Project Name	Date Approved	Total Project Cost ($'000)	Financing ($'000)					
					ADB			Government	Cofinancing	
					TASF	JSF	Total ADB		Amount	Source
A.	**Core Projects - Transport Sector**									
1.	5535	Promoting Subregional Cooperation Among Cambodia, the PRC, Lao PDR, Myanmar, Thailand, and Viet Nam – Phase II	10-Jun-93	5,260.0	1,500.0	3,000.0	4,500.0	0.0	760.0	Sweden
	1	**Subtotal (Core TA) - Transport Sector**		**5,260.0**	**1,500.0**	**3,000.0**	**4,500.0**	**0.0**	**760.0**	
B.	**Feasibility Study/Project Preparation - Transport Sector**									
1.	1981	Heilongjiang and Yunnan Expressways – PRC	16-Nov-93	350.0	0.0	320.0	320.0	30.0	0.0	
2.	1982	Second Ports Development – PRC	16-Nov-93	420.0	0.0	400.0	400.0	20.0	0.0	
3.	1997	Second Road Improvement – Viet Nam	29-Nov-93	2,215.0	0.0	2,100.0	2,100.0	115.0	0.0	
4.	2197	Airports Improvement – Cambodia	4-Nov-94	520.0	0.0	500.0	500.0	20.0	0.0	
5.	5586	Study of the Lao–Thailand–Viet Nam East–West Transport Corridor	18-Jul-94	1,000.0	0.0	0.0	0.0	0.0	1,000.0	France
6.	1997	(Supplementary) Second Road Improvement – Viet Nam	31-May-95	890.0	0.0	850.0	850.0	40.0	0.0	
7.	5649	GMS Infrastructure Improvement: Ho Chi Minh City to Phnom Penh	9-Nov-95	3,100.0	0.0	3,000.0	3,000.0	100.0	0.0	
8.	5691	Thailand–Cambodia–Viet Nam Southern Coastal Road Corridor	18-Jul-96	100.0	100.0	0.0	100.0	0.0	0.0	
9.	5710	Study of the Lao–Thailand–Viet Nam East–West Transport Corridor	11-Dec-96	3,100.0	0.0	3,000.0	3,000.0	100.0	0.0	
10	5728	Chiang Rai–Kunming Road Improvement via Lao PDR	27-Feb-97	625.0	0.0	600.0	600.0	25.0	0.0	
11.	2903	Border Towns Urban Development – Thailand	27-Oct-97	1,000.0	0.0	800.0	800.0	200.0	0.0	
12.	3220	Guangxi Highway Development – PRC	12-Jul-99	590.0	0.0	540.0	540.0	50.0	0.0	
13.	5885	GMS Pre-Investment Study for the East–West Economic Corridor	22-Dec-99	350.0	0.0	350.0	350.0	0.0	0.0	
14.	3642	Preparing the Western Yunnan Roads Development Project – PRC	20-Mar-01	970.0	0.0	770.0	770.0	200.0	0.0	
15.	3780	North–Northeast Region Area Development – Thailand	26-Nov-01	1,430.0	0.0	1,000.0	1,000.0	430.0	0.0	
16.	3817	Preparing the Northern Economic Corridor Project – Lao PDR	19-Dec-01	710.0	0.0	600.0	600.0	110.0	0.0	
17.	3852	GMS: Cambodia Road Improvement Project – Small-Scale Technical Assistance for Economic Analysis	4-Apr-02	188.0	150.0	0.0	150.0	38.0	0.0	
18.	3854	GMS: Cambodia Road Improvement Project – Small-Scale Technical Assistance for Environmental Assessment	11-Apr-02	75.0	60.0	0.0	60.0	15.0	0.0	
19.	3855	GMS: Cambodia Road Improvement Project – Small-Scale Technical Assistance for Resettlement Study and Social Impact Assessment	11-Apr-02	187.5	150.0	0.0	150.0	37.5	0.0	
20.	3868	GMS: Cambodia Road Improvement Project Engineering Design Update	31-May-02	500.0	400.0	0.0	400.0	100.0	0.0	
21.	4050	Preparing the Kunming–Haiphong Transport Corridor Project – Viet Nam	17-Dec-02	1,250.0	0.0	1,000.0	1,000.0	250.0	0.0	
22.	4119	Guangxi Road Development II – PRC	23-May-03	650.0	500.0	0.0	500.0	150.0	0.0	
23.	4129	Dali–Lijiang Railway – PRC	18-Jul-03	640.0	500.0	0.0	500.0	140.0	0.0	
24.	6227	Coordinating for GMS: North–South Economic Corridor Bridge Project (formerly Third Mekong Bridge)	23-Dec-04	415.0	0.0	415.0	415.0	0.0	0.0	
25.	6235	GMS Southern Coastal Corridor	10-Mar-05	1,220.0	0.0	1,000.0	1,000.0	220.0	0.0	
26.	4050	(Supplementary) Preparing the Kunming–Haiphong Transport Corridor (GMS Hanoi Lao Cai Railway Upgrading)	14-Jun-05	350.0	0.0	350.0	350.0	0.0	0.0	
27.	6251	GMS Rehabilitation of the Railway in Cambodia	12-Aug-05	590.0	0.0	500.0	500.0	90.0	0.0	
28.	4657	Yunna–Yuxi Mengzi Railway	29-Sep-05	500.0	500.0		500.0	0.0	0.0	
29.	6251	(Supplementary) GMS Rehabilitation of the Railway of Cambodia	6-Dec-05	125.0	0.0	125.0	125.0	0.0	0.0	
30.	4742	GMS Northern Transport Network	19-Dec-05	800.0	0.0	800.0	800.0	0.0	0.0	
31.	4782	Central Yunnan Roads Development (PPTA PRC) [Wuding–Kunming]	28-Apr-06	625.0	500.0	0.0	500.0	125.0	0.0	
32.	6235	(Supplementary) GMS Southern Coastal Corridor	28-Apr-06	75.0	0.0	75.0	75.0	0.0	0.0	
33.	4792	Guangzi Longlin–Baise Expressway (PPTA PRC)	26-May-06	625.0	500.0	0.0	500.0	125.0	0.0	
34.	4913	GMS: Luang Prabang Airport Improvement	8-Dec-06	710.0	600.0	0.0	600.0	110.0	0.0	
35.	6227	(Supplementary) Coordinating for GMS: North–South Economic Corridor Bridge Project (formerly Third Mekong Bridge)	24-Apr-07	100.0	0.0	100.0	100.0	0.0	0.0	

TA No.		Project Name	Date Approved	Total Project Cost ($'000)	Financing ($'000)					
					ADB			Government	Cofinancing	
					TASF	JSF	Total ADB		Amount	Source
36.	4970	Western Yunnan Roads Development II (PPTA PRC) [(formerly [Ruili–Longlin] Expressway)]	28-Sep-07	500.0	400.0	100.0	500.0	0.0	0.0	
37.	4970	(Supplementary) Western Yunnan Roads Development II – PRC	14-Mar-08	100.0	100.0	0.0	100.0	0.0	0.0	
	37	**Subtotal (PPTA) - Transport Sector**		**27,595.5**	**4,460.0**	**19,295.0**	**23,755.0**	**2,840.5**	**1,000.0**	
C.	**Advisory TA - Transport Sector**									
1.	5686	Mitigation of Nonphysical Barriers to Cross-Border Movement of Goods and People	29-May-96	232.0	0.0	180.0	180.0	24.0	28.0	ESCAP
2.	5749	Cross-Border Movement of Goods and People in the GMS	26-Aug-97	730.0	0.0	550.0	550.0	40.0	140.0	ESCAP
3.	5850	Facilitating the Cross-Border Movement of Goods and People in the GMS	16-Jul-99	990.0	0.0	950.0	950.0	40.0	0.0	
4.	3348	East–West Corridor Coordination - Lao PDR and Viet Nam	20-Dec-99	690.0	0.0	690.0	690.0	0.0	0.0	
5.	3396	Assessing A Concession Agreement for the Lao PDR: Chiang Rai–Kunming Road Improvement Project	2-Feb-00	150.0	150.0	0.0	150.0	0.0	0.0	
6.	6098	Implementing the Agreement for Facilitation of the Cross-Border Transport of Goods and People in the Greater Mekong Subregion-Phase 1	9-Apr-03	860.0	800.0	0.0	800.0	60.0	0.0	
7.	4142	Preventing HIV/AIDS on Road Projects in Yunnan Province - PRC	23-May-03	800.0	0.0	0.0	0.0	0.0	800.0	PRCF
8.	6134	GMS Southern Coastal Corridor (SSTA)	5-Nov-03	150.0	150.0	0.0	150.0	0.0	0.0	
9.	6193	GMS Infrastructure Connections in Northern Lao PDR (SSTA)	20-Oct-04	180.0	150.0	0.0	150.0	30.0	0.0	
10.	6195	GMS Transport Sector Strategy Study	20-Oct-04	950.0	950.0	0.0	950.0	0.0	0.0	
11.	4645	Restructuring of the Railway in Cambodia	14-Sep-05	1,500.0	0.0	0.0	0.0	0.0	1,500.0	France
12.	6307	Implementation of the Greater Mekong Subregion Cross-Border Transport Agreement	6-Mar-06	860.0	400.0	0.0	400.0	60.0	400.0	PRCF
13.	6307	Implementation of the Greater Mekong Subregion Cross-Border Transport Agreement (Supplementary)	27-Oct-06	1,000.0	0.0	0.0	0.0	0.0	1,000.0	AusAID
14.	4645	(Supplementary) Restructuring of the Railway in Cambodia	25-May-07	250.0	250.0	0.0	250.0	0.0	0.0	
	14	**Subtotal (ADTA) - Transport Sector**		**9,342.0**	**2,850.0**	**2,370.0**	**5,220.0**	**254.0**	**3,868.0**	
D.	**Advisory TA - Trade Facilitation Sector**									
1.	6020	Facilitating Cross-Border Trade and Investment for Small and Medium Enterprise Development in the GMS	21-Dec-01	900.0	0.0	600.0	600.0	300.0	0.0	
2.	6228	Facilitating Cross-Border Trade and Investment for SME Development in the GMS (Phase II)	23-Dec-04	700.0	0.0	600.0	600.0	100.0	0.0	
3.	6231	SSTA to Support Development of the Action Plan on Trade and Investment Facilitation in the GMS	10-Feb-05	150.0	150.0	0.0	150.0	0.0	0.0	
4.	6328	Support to Trade Facilitation and Capacity Building in the GMS	19-Jul-06	1,490.0	650.0	0.0	650.0	190.0	650.0	PRCF
5.	6450	Enhancing Transport and Trade Facilitation in the GMS	28-Mar-08	1,900.0	0.0	0.0	0.0	150.0	1,750.0	RCIF/AUS/ PRC RPRF
	5	**Subtotal (ADTA) - Trade Facilitation Sector**		**11,908.0**	**800.0**	**1,200.0**	**2,000.0**	**740.0**	**9,168.0**	
	57	**GRAND TOTAL (A+B+C+D)**		**54,105.5**	**9,610.0**	**25,865.0**	**35,475.0**	**3,834.5**	**14,796.0**	

ADB = Asian Development Bank, ADTA = advisory technical assistance, AUS = Australia, AusAID = Australian Agency for International Development, ESCAP = Economic and Social Commission for Asia and the Pacific, GMS = Greater Mekong Subregion, JSF = Japan Special Fund, Lao PDR = Lao People's Democratic Republic, PPTA = project preparatory technical assistance, PRCF = Poverty Reduction Cooperation Fund, PRC RPRF = People's Republic of China Regional Cooperation and Poverty Reduction Fund, RCIF = Regional Cooperation and Integration Fund, SME = small- and medium-sized enterprise, SSTA = small-scale technical assistance, TA = technical assistance, TASF = Technical Assistance Special Fund.

Note: For the purpose of this evaluation, Asian Development Bank. 1997. *Special Studies on Selected Operational Issues and Impact Evaluation Study of Rural Roads in the GMS*. Manila (TA 5762-REG, for $450,000, approved on 16 December) is excluded.

Source: Asian Development Bank project management database.

OTHER REGIONAL AND SUBREGIONAL INITIATIVES RELATED TO THE TRANSPORT AND TRADE FACILITATION SECTORS

Initiative	Transport Sector-Related Activities	Trade Facilitation Activities	Potential Overlap with the GMS Program
Association of Southeast Asian Nations (ASEAN) comprising Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei Darussalam, Viet Nam, Lao PDR, Myanmar, and Cambodia	• Agreement on recognition of domestic driving licenses issued by ASEAN countries (1985) • Agreement on the recognition of commercial vehicle inspection certificates for goods vehicles and public service vehicles issued by ASEAN member countries (1998) • Ministerial understanding on the development of the ASEAN Highway Network Project (1998) • ASEAN framework agreement on the development of multimodal transport (2005)	• ASEAN framework agreement on the facilitation of goods in transit (1998) • Agreement on the common effective preferential tariff scheme for the ASEAN Free Trade Area (1992), and related protocol to amend (2003)	ASEAN's initiatives in the transport and trade facilitation sector generally overlap with the GMS Cross-Border Transport Agreement, in terms of aspects of cross-border transport facilitation that are being pursued. These cover (i) cross-border movement of persons (i.e., visas for persons engaged in transport operations); (ii) transit traffic regimes; and (iii) requirements that road vehicles have to meet to be eligible for cross-border traffic.
Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy (ACMECS) among Cambodia, Lao PDR, Myanmar, Thailand, and Viet Nam (CLMTV)	• Development of road linkages under Asian Highway Project (border area and cities along the Asian Highway or economic corridors) • Feasibility study of additional routes and corridors among CLMTV and nearby countries (or intercorridor linkages) • Feasibility study of the cross-country movement of tourist cars among ACMECS countries • Feasibility study of the establishment of road links among Viet Nam–Lao PDR–Myanmar • Feasibility study on the rehabilitation of National Road 78 from Banlung (Rattanakiri) to O Pong Moan (Stung Treng)	• Establishment of wholesale and distribution center in Cambodia, Lao PDR, and Myanmar • One-stop service arrangement at the border gate of CMLTV countries (2004)—overall objective is to facilitate trade and greater economic cooperation as well as promote other social activities such as tourism between CLMTV countries • Formulation of an arrangement between and among the governments of the Kingdom of Cambodia, Lao PDR, Myanmar, Thailand, and Viet Nam on the admittance of tourism vehicles operating on designated routes • Study on facilitation of cross-border movements of goods and passengers among Lao PDR, Myanmar, and Viet Nam on the route Yangon–Meikhtila–Tarlay–Kenglap (Myanmar)–	ACMECS composed of Cambodia, Lao PDR, Myanmar, and Thailand (Viet Nam became a member in 2004) was founded in 2003 with the objective of bridging the economic gap among the member countries, and to promote prosperity in the subregion in a sustainable manner. It also aims to add value to ASEAN and its solidarity. ACMECS takes on the role as a catalyst to build upon existing regional cooperation programs and complement bilateral frameworks with a view to transforming the border areas of the five countries into zones of economic growth. ACMECS activities are complementary to and enhance existing bilateral and regional economic cooperation including the GMS program; deliverable with tangible results, utilizing comparative advantages of each country; feasible and acceptable to the countries concerned; and undertaken on

Initiative	Transport Sector-Related Activities	Trade Facilitation Activities	Potential Overlap with the GMS Program
		Kengkoc–Loungnamtha–Oudomxay–Deptaechang (Lao PDR)–Tay Trang–Ha Noi (Viet Nam)	the basis of voluntarism, consensus, and equitable sharing of benefits.
Asia–Europe Meeting (ASEM) comprising 27 European Union Member States and the European Commission; 16 Asian countries; and the ASEAN Secretariat	No transport-related activity	• Trade Facilitation Action Plan and Investment Promotion Action Plan included working group meetings on (i) customs procedures, (ii) customs enforcement, (iii) intellectual property, (iv) standards and conformity assessment, (v) government procurement, (vi) sanitary and phytosanitary measures, and (vii) investments.	ASEM covers all issues of common interest to Asia and Europe. Its main function is to provide a dialogue platform for member countries to address political, economic, and social/cultural issues. It is also active in various bilateral and multilateral forums. ASEM has notably contributed to improving the international security environment, managing globalization and its effects, and enhancing interregional and international business frameworks. ASEM has also served as a cultural dialogue facilitator and helped to increase mutual understanding through people-to-people contacts. As ASEM is more a platform for dialogue, its thrusts support the ongoing dialogue within the GMS program relating to trade facilitation, environment, and security.
Mekong River Commission (MRC) comprising Lao PDR, Thailand, and Viet Nam	MRC Navigation Program covers maritime shipping and inland waterways. It works through five components: (i) socioeconomic analysis and regional waterborne transport planning; (ii) legal framework for cross-border navigation; (iii) traffic safety and environmental sustainability; (iv) information, promotion, and coordination; and (v) institutional development.	Legal framework for cross-border navigation under the MRC Navigation Program	MRC was established in 1995 through an agreement between the governments of Cambodia, Lao PDR, Thailand, and Viet Nam. The Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin came about as the four countries saw common interest in jointly managing their shared water resources and developing the economic potential of the river. MRC's Navigation Program directly complements the GMS program in transport development. Its focus on maritime shipping and inland waterways fills a gap in the program, which is focused primarily on land transport. However, there have been cases where ADB's non-GMS programs have not been coordinated sufficiently with MRC.

Initiative	Transport Sector-Related Activities	Trade Facilitation Activities	Potential Overlap with the GMS Program
Asia Pacific Economic Forum (APEC) comprising 21 Asia–Pacific countries	APEC Transportation Working Group has initiated operative actions on several areas including (i) aviation emissions; (ii) air cargo security arrangements relating to regulation modeling, and technologies for air cargo security screening; (iii) national road safety strategies and targets; (iv) best practices compendium on motorcycle safety; (v) transport and supply chain security; and (vi) implementation of an efficient, integrated, and sustainable transportation system.	APEC has a broader agenda relating to trade and investment liberalization. It does not have any specific trade facilitation initiative.	APEC's main work focuses on three areas: (i) trade and investment liberalization, (ii) business facilitation, and (iii) economic and technical cooperation. In terms of its program's potential overlap with GMS initiatives, APEC's activities relating to transport and trade facilitation cover a much broader sphere and complement rather than counteract the specific objectives of the program.
Beibu Gulf Rim Cooperation Initiative includes ASEAN countries and the PRC's Guangdong, Hainan, and Guangxi provinces.	This initiative is at an early stage, with focus on development of sea routes. It also intends to develop road corridors between the PRC and the ASEAN countries.	No specific trade facilitation initiatives	The development of the Guangxi Beibu Gulf Economic Zone covers four Chinese cities, namely Nanning, Beihai, Qinzhou, and Fangchenggang. The GMS program has accepted the Beibu Gulf Rim Cooperation Initiative as a partner in regional cooperation.

GMS = Greater Mekong Subregion, Lao PDR = Lao People's Democratic Republic.
Source: Respective websites of the organizations.

FINANCING OF GMS REGIONAL COOPERATION INITIATIVES

1. In line with its mandate, the Asian Development Bank (ADB) aimed at reducing transborder bottlenecks that hinder the development and intensification of backward and forward linkages that can leverage the growth potential of individual countries. ADB has since played a key role in supporting regional cooperation and integration (RCI) in the Greater Mekong Subregion (GMS), Central Asia, South and Southeast Asia, and the Pacific region.

2. Initially, ADB projects that cross national boundaries and require regional cooperation and coordination among one or more countries were largely sourced from individual country assistance programs. The 1994 Regional Cooperation Policy affirmed that existing resources will be allocated based on country priorities and their congruence with ADB objectives for regional cooperation. Meanwhile, transnational projects receive lower priority nationally because of the complexity of dividing up the costs and benefits of regional investments. In 1998, the pursuit to establish a regional economic cooperation facility fell through due to the lack of Asian Development Fund (ADF) resources and the non-eligibility of some member counties to borrow from ordinary capital resources.

3. The stepped-up demand for financing of intraregional, cross-border projects now far exceeds ADB capacity and underscores a need to consider innovative arrangements for funding. The Long-Term Strategic Framework, 2001–2015 has recognized this limitation and proposes development of new funding mechanisms for cross-border regional funding facilities. The Medium-Term Strategy (2001–2005) targeted the development of regional cooperation facilities by 2005. In recent years, ADB has gradually increased the allocation of country portfolios to RCI activities. The proportion of technical assistance (TA) grants allocated to "regional" activities grew from 21% in 2001 to 35% in 2005. The 2006 Regional Cooperation Integration Strategy states that two types of financial resources are needed to effectively implement the strategy: for the lending component, public and private funding in addition to the allowed ordinary capital resources and ADF funds, while new TA facilities would be established for the nonlending component. Recent initiatives that aimed at improving funding for RCI activities include the following:

(i) In December 2004, ADB approved a channel financing agreement with France establishing the Cooperation Fund for Project Preparation in the GMS. With a focus on regional cooperation in the GMS, the $2 million fund is now fully committed.

(ii) In 2005, ADF IX donors allowed funds up to 5% of the total to be allocated for subregional projects (in addition to those under performance-based allocation formula for ADF countries). ADF IX also allowed a grant facility, albeit not exceeding 2%, for financing regional and national public goods.

(iii) ADB approved the channel financing agreement establishing the People's Republic of China Poverty Reduction and Regional Cooperation Fund in March 2005. Of around $20 million, about $8.2 million remained available for commitment as of March 2008. While all developing member countries are eligible, priority has been given to countries that are part of the GMS and the Central Asia Regional Economic Cooperation initiative.

(iv) The Regional Cooperation and Integration Financing Partnership Facility (RCIFPF) was established in February 2007. It aims to facilitate implementation of the 2006 Regional Cooperation Integration Strategy and has two main components: (a) the RCI fund for TA; and (b) RCI trust funds for grant components of investment projects, TA, and other activities that may be agreed upon between aid agencies and ADB. In January 2008, ADB and the

Government of Japan signed an agreement establishing the Investment Climate Facilitation Fund for ¥1,160 million as one of the RCI trust funds under the RCIFPF.

(v) ADB and the Government of the Republic of Korea concluded negotiations on a $3 billion fund for infrastructure development in June 2008. The Republic of Korea has expressed interest in using part of the funds for subregional assistance in the GMS.

(vi) ADF X donors agreed to increase the ADF IX share of 5% to 10% of the total for regional and subregional assistance, including public goods, in July 2008.

REVIEW OF ADVISORY TECHNICAL ASSISTANCE TO THE GMS TRANSPORT AND TRADE FACILITATION SECTORS

1. Since the establishment of the Greater Mekong Subregion (GMS) program in 1992, the Asian Development Bank (ADB) has funded a broad array of technical assistance (TA). In the transport and trade facilitation sectors, ADB has so far approved 56 TA grants amounting to about $31 million. This excludes two core GMS TA operations with transport components. Of the total number, 66% were project preparatory TA. A total of 19 advisory technical assistance (ADTA) operations to date have amounted to about $7.2 million, of which 14 are in transport and 5 are in trade facilitation. The ratings of the ADTA projects are provided in Table A8.1.

2. ADTA in the transport sector can be broadly classified as Cross-Border Transport Agreement (CBTA)-related and transport planning-related. The overall assessment of the TA is summarized in Table A8.2.

3. CBTA-related TA comprises the majority of ADTA to the transport sector. The CBTA has been developed and subsequently implemented through a series of TA grants. The main objective was to set the basic framework for facilitating the freer movement of people, goods, and vehicles across the GMS. TA 5686[1] was first in the series directed toward this aim. Specifically, the TA was designed to (i) identify and assess priority transport-related cross-border issues, (ii) assess the viability of existing international agreements or conventions as possible "solutions" or "responses" to the priority issues, (iii) identify and assess issues that were not addressed by existing international conventions and agreements, and (iv) identify implementation requirements for addressing priority issues. It was comprised of two parts—a study and a seminar. The study was conducted first, and its results were presented at a seminar arranged by the United Nations Economic and Social Commission for the Asia and Pacific (UNESCAP). The study recommended that some of the existing international conventions be modified and new regulations be developed to better suit the unique political/economic circumstances facing the GMS at that time. During the Third Subregional Transport Forum in December 1996, the GMS countries decided to implement the TA's recommendations. The technical assistance completion report (TCR) assessed the TA as generally successful. All the components of the TA have been addressed, and the deliverables have been prepared satisfactorily and on time. The main recommendations of the TA have been largely taken up through the conduct of follow-on TA, and its relevance to the GMS objective has been sustained by the high-level commitment shown by the six GMS countries, ADB, and other aid agencies.

4. TA 5749[2] was considered a "natural" follow-on to TA 5686, with the main objectives of promoting the formulation and implementation of cross-border agreements. The TA comprised two parts: (i) preparation of a basic framework to act as a model agreement for the future development of bilateral and multilateral agreements, and (ii) conduct of country workshops. National transport facilitation committees were also set up in each member country as recommended by the preceding TA. TA 5749 was rated generally successful at completion, its objectives having been sufficiently met. Further, a draft framework agreement for the East–West Transport Corridor involving Thailand, Lao People's Democratic Republic (Lao PDR), and Viet Nam was prepared. The draft agreement was presented at a meeting in Bangkok in December 1998, and 40 of the 44 articles were agreed to at that meeting. The remaining four articles were

[1] ADB. 1996. *Technical Assistance to the Greater Mekong Subregion for the Mitigation of Nonphysical Barriers to Cross-Border Movement of Goods and People.* Manila (TA 5686-REG, for $180,000, approved on 29 May).

[2] ADB. 1997. *Technical Assistance for the Cross-Border Movement of Goods and People in the Greater Mekong Subregion.* Manila (TA 5749-REG, for $550,000, approved on 26 August).

Table A8.1: Summary of GMS Advisory Technical Assistance Projects for Transport and Trade Facilitation Sectors, 1992–2008 (as of 30 April 2008)

TA No.		Project Name	Date Approved	Amount ($'000)	TCR Rating	Financing					
						Relevance (0–3)	Effectiveness (0–6)	Efficiency (0–3)	Sustainability (0–6)	Impact (0–6)	Overall
1.	5686	Mitigation of Nonphysical Barriers to Cross-Border Movement of Goods and People	29-May-96	180	GS	3	4	3	5	5	20
2.	5749	Cross-Border Movement of Goods and People in the GMS	26-Aug-97	550	GS	3	4	3	5	5	20
3.	5850	Facilitating the Cross-Border Movement of Goods and People in the GMS	16-Jul-99	950	S	3	4	1	5	5	18
4.	3348	East–West Corridor Coordination – Lao PDR and Viet Nam	20-Dec-99	690	S	3	4	3	5	5	20
5.	3396	Assessing A Concession Agreement for the Lao PDR: Chiang Rai–Kunming Road Improvement Project	2-Feb-00	150	No TCR	3	3	2	3	3	14
6.	6098	Implementing the Agreement for Facilitation of the Cross-Border Transport of Goods and People in the Greater Mekong Subregion – Phase I	9-Apr-03	800	HS	3	4	3	5	5	20
7.	4142	Preventing HIV/AIDS on Road Projects in Yunnan Province – PRC	23-May-03	—		3	4	3	5	5	20
8.	6134	GMS Southern Coastal Corridor (SSTA)	5-Nov-03	150	No TCR	3	2	2	3	3	13
9.	6193	GMS Infrastructure Connections in Northern Lao PDR (SSTA)	20-Oct-04	150	No TCR	3	2	2	3	3	13
10.	6195	GMS Transport Sector Strategy Study	20-Oct-04	950	No TCR	3	4	3	5	5	20
11.	4645	Restructuring of the Railway in Cambodia	14-Sep-05	—		3	3	3	4	4	17
12.	6307	Implementation of the Greater Mekong Subregion Cross-Border Transport Agreement	6-Mar-06	400		3	4	3	5	5	20
13.	6307	Implementation of the Greater Mekong Subregion Cross-Border Transport Agreement (Supplementary)	27-Oct-06	—		3	4	3	5	5	20
14.	4645	(Supplementary) Restructuring of the Railway in Cambodia	25-May-07	250		3	3	3	4	4	17
15.	6020	Facilitating Cross-Border Trade and Investment for Small and Medium Enterprise Development in the GMS	21-Dec-01	600	S	3	4	3	5	5	20
16.	6228	Facilitating Cross-Border Trade and Investment for SME Development in the GMS (Phase II)	23-Dec-04	600		3	4	3	5	5	20
17.	6231	SSTA to Support Development of the Action Plan on Trade and Investment Facilitation in the GMS	10-Feb-05	150	No TCR	3	4	3	5	5	20
18.	6328	Support to Trade Facilitation and Capacity Building in the GMS	19-Jul-06	650		3	4	3	5	5	20
19.	6450	Enhancing Transport and Trade Facilitation in the GMS	28-Mar-08	—		3	4	3	5	5	20
		Average				**3**	**4**	**3**	**5**	**5**	**19**
				7,220							

GMS = Greater Mekong Subregion, GS = generally successful, HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome, HS = highly successful, Lao PDR = Lao People's Democratic Republic, S = successful, SAPE = sector assistance program evaluation, SSTA = small-scale technical assistance, TA = technical assistance, TCR = technical assistance completion report.
Source: Asian Development Bank technical assistance database.

successfully negotiated, and the agreement was signed by the transport ministries of the three countries on 26 November 1999 in Vientiane, Lao PDR. Similar agreements based on the Framework Agreement have also been proposed for other border-crossing points.

Table A8.2: Overall Bottom–Up Rating of ADTA

Item	Relevance (scale of 0–3)	Effectiveness (scale of 0–6)	Efficiency (scale of 0–3)	Sustainability (scale of 0–6)	Impact (scale of 0–6)	Overall Rating	Description
TA rating	3	4	3	5	5	20	Successful

ADTA = advisory technical assistance, TA = technical assistance.
Source: Operations Evaluation Mission.

5. To give force to the agreements, the GMS stakeholders determined that enabling annexes and protocols also needed to be developed. This was the main objective of TA 5850.[3] Specifically, the TA set out to (i) assist Cambodia and Viet Nam to prepare annexes and protocols for their bilateral agreement; (ii) assist the People's Republic of China (PRC), Lao PDR, Myanmar, and Thailand to prepare and finalize a quadrilateral agreement for the then-proposed Chiang–Rai–Kunming Transport Corridor Project; (iii) assist PRC, Lao PDR, Myanmar, and Thailand to finalize the annexes and protocols to their quadrilateral agreement; (iv) assist Lao PDR, Thailand, and Viet Nam to finalize the annexes and protocols to their trilateral agreement; and (v) prepare CBTA annexes and protocols to cover all the GMS countries. In November 2001, Cambodia acceded to the CBTA; the PRC in November 2002; and Myanmar in September 2003. The CBTA was ratified in all countries and entered into force in December 2003. Twenty annexes and protocols have also been drafted in close consultation with UNESCAP and the Economic Commission of Europe to ensure that they are in line with existing international conventions. At the Eighth Meeting of the GMS Transport Forum held in Phnom Penh (3–4 August 2004), the GMS countries agreed to preempt the ratification of the annexes and protocols by undertaking the initial implementation of the CBTA, on a pilot basis, at key border-crossing points: (i) Lao Bao–Dansavanh; (ii) Poipet–Aranyaprathet, (iii) Mukdahan–Kaysone Phomvihane, (iv) Mae Sot–Myawaddy, (v) Mae Sai–Tachilek, (vi) Bavet–Moc Bai, and (vii) Hekou-Lao Cai. The TA supported the finalization of the memorandum of understanding among the GMS countries to facilitate the implementation of the CBTA at five border-crossing points (1–5 above). Initial implementation commenced at Lao Bao–Dansavanh on 31 June 2005. Mukdahan–Kaysone Phomvihane on (September 2007 as per back-to-office report for regional technical assistance 6307, dated May 2007), and Poipet–Aranyaprathet. The TA was originally expected to be completed in February 2001 but was extended until 31 December 2005, owing to the expansion of its scope to include pilot testing of the CBTA. While the initial proposal was to draft separate agreements and annexes and protocols for each border-crossing point, the process was significantly simplified by the drafting of a common agreement and a common set of annexes and protocols. The TCR assessed the TA as very successful.

6. To maintain the momentum of the implementation of the CBTA, two regional technical assistance grants were approved: TA 6098[4] in 2003 and TA 6307[5] in 2006. The specific

[3] ADB. 1999. *Technical Assistance for Facilitating the Cross-Border Movement of Goods and People in the Greater Mekong Subregion.* Manila (TA 5850-REG, for $950,000, approved on 16 July).

[4] ADB. 2003. *Technical Assistance for Implementing the Agreement for Facilitation of the Cross-Border Transport of Goods and People in the Greater Mekong Subregion – Phase I.* Manila (TA 6098-REG, for $800,000, approved on 9 April).

[5] ADB. 2006. *Technical Assistance for the Implementation of the GMS Cross-Border Transport Agreement.* Manila (TA 6307-REG and TA 6307-REG Supplementary, for $400,000 and $1 million, respectively, approved on 6 March 2006 and 27 October 2006).

objectives of TA 6098 were to assist the GMS governments in (i) negotiating and finalizing the set of critical annexes and protocols to the CBTA, and (ii) implementing critical cross-border transport facilitation measures at key border crossings. Meanwhile, TA 6307 was designed to support the accelerated implementation of the CBTA at key border crossings. Moreover, it aimed to (i) finalize arrangements for CBTA implementation at a second set of border crossings, (ii) provide recommendations to maximize benefits and address limitations of the implementation of the CBTA, and (iii) strengthen the national transport facilitation committees in all GMS countries. The original completion date of TA 6098 was extended by 2 years to 31 December 2006 as a result of an expansion of its scope to accommodate the request of the GMS countries for assistance in the negotiation and finalization of all the annexes and protocols of the CBTA, 16 of which had already been signed. The remaining four documents, finalized in November 2005, were signed in March 2007 on the occasion of the Second GMS CBTA Joint Committee Meeting. Under the TA, a study on transit charges was conducted jointly with UNESCAP. The study helped in finalizing Protocol 2 of the CBTA, one of the most sensitive annexes, as it deals with road user charges for transit traffic. The study provided guidance on the appropriate level of transit fees to be applied for transit routes covered under the CBTA. Other major achievements under the TA included the (i) conduct of training on customs-related issues for GMS officials to strengthen their capacity, (ii) conduct of national workshops in the six GMS countries on the subject of establishing a guaranteeing and issuing organization; and (iii) preparation of an operations manual for implementation of the CBTA at the border crossing at Lao Bao and Dansavanh between Viet Nam and Lao PDR. The TA was rated highly successful by the TCR.

7. To reinforce the outcomes achieved from the previous TA, several activities have been programmed under TA 6307, and to date, significant progress has already been achieved on various fronts. The most notable are the (i) finalization and negotiation of the GMS Customs Transit System (GMS System) covering Thailand, Lao PDR, and Viet Nam along the East–West Corridor; (ii) finalization and training of border officials in the use of the Operations Manual for CBTA implementation at Lao Bao–Dansavanh; (iii) finalization of the National Action Plan for the PRC; and (iv) implementation of the CBTA at Hekou–Lao Cai. Negotiations are also ongoing for the inclusion of the Huu Nghi–Youyiguan border-crossing point in the CBTA scope. Capacity-building needs have been identified and coordinated with other development partners (i.e., Australian Agency for International Development). Moreover, the commitment of GMS countries to the ratification of all CBTA annexes and protocols was obtained in time for the Third GMS Summit in March 2008.

8. While most of the completed TA operations were rated successful or highly successful by the TCRs, some weaknesses in their design can now be discerned in light of the issues and complications encountered in CBTA implementation. For example, the preparation of the CBTA annexes and protocols under TA 5850 was not sufficiently supported by an analysis of the context in which these regulations were expected to operate. Legal, institutional, and other impediments had been considered and addressed only as they were encountered. It seemed that the objective, then, was narrowly focused on having the countries sign and ratify the CBTA legal documents, while there was little understanding among the members of what they needed to do to make these agreements operational. A case in point is the planned initial implementation of the CBTA at Mukdahan in Thailand and Kaysone Phomvihane in the Lao PDR. Signing of the memorandum of understanding to effect the CBTA at the border crossing has been put off a couple of times, because extraterritorial inspection by Thai officials, required under the single-window model, is not allowed under Thai law. Also with regard to other matters such as the conduct of necessary capacity building of border officials and the formulation of cross-border operational guidelines, the piecemeal approach to dealing with the needs and

issues has adversely affected the overall efficiency of the implementation process. In hindsight, the programming of activities under the succeeding TA, including TA 6098 and TA 6307, could have been greatly sharpened if an adequate diagnostic study has been carried out before implementation. This could also have given more substantial backing to the formulation of the enabling annexes and protocols to determine the necessary conditions and agreements that each country should fulfill to implement the CBTA at its borders.

9. Nevertheless, the objectives set forth by these TA operations remain highly relevant to the GMS program and the GMS Transport Strategy's objective of developing a fully connected and integrated GMS transport network. The continued support provided by ADB through the conduct of these TA operations has ensured the high-level commitment not only of the GMS countries, but also of other international agencies and stakeholders.

10. TA operations related to transport systems planning has so far been limited to two TA grants: TA 5535[6] approved in 1993 and TA 6195[7] approved in 2004. TA 5535 was the second in the series of core TA grants under the GMS program. The TA involved, among others, an in-depth subregional study of the transport sector and a feasibility study of one subregional road project (Bangkok–Phnom Penh–Ho Chi Minh City–Vung Tau Road Project). The outcome of the subregional transport sector study was the Transport Master Plan, which was adopted in 1995. The plan identified priority transport links, which were subsequently implemented. These included the North–South, East–West, and Southern corridors. An important addition to the plan was the economic corridor concept, adopted in 1998. The concept aims to focus all investment projects, including those in energy, tourism, and telecommunications, in targeted geographic locations to their maximize development impact. However, the GMS has undergone significant transformations since 1995 as a result of general changes in the policy landscape in the subregion, economic development, and technological advances. Moreover, demand for transport services in the subregion has risen steadily owing to sustained economic growth in the past decade. This has prompted a change in the approach to transport sector development, to think beyond enabling cross-border traffic to enhancing the capacity and efficiency of a subregional transport network.

11. TA 6195 sought to address this gap in transport systems planning. The TA was designed to develop a clear vision and a comprehensive strategy for development of a GMS transport network to be achieved through the development of a GMS-wide multimodal transport system. Specifically, the TA was expected to provide the GMS countries with a common, medium-term, regional framework within which their own national activities could be planned and implemented. It was also expected to provide development partners with an objective basis for informed decision making with respect to programming and financing. The major outcome of the TA was the endorsement of the GMS Transport Strategy[8] by the GMS countries in 2006. The GMS Transport Strategy lays out (i) a pipeline of transport projects and programs that will help create an integrated GMS transport network, (ii) a plan for the mobilization of resources needed to finance these projects from the private as well as public sectors, and (iii) policies and institutions that will lead to the creation and sustaining of an efficient GMS transport network. No TCR is available yet for the TA.

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[6] ADB. 1993. *Technical Assistance for Promoting Subregional Cooperation Among Cambodia, the People's Republic of China, Lao People's Democratic Republic, Myanmar, Thailand, and Viet Nam.* Manila (TA 5535-REG, for $4 million, approved on 10 June).

[7] ADB. 2004. *Technical Assistance for Greater Mekong Subregion Transport Sector Strategy Study.* Manila (TA 6195-REG, for $950,000, approved on 20 October).

[8] ADB. 2007. *GMS Transport Strategy 2006–2015 Coast to Coast and Mountain to Sea: Towards Integrated Mekong Transport Systems.* Manila.

Table A8.3: Summary of Individual GMS Advisory Technical Assistance to the Transport and Trade Facilitation Sectors

Project	Objectives	TA Process/Inputs	Status/Outputs	Assessment
RETA 5686: Mitigation of Non-Physical Barriers to Cross-Border Movement of People and Goods (approved on 29 May 1996 for $180,000 with $28,000 cofinancing from UNESCAP)	Define the magnitude of cross-border problems and identify possible means of overcoming them.	Conduct a study to identify cross-border problems and corresponding solutions and present findings at a seminar to be participated in by representatives from GMS countries and relevant international agencies such as UNESCAP and ECE.	Completed	The TA was considered by the TCR as generally successful. The study was deemed comprehensive although the consultants found the timeframe for the output too short to conduct more rigorous research.
RETA 5749: Cross-Border Movement of Goods and People in the GMS (approved on 26 August 1997 for $550,000 with $140,000 cofinancing from UNESCAP)	• Prepare a basic framework to act as a model agreement for the future development of bilateral and multilateral agreements. • Conduct country workshops to disseminate information on the problems related to cross-border movements and to present possible solutions.	Conduct a study and facilitate country meetings to help prepare the Framework Agreement.	Completed	The TA was considered by the TCR as generally successful.
RETA 5850: Facilitating the Cross-Border Movement of Goods and People in the GMS (approved on 16 July 1999 for $950,000)	• Assist Cambodia and Viet Nam to prepare annexes and protocols for their bilateral agreement. • Assist PRC, Lao PDR, Myanmar, and Thailand to prepare and finalize a quadrilateral agreement for the proposed Chiang Rai–Kunming Transport Corridor Project. • Assist PRC, Lao PDR, Myanmar, and Thailand to finalize the annexes and protocols to their quadrilateral agreement. • Assist Lao PDR, Thailand, and Viet Nam to finalize the annexes and protocols to their quadrilateral agreement. • Prepare CBTA annexes to cover all GMS countries.	To complement the RETA projects (5686 and 5749) previously provided to assist Thailand, Lao PDR, and Viet Nam in drafting, negotiating, and finalizing the GMS CBTA, the RETA provided resources to support the accession of Cambodia, PRC, and Myanmar to the CBTA. The TA assisted in drafting 20 annexes and protocols, with close consultation with UNESCAP and ECE. The TA conducted tripartite meetings to finalize MOU to implement the CBTA at five border-crossing points: (i) Lao Bao–Dansavanh, (ii) Aranyaprathet–Poipet, (iii) Mukdahan–Kaysone	Completed. The GMS CBTA was finalized and signed by the transport ministries of Lao PDR, Thailand, and Viet Nam in November 1999. Cambodia acceded to the CBTA in November 2001, the PRC in November 2002, and Myanmar in September 2003. The CBTA was ratified by all six countries and entered into force in December 2003. Implementation commenced at Lao Bao–Dansavanh on 31 June 2005.	TA was rated very successful. The objectives were met, and envisaged outputs were achieved. The close consultations with other relevant agencies such as UNESCAP and ECE ensured that the drafted annexes and protocols were in line with the relevant international conventions, such as Convention on Road Traffic, Convention on Road Signs/Signals, and Customs Convention on Road Traffic.

Project	Objectives	TA Process/Inputs	Status/Outputs	Assessment
		Phomvihane, (iv) Mae Sai–Tachilek, and (v) Mae Sot–Myawaddy.		
RETA 3348: East–West Corridor Coordination (approved on 20 December 1999; $690,000)	• Coordinate and monitor the implementation of the transport infrastructure investments in the East–West Corridor. • Assist in establishing appropriate operation and maintenance arrangements for the Mekong River bridge and Road 9, including the setting of the bridge toll structure and transit fees. • Study the potential adverse environmental and social impacts related to the improvement of cross-border mobility, and recommend mitigation and enforcement measures.	The TA was originally conceived to be implemented through a single firm. However, implementation arrangements were changed into four separate TORs contracted under individual consultancy contracts. A further change was approved to include a contract for an individual to provide training in support of implementing the Financial Management System (FMS).	Completed. The TA generated several outputs that culminated in the presentation of the final report on 9 January 2007. Individual reports and recommendations were made under the five subdivisions of the TA as follows: • Under the Project Coordination Section, the services provided assistance in coordinating the envisaged improvements to all sections of the East–West Corridor. • Under the Environmental and Social Governance Section, assistance was provided in the preparation of resettlement plans, and future tasks were identified for the Environmental and Social Division of the Department of Roads, as part of a capacity building strategy. • A study was undertaken on Transit Fee and Tolling of Routes 3 and 9 in the Lao PDR that proposed toll fees for the East–West Corridor. • A report on Public–Private Participation in the East–West Corridor was prepared, which identified that opportunities would be limited until traffic on the corridor increased. • Training was undertaken on the implementation of an FMS for both the Ministry of Communication, Transport, Post, and Construction (MCTPC) and provincial departments.	The TA is rated successful overall, with the assistance to MCTPC providing a positive contribution to the administration, management, monitoring, and implementation of the various sections of the East–West Corridor Project. The training for MCTPC and DCTPC staff in the FMS was also considered to be successful.
TA 3396-LAO: Assessing a Concession Agreement	The objective of the TA was to assist the Government with			No other TA report is available.

Project	Objectives	TA Process/Inputs	Status/Outputs	Assessment
for Lao PDR: Chiang Rai–Kunming Road Improvement Project (approved on 2 February 2000; $150,000)	preparing a basis for future negotiations between the Government and the Economic Quadrangle Joint Development Corporation (EQJDC) Thai investors, should the Government decide to proceed with acquiring the shares of the Thai partner. The scope of the TA included • valuation of EQJDC's assets and liabilities based on internationally accepted standards and methods; • estimating EQJDC'S net worth as of 31 January 2000, and pricing its shares; • recommend a strategy that could result in the Government acquiring the Thai partner's shares in the company; and • assisting the Government with arranging meetings in Vientiane to review the consultants' evaluation, including meetings to be attended by representatives of EQJDC.			
RETA 6020: Facilitating Cross-Border Trade and Investment for Small and Medium Enterprise Development in the GMS (approved on 21 December 2001; $600,000)	The objective of the TA is to promote the competitiveness of the GMS through cross-border trade and investment facilitation, which will benefit small- and medium-sized enterprises (SMEs) in the region. It consisted of three components: • **Component 1**: Development of a cross-border trade and information system • **Component 2:** Development of products and services to be	**Component 1*:*** The outline TOR called for one consultant (regional trade economist) for 5 months. **Component 2:** The outline called for one consultant (business development specialist) for 3 months. The first consultant was hired in August 2002 for a period of 1 month. Two subsequent consultants hired over 2003 indicated a preference to move on to other projects after a 1 month input. A	**Component 1:** The consultant developed a database framework, available data CD to provide statistics on exports and imports at each border checkpoint. Associated with these trade statistics are the tariff schedules of each GMS country, classified in accordance with the World Trade Organization and World Customs Organization standards and others such as the Association of Southeast Asian Nations (ASEAN) Harmonized Tariff Nomenclature to describe most favored nation rates and for ASEAN Free Trade	The TCR rated the RETA successful. The GMS countries indicated their agreement with the development of the database on cross-border trade and investment; however, data were provided slowly and were inconsistent. The maintenance of such a database is costly and requires dedicated staff time in each of the GMS countries and ADB. The framework is available for further development by ADB or another aid agency, as is the CD

Project	Objectives	TA Process/Inputs	Status/Outputs	Assessment
	provided to SMEs by a new regional institution, the GMS-Business Forum • Component 3 - implementation of single-stop customs inspection (SSCI) at six cross-border pilot sites through at least two workshops, and the training of cross-border staff on the implementation of SSCI.	fourth consultant, hired in March 2004 on an intermittent 3.5 month basis until May 2005, developed a successful and credible corporate governance guideline that was adopted by the six regional chambers of commerce and industry in April 2004. The final consultant's performance was satisfactory. **Component 3:** The outline called for one consultant (trade/customs facilitation specialist) for 4 months. The first consultant was hired on an intermittent basis over the period April–December 2002 to review and provide TORs on streamlining of customs procedures, documentation, as well as regulations to facilitate the implementation of SSCI. A second and third provided a series of four workshops on the specifics of SSCI implementation together with supporting manuals provided on a quarterly basis over 2003–2004. The consultants' performance was satisfactory.	Agreement. **Component 2:** The consultant developed the (i) Constitution that allowed for the legal registration of the GMS Business Forum (GMS-BF) as an NGO in the Lao PDR, (ii) GMS-BF corporate governance handbook and related procedures for the board of directors, (iii) implementation schedule of GMS-BF fee-based thematic conferences to support ADB's GMS program, (iv) training of GMS-BF staff on implementation of thematic conferences, and (v) development of a budget projection for review by the GMS-BF board of directors on a periodic basis. **Component 3:** The GMS customs, inspection, quarantine, and security agencies were provided with 4 awareness-raising workshops and 10 implementation manuals on modalities to operationalize SSCI at four GMS cross-border checkpoints.	containing the available data sets. Medium-term sustainability will require the development of user-based search fees. The GMS-BF has implemented fee-based trade and investment conferences with the strong approval of the core members, the regional chambers of commerce and industry, and the GMS policymakers as well as international corporations who are also conference sponsors. Each conference has generated profit for the GMS-BF. The GMS countries reached agreement on first stage implementation of SSCI at the Lao PDR–Viet Nam border site.
RETA 6098: Implementing the Agreement for Facilitation of the Cross-Border Transport of Goods and People in the Greater Mekong Subregion-Phase I (approved on 9 April 2003; $800,000)	The RETA's specific objectives were to assist the GMS governments in (i) negotiations and signature of a set of critical annexes and protocols to the CBTA, and (ii) implementation of critical cross-border transport facilitation measures at border crossings. The expected outputs of the RETA were • a set of signed key annexes and protocols, • GMS officials trained in relevant aspects of cross-	The RETA was developed as a follow-up to RETA grants 5686, 5749, and 5850, which provided assistance to GMS countries in drafting, negotiating, and finalizing the CBTA involving the GMS countries. A consulting firm was engaged to help implement the activities of the RETA. The consultants engaged provided the necessary expertise to support the different aspects of the RETA. Local	Completed. The RETA assisted in finalizing and negotiating the 20 annexes and protocols. The RETA also (i) assisted convening the First CBTA Joint Committee Meeting in Phnom Penh, Cambodia, in April 2004; (ii) provided guidance on the appropriate level of transit fees to be applied for transit routes covered under the CBTA; (iii) conducted training, in cooperation with the International Cooperation Department of the General Administration of	The RETA was assessed by the TCR to be highly successful and considered to have achieved more than its original objectives.

Project	Objectives	TA Process/Inputs	Status/Outputs	Assessment
	border transport facilitation, and • guidelines and manuals concerning cross-border transport facilitation measures.	consultants were also engaged to provide assistance to the National Transport Facilitation Committee (NTFC) in each country in undertaking the administrative, logistical, and coordination work.	Customs of the PRC, on customs-related issues for GMS officials to strengthen their capacity as they prepare to implement the CBTA at key border-crossing points; (iv) assisted in the conduct of national workshops in the six GMS countries on the subject of establishing a guaranteeing and issuing organization; and (v) assisted in the preparation of an operations manual for implementation of the CBTA at the border crossing at Lao Bao and Dansavanh between Viet Nam and Lao PDR.	
TA 4142-PRC: Preventing HIV/AIDS on Road Projects in Yunnan Province (approved 23 May 2003; funded by PRCF)	Reduce the risk of transmission of HIV and STIs among construction workers, commercial sex workers (CSWs), truck drivers, and local resident communities, particularly the vulnerable poor and minorities.	• Advocacy actions on HIV/AIDS prevention program • Design of information and education campaigns and wide dissemination of HIV/AIDS and STI information • Selection of peer educators from construction workers, CSWs, and local communities, and trained to achieve deep-rooted, effective behavior change and provision of health services • Condoms to be made available free of charge during the first implementation year • Training of health workers in STI management and voluntary testing and counseling in order to ensure efficient, quality, and client-friendly services • Clinical and behavior data collection once a year	Ongoing. Expected outputs include • increased awareness about HIV/AIDS and STIs among local communities, road contractors, and the road transport business communities; • behavior change among construction workers, CSWs, and local communities; • increased knowledge of safe sex practices and use of condoms; • provision of HIV/AIDS and STI prevention services at the contractors' worksites and within the resident communities; and • an improved HIV/AIDS and STI monitoring system including epidemiological surveillance.	Progress on most project activities is according to schedule. Currently rated satisfactory. On the main project components: • advocacy-dissemination workshop was conducted, sharing experiences in local, national, international, and regional forums; • behavior change-strategies to reach the groups at risk have proven to be effective and coverage has expanded to new sites and villages along the highway; • condom social marketing-activities have expanded coverage, and 57 distribution sites are established; about 85,000 condoms have been distributed; • health service delivery needs more attention, quality of STI services remain poor, and model STI clinics are of poor quality; and • monitoring and evaluation: routine data collection continuing.

Project	Objectives	TA Process/Inputs	Status/Outputs	Assessment
RETA 6134: GMS Southern Coastal Corridor (approved on 5 November 2003; $150,000)	The objective of the RETA was to carry out a prefeasibility study for the Southern Coastal Corridor Project.	Key inputs included • review of the transportation network and pipeline of transport projects in the project area, • preparation of an initial evaluation of poverty and social issues, • preparation of a forecast for traffic flows across the international borders in the southern coastal region by main commodities and passenger, • preliminary assessment of the potential for economic corridor development and usage characteristics of the existing sections of the project road, • assessment of project implementation issues, • preparation of preliminary environmental and social impact assessment, and • a preliminary economic evaluation.	Outputs from the RETA included detailed routing and status of the components of the project in Cambodia, Thailand, and Viet Nam, and an initial evaluation of the viability of the project in terms of the project as a whole and the individual components in Viet Nam.	No TCR. The Southern Coastal Corridor Project was subsequently prepared by a PPTA (TA 6235 approved on 10 March 2005 for $1 million), which established the viability of the project initially evaluated under the RETA. The project was approved on 28 November 2007 and became effective on 29 May 2008.
RETA 6193: GMS Infrastructure Connections in Lao PDR (approved on 20 October 2004; $150,000)	Identify priority infrastructure projects that are consistent with regional needs across the northern GMS and the development strategy for the northern region of the Lao PDR.	Initial evaluations were undertaken to confirm the technical, economic, social, and environmental viability of the selected projects. The results from the SSTA were presented to stakeholders before selected high-priority projects were taken up under PPTA for full project preparation.	Key outputs include a proposal for a transport project to be prepared under the proposed Northern GMS Transport Network Improvement Project PPTA, and identification of potential power projects that could be taken up under the proposed GMS Northern Region Power Supply Project PPTA.	No TCR.
RETA 6195: GMS Transport Sector Strategy Study (approved on 20 October 2004 for $950,000)	• Provide the GMS countries with a common, medium-term, and regional framework within which their own national activities can be planned and implemented;	• Consultation with a broad range of stakeholders; • Analysis of transport demand and supply constraints; • Identification of priority projects, policies, programs,	Completed. A GMS-wide multimodal transport strategy was developed, which include • an identified pipeline of transport projects and programs that will help create an integrated GMS	The strategy is silent on several important issues, such as environmental and social impacts, as well as private sector participation in transport—financing, operations, and

Project	Objectives	TA Process/Inputs	Status/Outputs	Assessment
	and • Provide development partners with an objective basis for informed decision making with respect to programming and financing.	and institutional actions in 2006–2015; and • Dissemination of study results.	transport network, • strategy to mobilize resources needed to finance these projects from the private as well as public sectors, and • design of policies and institutions that will lead to the creation and sustaining of an efficient GMS transport network.	maintenance.
RETA 6228: Facilitating Cross-Border Trade and Investment for SME Development in the GMS-Phase II (approved on 23 December 2004; $600,000)	The primary purpose of the TA is to promote the competitiveness of GMS enterprises by (i) supporting a revitalized organizational model of the GMS-BF to facilitate a mainstreamed, institutionalized, and systematic policy dialogue between governments and the private sector on ways to promote trade and investment in the GMS; (ii) undertaking a study of the trade logistics network along selected economic corridors for review by the GMS-BF and the GMS working groups; and (iii) strengthening the development of sustainable, probusiness services in the GMS-BF.		Ongoing. Expected outputs include • development of the GMS-BF into a sustainable and value-added business service provider; • Trade Logistics Study and Review of Policy Coordination and Project Development to Overcome Constraints; and • information search tool to overcome existing information inadequacies on investments in the GMS.	Implementation is currently rated satisfactory.
RETA 6231: SSTA to Support Development of the Action Plan on Trade and Investment Facilitation in the GMS (approved on 10 February 2005; $150,000)	Strengthen economic and trade cooperation and promote integration within the GMS, and with countries outside the region, through facilitating the free movement of goods and people.		Completed. Outputs included • a strategic framework and an action plan for trade and investment facilitation in the GMS, and • a special trade facilitation working group meeting.	No TCR.
TA 4645-CAM: Restructuring of the Railway in Cambodia (approved on 14 September 2005;	The objective of the TA was to provide the framework for restructuring the railway and establishing a new PPP railway operator to provide efficient		TA is ongoing. Expected outputs include • a strategy and action plan for approval of the Government;	

Project	Objectives	TA Process/Inputs	Status/Outputs	Assessment
financed by the Government of France; supplementary financing amounting to $250,000 was approved on 25 May 2007)	freight transport services on the restored railway infrastructure.		• transaction advisory—preparation, public bidding, and closure of contract for PPP operator including full public documentation of the process; • TA to (i) establish a depository holding authority for railway land and infrastructure assets, and (ii) establish an independent transport regulatory authority.	
RETA 6307: Implementation of the GMS Cross-Border Transport Agreement (approved on 6 March 2006 for $400,000 with $400,000 cofinancing from PRCF and $1,000,000 supplementary financing from AusAID approved on 6 October 2006)	TA objective is to contribute to rapid and sustainable economic growth resulting from increased trade and investment. The expected outcomes are • increased cross-border trade at border crossings covered by the CBTA; • reduced nonphysical barriers to the cross-border movement of goods, vehicles, and people; and • improved capacity for sustainable implementation of the CBTA.		Ongoing. The TA outputs expected are • shortened border crossing clearance times at key border crossings, • finalized arrangements for CBTA implementation at a second set of border crossings, • recommendations to maximize benefits and address limitations of the implementation of the CBTA, and • strengthened national transport facilitation committees.	The pilot implementation of the CBTA is ongoing. The results of the implementation will decide the success of this TA.
RETA 6328: Support to Trade Facilitation and Capacity Building in the GMS (approved on 19 July 2006; $650,000)	Promote integration within the GMS and with countries outside the region by facilitating the movement of goods and people and by building capacity for development and application of trade-related policy. Part 1 of the TA aims to assist the GMS countries to implement the Strategic Framework for Action on Trade Facilitation and Investment (SFA-TFI). Part 2 aims to assist in capacity building.	TA was designed to include analytical work and workshops. It is expected to explore (i) collaboration and coordination with international organizations; and (ii) related initiatives under other regional cooperation programs, such as the ASEAN and the Ayeyawady–Chao Phraya–Mekong Cooperation Strategy (ACMECS) and private sector stakeholders.	Ongoing. Expected outputs include **Part 1** • national plans or road maps - time-bound and coordinated at the regional level through the Trade Facilitation Working Group (TFWG); • a regional work program for the TFWG for implementing the SFA-TFI; • national institutional mechanisms for coordinating the SFA-TFI, including strengthening of the trade facilitation focal point and core teams; and • identification of capacity-building and training needs, as well as	Implementation is currently rated satisfactory.

Project	Objectives	TA Process/Inputs	Status/Outputs	Assessment
			targeted training activities. **Part 2** • institutional strengthening of International Institute for Trade and Development (ITD); • development of materials and training modules; • training of regional trainers; • support for the development of networks, information systems, and information dissemination; and • enhancement of the capacity of ITD and GMS countries to undertake specific research.	
RETA 6450: Enhancing Transport and Trade Facilitation in the GMS (approved on 28 March 2008; financed by RCIF, Australia, PRC RPRF)	The impact of the RETA is to improve the competitiveness of GMS countries. The envisaged outcome of the RETA is more efficient movement of goods and people in the GMS, and between the GMS and the rest of the world. The RETA will undertake a series of activities centered on the following four areas: • transport facilitation, • sanitary and phytosanitary measures, • business and logistics support, and • regional information sharing.	The RETA is to support overall institutional capacity building to strengthen transport and trade facilitation in the GMS, and will work closely with relevant regulatory agencies with competency in these matters, including customs and sanitary and phytosanitary agencies. **Inputs:** 46 international and 62 national person-months of consultant services, for a total of about 108 person-months; equipment: $0.050 million; miscellaneous administrative and support cost: $0.010 million; meetings, workshops, training, surveys and studies: $0.215 million.	TA approved and effective 28 March 2008.	

ADB = Asian Development Bank; AusAID = Australian Agency for International Development; CBTA = Cross-Border Transport Agreement; DCTPC = Department of Communication, Transport, Post, and Construction; ECE = Economic Commission for Europe; GMS = Greater Mekong Subregion; HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome; Lao PDR = Lao People's Democratic Republic; MOU = memorandum of understanding; NGO = nongovernment organization; PPP = public–private partnership; PRC RPRF = People's Republic of China Regional Cooperation and Poverty Reduction Fund; PRCF = Poverty Reduction Cooperation Fund; PPTA = project preparatory technical assistance; RCIF = Regional Cooperation and Integration Fund; RETA = regional technical assistance; SME = small- and medium-sized enterprise; SSTA = small-scale technical assistance; STI = sexually transmitted infection; TA = technical assistance; TCR = technical assistance completion report; TOR = terms of reference; UNESCAP = United Nations Economic and Social Commission for Asia and the Pacific.
Source: Asian Development Bank technical assistance database.

DIRECTION OF TRADE
Source: Excerpt from ADB Paper – *The Mekong Region: Trade Trends, Patterns, and Policies (2007)*

1. The Greater Mekong Subregion (GMS) countries' share of trade among themselves, and especially with the People's Republic of China (PRC), has risen sharply over the past decade (Figure A9.1). Their share of trade with non-GMS Association of Southeast Asian Nations (ASEAN) Free Trade Area (AFTA) countries has also risen, while that with other East Asian economies and the rest of the world has declined. The shares of both exports and imports follow this pattern, although it is more notable for imports. In spite of the rise in intra-GMS trade shares, however, countries outside the ASEAN region are the GMS countries' largest trading partners, reflecting their size and higher level of development.

2. Much of this trend in the geographic orientation of trade reflects change in the trade share of Thailand, the largest trader among the GMS countries, excluding the PRC (Figure A9.2). For the smaller countries, there are marked differences.

3. The share of Cambodia's trade with other GMS countries, excluding the PRC, and with non-GMS AFTA countries fell over the past decade.[1] Its share of exports destined to all regional groupings declined with its specialization in garments, most of which are sold in the United States and, to a lesser extent, the European Union. The pattern of trade is closely related to that in foreign direct investment (FDI). Most of the FDI in Cambodia's garment sector originates in the PRC and other East Asian economies. These economies' importance as a source of imports has risen over the past decade.

4. The Lao People's Democratic Republic (Lao PDR) is the most dependent on the GMS for its trade, partly reflecting its landlocked geography. As the country becomes more linked with regional and global economies with improvements in cross-border infrastructure and greater market access, this dependence on the subregion is declining, albeit from a high base. About 60% of its imports came from Thailand in 2004–2005, and another 20% from Viet Nam and the PRC. These three countries, especially Thailand, also account for the bulk of the FDI in the Lao PDR, underscoring, as in Cambodia, the relationship between FDI and trade. With the rise in its garment exports to the European Union over the past decade, the share of its exports to the GMS has fallen, although it remains significant.

5. Viet Nam's trade with other GMS countries rose notably over the past decade, reflecting primarily the PRC's increasing importance as an export market and as a source of imports. As access to markets in the European Union and, more recently, the United States, increased, their share in Viet Nam's exports also rose. The share of trade with non-GMS AFTA and other East Asian economies declined over the past decade, but they remain important trading partners, especially as a source of imports.

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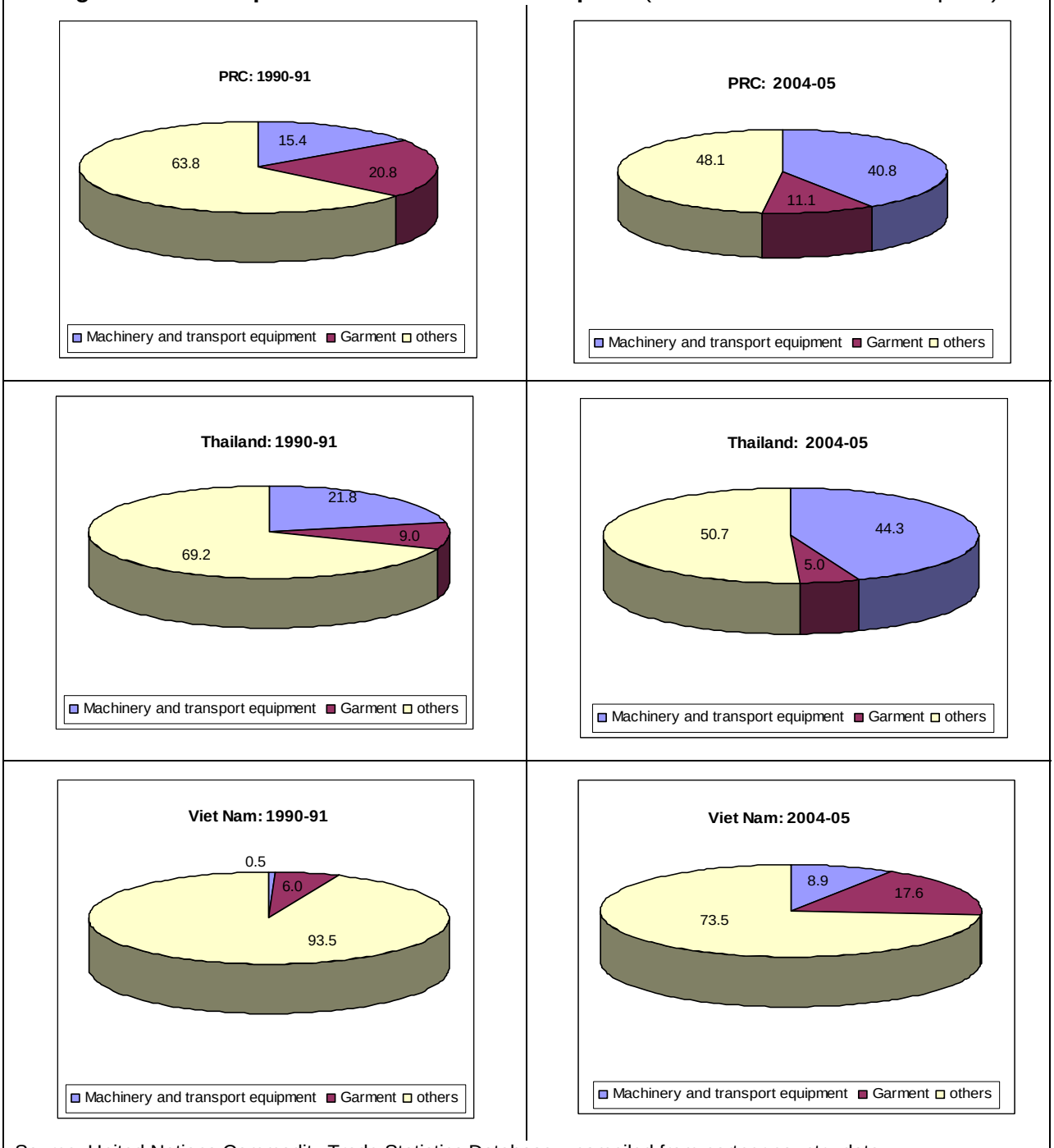
[1] GMS economies' market access to ASEAN, as well as the United States and the European Union, has mostly been determined by Most-Favored-Nation agreement, rather than preferential, tariff rates. The rate of utilization of the Common Effective Preferential Tariff (CEPT) rates under AFTA is low, as ASEAN countries have historically lowered their Most-Favored-Nation rates along with their CEPT rates, and the difference between the two is not significant enough to compensate for the administrative complexity of complying with rules of origin requirements (Baldwin, Richard E. 2007. "Managing the Noodle Bowl: The Fragility of East Asian Regionalism." *ADB Working Paper Series on Regional Economic Integration No. 7*. Manila; and Feridhanusetyawan, Tubagus. 2005. Preferential Trade Agreements in the Asia–Pacific Region. *IMF Working Paper WP/05/149*. Washington, DC). Under the AFTA/CEPT scheme, by 2003, the first six members of ASEAN had more than 99% of tariff items in the inclusion list on which tariffs were reduced to 0–5% rate. The average tariff rate on items in the inclusion list had declined to 1.87% as of May 2006 from 12.76% in 1993, the first year of implementation of AFTA. The Cambodia–Lao PDR–Myanmar–Viet Nam countries had 91% of all their products in the inclusion list as of May 2006. Viet Nam was scheduled to reduce the tariff rate on the items in its inclusion list to 0–5% by 2006, Lao PDR and Myanmar by 2008, and Cambodia by 2010. All tariff preferences are scheduled to be reduced to zero by 2010 for the first six ASEAN members and by 2015 for the Cambodia, Lao PDR, Myanmar, and Viet Nam (ASEAN Secretariat. 2006. *ASEAN Annual Report 2005–2006*. Jakarta).

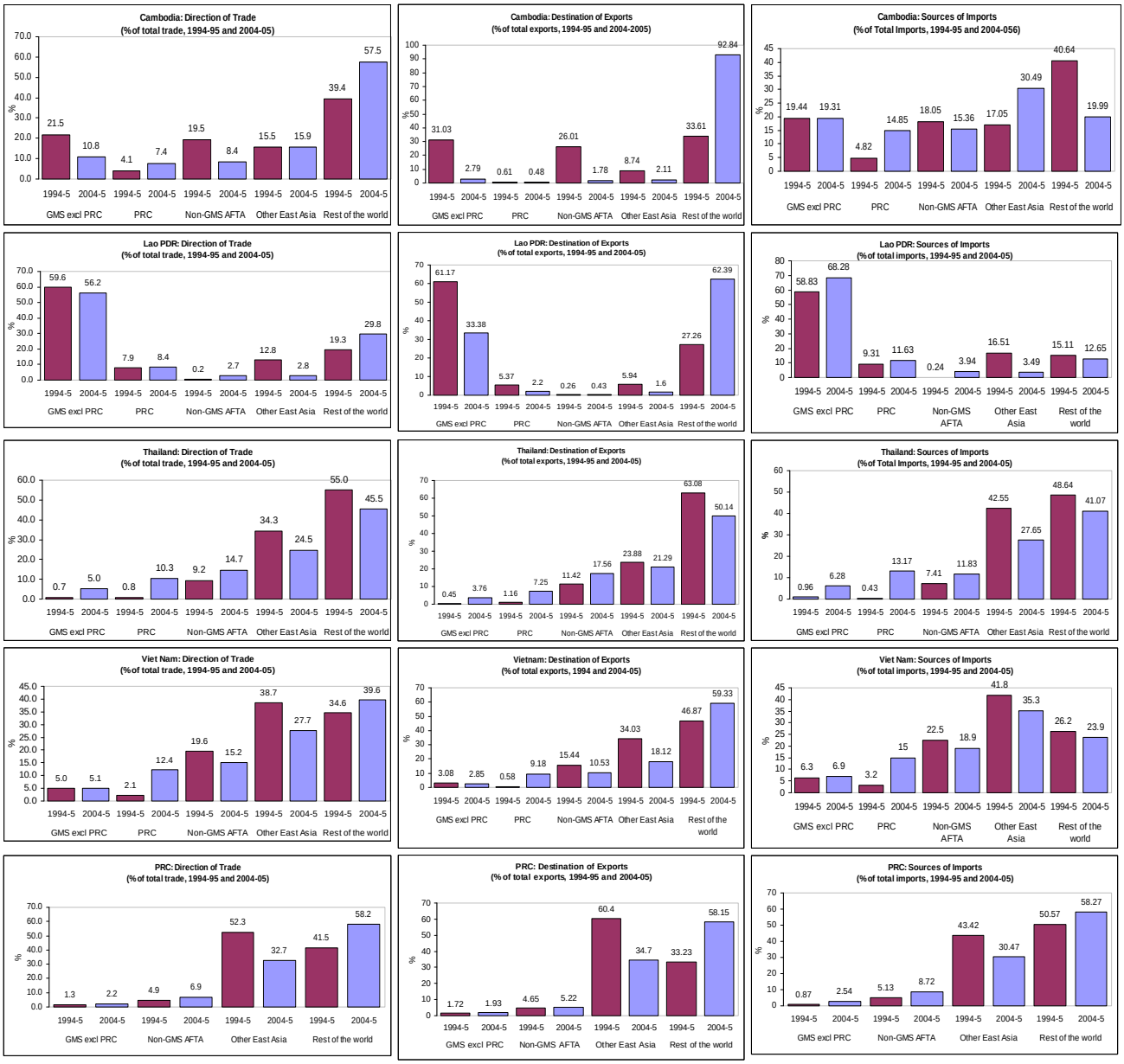
Figure A9.1: Composition of Manufactured Exports (% of total manufactured exports)



Source: United Nations Commodity Trade Statistics Database – compiled from partner country data.

6. Trade with East Asia will likely intensify, as Viet Nam is increasingly linked to regional production chains, as suggested by the gradual structural shift in export composition toward assembled electrical and electronic products. Foreign-invested enterprises are driving this process. Many of these foreign-invested enterprises so far have been small- and medium-scale assembly plants with a few exceptions such as Fujitsu and Hitachi. The decision last year by Intel to invest $1 billion in a chip factory has provided a significant boost to the industry. Foreign-invested enterprises are also driving exports in other key products such as footwear and garments. Overall, they accounted for 44% of total non-oil merchandise exports in 2005, up from 3% in 1991.

Figure A9.2: Direction of Trade, Destination of Exports, and Sources of Imports



Source: United Nations Commodity Trade Database – compiled from partner country data.

LITERATURE REVIEW ON THE IMPACT OF GMS TRANSPORT AND TRADE FACILITATION PROJECTS

A Background

1. The Greater Mekong Subregion (GMS) program has been the subject of several studies in the recent past, most of which have focused on various aspects of trade and have developed links between growth in trade, trade facilitation, transport infrastructure, and logistics. The issue of attribution to the GMS program—how much of this expansion in trade is due to the implementation of the GMS program as a form of regional cooperation, as opposed to simply the expansion of neighboring economies—remains to be definitely established, although a number of studies have attempted to "explain" trade flows using versions of "augmented" gravity models. These studies can be grouped into three categories:

(i) those that focus on the Association of Southeast Asian Nations (ASEAN) as a trade block;[1]

(ii) those that, while international in coverage, include variables that reflect aspects of the operations of the GMS, such as trade facilitation[2] and logistics improvements;[3] and

(iii) those that focus specifically on GMS countries, either using dummy variables[4] or by looking only at intra-GMS trade.[5]

B Impact on Trade Growth

2. In terms of the impact of ASEAN on trade, the results can be of only limited interest to the issue of the impact of the GMS program, as, while trade between GMS members is formally governed by the ASEAN Free Trade Agreement, it appears that for Cambodia, Lao People's Democratic Republic (Lao PDR), and Viet Nam, most exports to ASEAN have been subject to Most-Favored-Nation rather than preferential common effective preferential tariff rates. This is because the difference in rates is not large enough to justify the cost of complying with the rules of origin requirements of the ASEAN common effective preferential tariff scheme.[6]

3. The International Monetary Fund working paper (footnote 1) finds that ASEAN has been an "open" trading block, so that while members trade more with each other than would be predicted by income, distance, and other explanatory variables, this also applies to trade with the rest of the world. Trade between any two ASEAN members is 330% more than would be predicted, but trade between a member and a nonmember country is nearly 600% more than predicted.

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[1] Tumbarello, P. 2007. Are Regional Agreements in Asia Stumbling Blocks or Building Blocks? Implications for the Mekong 3. Washington, DC. *IMF Working Paper 07/53.07*.

[2] Wilson, J., C. Mann, and T. Otsuki. 2003. Trade Facilitation and Economic Development. Washington, DC. *World Bank Policy Research Working Paper* 2988; and Ivankov, T. and C. Kirkpatrick. 2007. *Trade Facilitation and Manufactured Exports: Is Africa Different?* Manchester. Mimeo IDPM.

[3] Djankov, S., C. Freund and C.S. Phan. 2006. Trading on Time. *World Bank Policy Research Working Paper 3909*; and De, P. 2007. Empirical Estimates of Trade Costs for Asia. ADB Institute, Tokyo; revised version of paper presented at LAEBA Conference, ADBI-IDB. Seoul, November.

[4] Poncet, S. 2006. Economic Integration of Yunnan with the Greater Mekong Subregion. Tokyo. *Asian Economic Journal*, 20, 3.

[5] Edmonds, C., and M. Fujimura. 2007. *Impact of Cross-Border Infrastructure on Trade and Investment in the Greater Mekong Subregion*. ADB Institute, Tokyo paper presented at LAEBA Conference, ADBI-IDB. Seoul, November.

[6] Baldwin, R. 2007. Managing the Noodle Bowl: The Fragility of East Asian Regionalism. Manila. *ADB Working Paper Series on Regional Economic Integration, Number 7*.

4. If ASEAN members trade more than is predicted, how far can this be linked with features of the operations of the GMS program? Some light is shed on this question by studies that incorporate additional variables relating to trade facilitation and logistics in their gravity models. Although these models are cross-country, the elasticity of trade to the variables that measure trade facilitation and logistics can be used to infer trade effects from GMS initiatives to improve these aspects, assuming that average elasticities from the full country sample hold for the GMS as well. A study look at four dimensions of trade facilitation—improvements in port efficiency, customs environment, regulatory environment, and e-business (Wilson, et al. [footnote 2]). Of these, the customs environment for cross-border trade has been most strongly influenced by GMS initiatives, although in the future, e-business may also be affected. They focus on intra-Asia–Pacific Economic Cooperation manufactured trade and find that port efficiency has by far the greatest impact with an elasticity of 4.2 (so a 1% increase in their port efficiency measure leads to as much as a 4.2% increase in trade). Improvements in the customs environment have a positive but modest impact, with an elasticity of 0.42 (which is about half the elasticity for import tariffs). Similar results—that the trade effect of ports and domestic business procedures dominate the effect of changes in customs arrangements—are found in the gravity model.[7]

5. Recent studies on the impact of trade facilitation use the World Bank database on the Cost of Doing Business. Ivankov and Kirkpatrick (footnote 2) use this database in examining the impact of customs procedures (based on number of documents, time required, informal payments, the cost of other procedures associated with exports and imports), and various regulatory measures in a gravity framework. They find their customs variable to be significant and report an elasticity variable for their customs procedures of about 0.25, compared with 0.5 for the regulatory environment.

6. The impact of domestic logistics on trade has been examined using a new dataset on trade costs also collected for the Cost of Doing Business reports. Djankov et al. (footnote 3) focus on the role of time in getting products from point of production to point of shipment for export. This includes both time in transit to the port and delays in customs clearance and inspections. The elasticity of trade with respect to time varies within the sample and is considerably higher for the developing countries that are included. For this group, the elasticity of trade to the time measure is in the range 0.8–1.2. The implication is that if the GMS program's road projects and customs arrangements have already reduced time to shipment, this could have been an important stimulus to trade.

7. The impact of international trade costs on trade will be relevant for an assessment of the GMS, insofar as the road corridor projects reduce extranational, but intra-GMS, costs from the point of production to the point of sale. A number of studies have shown the link between international trade costs and trade flows. For example, De (footnote 3) examines the impact of international transport costs in a sample of Asian economies, finding a significant negative relation between these and trade with an elasticity in the range of 0.1–0.6 depending upon how transport costs are measured (alternatively the cost, insurance, and freight free on board margin, and international freight rates).

8. In summary, a selective survey of the evidence on factors explaining trade flows shows not surprisingly that trade between economies is negatively related to import tariffs (so preferential trade blocks stimulate trade). Similarly, measures to improve trade facilitation by reducing delays at frontiers and removing informal payments, as well as improvements in port efficiency and reductions in the time and cost of moving goods between trading partners also

[7] Broadman. 2007. *Africa's Silk Road: China and India's New Economic Horizon*. World Bank: Washington, DC.

help to boost trade. All of this is intuitively highly plausible and expected; however, it sheds little light directly on the impact of the GMS, since the samples cover a range of countries, and the policy changes introduced by the GMS are not captured exactly by the explanatory variables of the augmented gravity models surveyed here.

C. Attribution to GMS Program

9. Two studies apply the gravity model approach to the GMS countries. Poncet (footnote 4) uses a simple gravity model that does not include the additional variables of the "augmented" models, but that includes a dummy variable of unity for countries that are GMS members. The analysis is conducted from the viewpoint of Yunnan Province of the People's Republic of China, so the dependent variables are the bilateral trade flows of Yunnan with other countries (including other GMS members). The results go up to 1999 and reveal that, overall, Yunnan's trade with the GMS block was greater than predicted by income levels and distance (implying that the GMS program has boosted trade), although the significance level is low. However, the picture varies substantially between GMS members. When the analysis is disaggregated by country, Yunnan's trade with Myanmar and Lao PDR is significantly greater than the predicted level; however, its trade with Thailand is significantly less than predicted. Trade with Viet Nam is in line with the predicted level. Hence, these results are ambiguous regarding the trade-stimulating effect of the GMS program.

10. The gravity model in Poncet (footnote 4) is simple in that it does not include additional explanatory variables that might shed light on the mechanism through which membership in the GMS program might affect trade (for example through trade facilitation, road, or logistics improvements). This omission is addressed by Edmonds and Fujimura (footnote 5), who look specifically at the GMS countries. Their focus of interest is the impact of cross-border roads on trade in the GMS, and other countries are not included. The authors draw attention to the difficulty of compiling an adequate data series for the GMS. Even their key interest—cross-border roads—is proxied only crudely (paved road density in provinces with border-crossing points). The most significant results are obtained by subjectively splitting exports into those most likely to be carried overland and the rest. For the former category, the elasticity results for cross-border roads, while strongly significant, cover a wide range depending on specification, varying between 0.6 and 1.4. Variables reflecting average import tariffs and the customs environment proved to be insignificant. The results thus provide support for the view that aspects of GMS policies (specifically cross-border economic corridors) have boosted intra-GMS trade above what would be expected by member countries' income and the distance between them. The trade facilitation side of the GMS is not found to have a significant impact; however, this is approximated only crudely (with a dummy variable), and the analysis up to 2003 does not pick up recent initiatives under the Cross-Border Transport Agreement.

11. The Poncet model was updated by Weiss, et al.,[8] who found that Yunnan traded much more with its GMS partners in the period after 2000 than that predicted by distance and income levels. This implies that the impact of the GMS program on Yunnan's trade is stronger than in the earlier period covered in Poncet (footnote 4). It remains to be ascertained clearly how much of these impacts can be attributed to the GMS program as opposed to other factors. For example, the role of improving transport links and the efforts to improve border crossing facilities do have an important contribution to increasing trade. However, other parameters such as macroeconomic growth, political circumstances, and various global factors cannot be ignored.

[8] Weiss, J., Jinkang Zhang, and Jihong Zhang. 2008. *Yunnan and the Greater Mekong Subregion: Some Trade Estimates*. Paper presented at the Shanghai Forum, Fudan University, May. Shanghai.

D. Impact on Poverty Reduction

12. Evidence linking poverty reduction and connectivity comes from the substantial body of research on the links between rural road access and income. For example, in rural Lao PDR, Warr[9] finds that all-weather road access is associated with significantly higher household income (after controlling for household and village characteristics) and estimates that over the 1990s, roughly one sixth of the poverty reduction that actually took place between the two household surveys was due to improved road access. Similarly, strong links between rural roads and poverty reduction are found for India and to a lesser extent the People's Republic of China.[10] Insofar as rural feeder roads can link with the large road corridor projects in the GMS, drawing on experience elsewhere, there is the expectation that they will have a strong poverty-reducing effect. This remains to be demonstrated rigorously, however.

13. Rattantay[11] used official provincial records and ground surveys to measure the impact of the East–West Economic Corridor on the provincial incomes, economic activity, poverty, and social outcomes. After the completion of the road improvement on this corridor, the Kaysone Phomvihane Province of the Lao PDR witnessed a drop of 35% in the incidence of income poverty between 1998 and 2003, indicated by reduction in the number of families classified as poor households. The improved road has provided easy access to secondary schools for an increasing number of rural students who otherwise might not have been educated beyond primary level. The area has also witnessed improved foreign direct investment as well as an increase in the growth of industries.

14. Singh and Mitra[12] used primary and secondary sources of information to assess the impact of regional economic integration in the GMS. The interventions in the GMS were found to have promoted rural poverty reduction by attracting the unorganized, rural poor into territories where fungible economic synergies are being forged. The study shows that transport infrastructure links have been the most visible and appreciated form of investment in the context of regional economic integration in the GMS. While these links have had a significant impact on the formal macro trade environment, their impact at the border level has been fairly mixed. While regional integration in the GMS has been able to stimulate local economic development, it has had adverse ramifications on community health, job security, and environmental conservation. In addition, regionalization has not benefited women to the same degree it is benefiting men. In other words, the study found a mixed impact of regional integration.

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[9] Warr, P. 2006. Roads and Poverty Reduction in Lao PDR in J. Weiss and H.A. Khan eds. *Poverty Strategies in Asia*, Edward Elgar.

[10] Fan, S., P. Hazell, and S. Thorat. 1999. Government Spending, Agricultural Growth and Poverty: An Analysis of Interlinkages in Rural India. *Institute of Food Policy Research, Research Report* 110, Washington, DC: IFPRI; and Fan, S., L. Zhang, and X. Zhang. 2002. Growth Inequality and Poverty in Rural China. *Institute of Food Policy Research, Research Report* 125, Washington, DC: IFPRI.

[11] Rattantay, L. 2007. *Development Impact of the East–West Economic Corridor on Savannakhet Province of the Lao PDR*. ADB Working Paper. Manila: ADB.

[12] Singh, Janmejay, and Manoshi Mitra. 2006. *Reviewing the Poverty Impact of Regional Economic Integration in the Greater Mekong Subregion*. Manila: ADB.

IMPLEMENTATION ISSUES OF GMS TRANSPORT PROJECTS

1. Table A11.1 shows the status of active transport sector loans. It is apparent that physical progress has been lagging.

Table A11.1: Status of Active Loans for the GMS Transport Sector as of 31 March 2008

Loan No.	Project Name	Approval Date	Actual/ Expected Closing Date	Disbursement Ratio (%)	Elapsed Loan Period (%)	Physical Progress (%)
A. Cambodia						
1945	GMS: Cambodia Road Improvement	26-Nov-02	30-Jun-09	33.2	116.0	55.0
2288	GMS: Rehabilitation of the Railway in Cambodia Project	13-Dec-06	30-Jun-10	0.0	37.0	0.0
2373	GMS: Southern Coastal Corridor	28-Nov-07	31-Dec-12	0.0		
B. Lao PDR						
1989	GMS: Northern Economic Corridor	20-Dec-02	30-Jun-09	90.0	117.0	99.0
C. Viet Nam						
2222	GMS: Kunming–Haiphong Transport Corridor	19-Dec-05	30-Sep-08	59.6	82.0	82.0
2302	GMS: Kunming–Haiphong Transport Corridor Yen Vien–Lao Cai Railway Upgrading	19-Dec-06	31-Dec-12	0.0	21.0	0.0
2372	GMS: Southern Coastal Corridor	28-Nov-07	30-Jun-15	0.0	4.0	0.0
2391	GMS: Kunming–Haiphong Transport Corridor: Noi Bai–Lao Cai Highway	14-Dec-07	31-Dec-12	—	6.0	0.0
D. People's Republic of China						
2014	Western Yunnan Roads Development	28-Oct-03	31-Mar-08	85.8	100.0	80.0
2094	Guangxi Roads Development II	21-Oct-04	31-Dec-08	67.2	82.0	70.0
2116	Dali–Lijiang Railway	2-Dec-04	30-Jun-10	23.2	60.0	56.0
2345	Western Guangxi Roads Development	14-Aug-07	30-Apr-13	0.0	11.0	0.0
	Average			**32.6**	**53.5**	**36.8**

GMS = Greater Mekong Subregion, Lao PDR = Lao People's Democratic Republic.
Source: Project performance reports as of 31 March 2008.

2. Table A11.2 summarizes the causes of implementation delays for each project

Table A11.2: Summary of Implementation Issues

Loan No.	Project Name	Amount ($ million)	Date Approved	Date Effective	Implementation Issues	Status
A. Cambodia						
1503	Siem Reap Airport	15.0	12-Dec-96	13-Jun-97	Project was delayed due to (i) a 1-year delay in commencement of civil works caused by civil disturbance in the country from 1997 to 1998, (ii) delay in procurement due to withdrawal of grant assistance from the Government of Japan, and (iii) prolonged discussions on the design change of the terminal building between ADB and the Government. Loan was extended by 33 months. All physical works were completed in November 2002, and operation of all project facilities started immediately after project completion. The projected disbursement schedule was not followed. Disbursement was stagnant in 2000 and 2001, because procurement for the	Closed

Loan No.	Project Name	Amount ($ million)	Date Approved	Date Effective	Implementation Issues	Status
					passenger terminal and technical services buildings (packages VII and VIII) was delayed, starting only in July 1999 and February 2000, respectively.	
1659	GMS: Phnom Penh to Ho Chi Minh City Highway Project	40.0	15-Dec-98	9-Nov-99	The loan was disbursed more slowly than envisaged at appraisal because of project implementation delays. Project was delayed due to (i) construction delays caused by floods of 2000 and 2001 and the heavy rainfall in 2002, disorganized construction plan by the contract, and geological factors; and (ii) delays in finalizing the design and construction of border post facilities.	Closed
1945	GMS: Cambodia Road Improvement	50.0	26-Nov-02	20-May-03	At an elapsed loan period of 84%, physical progress is about 62% and financial progress is 40%. Major issues are (i) slow progress of civil works; (ii) location for new border facilities not yet determined, which is a critical path for the project; (iii) collapsed transmission poles under the Cambodia Transmission Line Project not yet resolved; and (iv) complaint about noncompliance with environmental safeguard policy. EA and ADB agreed on catch-up plan for the contractor, and the project is expected to be substantially completed by October 2008.	Ongoing
2288	GMS: Rehabilitation of the Railway in Cambodia	42.0	13-Dec-06	30-Jan-08	At an elapsed loan period of 41%, physical progress is 0% and financial progress is 0%. Project implementation delay was due to delay in loan effectiveness. Elapsed time from approval to effectiveness was more than 12 months. To date, project has made good progress in terms of the commencement of consulting services and awarding of civil works contracts.	Ongoing
2373	GMS: Southern Coastal Corridor	7.0	28-Nov-07		Loan Agreement was signed on 18 February but loan has not yet been declared effective. It is expected that it will be declared effective by October 2008.	Not yet effective
B. Lao People's Democratic Republic						
1369	Champasack Road Improvement	48.0	31-Aug-95	19-Dec-95	Disbursement of the loan proceeds was slower than expected due to delays in project implementation. The loan period was extended twice due to delays caused by pavement failures, shortage of equipment, and additional works and improvements.	Closed
1727	GMS: East–West Transport Corridor	32.0	20-Dec-99	21-Sep-00	The actual completion dates were 52 months later in the Lao PDR (February 2007) and 37 months later in Viet Nam (November 2006). The main reasons for late completion are (i) a slow start in Viet Nam, which also delayed the Lao PDR component because of ADB's insistence on simultaneous loan effectiveness of both loans; declared effective 9 months after loan approval; (ii) lengthy prequalification and bidding	Closed

Loan No.	Project Name	Amount ($ million)	Date Approved	Date Effective	Implementation Issues	Status
					processes in Viet Nam; (iii) underperformance by contractors; (iv) substantial additional works to make use of loan savings; (v) unforeseen technical difficulties (insufficient initial survey work necessitating some redesign, deeply buried unexploded ordinance discovered in the Lao PDR after areas had been declared clear, and difficulties with materials supply); and (vi) flooding and landslips due to unfavorable weather conditions.	
1989	GMS: Northern Economic Corridor	30.0	20-Dec-02	9-Feb-04	At an elapsed loan period of 83%, physical progress is 99% and financial progress is 90%. ADB- and PRC-funded road section was completed in September 2007 and is under defects liability period. Thai-funded road section was completed in March 2008. Government was also delayed in complying with loan covenants relating to road charges. EA advised that, while toll infrastructures have been built, no decision was made yet on road charges. ADB encouraged EA to continue discussions on the matter. Project loan was extended by 2 years up to June 2009, but loan can be closed before the extended date.	Ongoing
0082	Northern GMS Transport Network Improvement	27.0	27-Sep-07	15-Jan-08	No potential problem flagged/identified.	Ongoing
C. People's Republic of China						
1325	Yunnan Expressway	150.0	29-Sep-94	18-May-95	Project was delayed despite satisfactory startup due to problems encountered during construction (i.e., delayed tunnel works and tunnel telecommunications installations).	Closed
1427	Fangcheng Port	52.0	19-Jan-96	20-Jun-97	Road component was implemented as scheduled. However, loan closing date was extended for 18 months due to delays in the port component. Delay in the port component implementation was due to (i) unfamiliarity of the EAs with ADB procedures, procurement requirements, and guidelines, which resulted in slow formulation of the required documents and actions, as well as a delay in loan signing; and (ii) delays in equipment procurement and approval due to long discussions between EA and ADB over adjustments to the equipment list.	Closed
1691	Southern Yunnan Road Development	250.0	24-Jun-99	18-May-00	There was a 6-month startup delay. However, the pace of construction of the expressway component was faster than the appraisal estimate, and it was opened to traffic ahead of schedule. Feeder road improvements were completed about a year behind schedule, mainly because of government funding constraints and the increased road length. Resettlement also took longer than expected.	Closed
1851	Guangxi Roads Development	150.0	9-Oct-01	10-Jan-03	Project was closed on 12 March 2008. No available PCR yet.	Closed

Loan No.	Project Name	Amount ($ million)	Date Approved	Date Effective	Implementation Issues	Status
2014	Western Yunnan Roads Development	250.0	28-Oct-03	28-Oct-04	At an elapsed loan period of 85%, physical progress is 80% and financial progress is 88%. As of May 2007, project was delayed by more than a year due to more than 12 months delay in loan signing and effectiveness. Unanticipated geological conditions and fragile environment also caused delays. A 12-month loan extension to March 2009 was granted and as of March 2008, physical progress was 80% compared with the elapsed loan period of 82%. Physical components are expected to be completed by end-2008.	Ongoing
2094	Guangxi Roads Development II	200.0	16-Sep-04	11-Apr-05	At an elapsed loan period of 86%, physical progress is 95% and financial progress is 72%. Implementation is rated highly satisfactory.	Ongoing
2116	Dali–Lijiang Railway Project	180.0	2-Dec-04	14-Nov-05	At an elapsed loan period of 63%, physical progress is 65% and financial progress is 50%. Project is progressing satisfactorily within anticipated schedules and budgets, despite initial startup delays due to delays in loan signing and effectiveness. Civil works for tunnels, bridges, and railway bed and track-laying are expected to be completed by end-2009. Railway is expected to be fully operational by end-2010. As of December 2007, all related environmental, land acquisition, and resettlement concerns had been carried out as planned.	Ongoing
2345	Western Guangxi Roads Development Project	300.0	14-Aug-07	25-Apr-08	At an elapsed loan period of 21%, ongoing physical progress is 17%.	Ongoing
D. Viet Nam						
1487	Second Road Improvement	52.0	21-Sep-96	3-July-97	**National Highway Component (NHC)** The works under the component were due to be completed within 3 years. Actual completion of individual components was delayed by 6–12 months. The four flyovers added to the project in 2000 were completed in mid-2002. The NHC faced delays for several reasons. The contractors for NH1 did not have access to some project areas from the beginning of their contracts, as land acquisition and resettlement had not been completed. Errors in the original engineering design were detected only after the contractors had been appointed, and the changes required additional land acquisition and resettlement. **Rural Road Component (RRC)** All RRC contracts experienced delays due to poor construction management and insufficient allocation of resources to the work sites by the contractors, but also by factors outside the control of the contractors such as land acquisition delays and late approval of blast permits at quarry sites.	Closed

Loan No.	Project Name	Amount ($ million)	Date Approved	Date Effective	Implementation Issues	Status
1660	GMS: Phnom Penh to Ho Chi Minh City Highway Project	100.0	15-Dec-98	9-Nov-99	The loan was extended twice due to delays caused by the addition of items to the scope of work and construction delays. The main reasons for the delay were (i) the time consumed by preparation of the detailed design and redesign; (ii) slow progress in resettlement activities, including the relocation of utilities; (iii) contractors' low bid prices and insufficient equipment; (iv) a long rainy season in 2000; and (v) heavy traffic in the construction area.	Closed
1728	GMS: East–West Transport Corridor	25.0	20-Dec-99	21-Sep-00	See Loan 1727 above	Closed
2222	GMS: Kunming–Haiphong Transport Corridor: Noi Bai–Lao Cai Highway Project Technical Assistance	6.0	19-Dec-05	3-Oct-06	At an elapsed loan period of 82%, physical progress is 82% and financial progress is 60%. Implementation is rated satisfactory (as of March 2008). However, project implementation schedules, especially for updating the district-level updated resettlement and ethnic minority development plans, are very tight. EA was requested to work closely with provincial and district compensation, assistance, and resettlement boards to expedite completion.	Ongoing
2302	GMS: Kunming–Haiphong Transport Corridor; Yen Vien–Lao Cai Railway Upgrading	60.0	19-Dec-06	25-Sep-07	At an elapsed loan period of 21%, physical progress is 0% and financial progress is 0%. Implementation is late. Loan became effective 8.2 months after approval. Shortlisting of consultants took longer than expected due to the EA's confusion regarding Vietnamese and ADB's bid regulations. EA requested ADB to conduct training to explain ADB's bid procedures to avoid further delays.	Ongoing
2372	GMS: Southern Coastal Corridor	75.0	28-Nov-07	29-May-08	Loan declared effective on 29 May 2008.	Ongoing
2391/ 2392	GMS: Kunming–Haiphong Transport Corridor: Noi Bai–Lao Cai Highway Project	896.0 200.0	14-Dec-07		Loan Agreement signed on 26 September 2008.	Not yet effective

ADB = Asian Development Bank, EA = executing agency, GMS = Greater Mekong Subregion, PCR = project completion report, PRC = People's Republic of China.

Sources: Loan back-to-office reports, various dates; First Quarterly Portfolio Performance Review: Cambodia Portfolio, 10 April 2008; project performance reports (as of March 2008).

PROJECT LOANS AND GRANTS ASSESSMENT SUMMARY

Table A12.1: Summary of GMS Projects (1992–2007)

Loan No.		Country	Project Name	ADB Loan Amount ($ million)	Project Completion	Rating		SAPE Rating					
						PCR	PPER	Relevance Scale of 0–3	Effectiveness Scale of 0–6	Efficiency Scale of 0–3	Sustainability Scale of 0–6	Impact Scale of 0–6	Overall
1.	1503	Cambodia	Siem Reap Airport	15.0	17-Apr-03	PS		1	2	3	4	4	14
2.	1659	Cambodia	Phnom Penh–Ho Chi Minh City Highway	40.0	20-Jul-06	n.a.		3	4	2	2	5	16
3.	1945	Cambodia	GMS: Cambodia Road Improvement	50.0	Ongoing			3	4	2	2	5	16
4.	2288	Cambodia	GMS Rehabilitation of the Railway in Cambodia	42.0	Ongoing			3	4	2	4	5	18
5.	2373	Cambodia	GMS Southern Coastal Corridor	7.0	Ongoing			3	4	2	2	5	16
6.	1369	Lao PDR	Champasack Road Improvement	48.0	26-Jul-01	S	HS	3	4	3	4	5	19
7.	1727	Lao PDR	GMS: East–West Corridor (Regional)	32.0	28-Feb-07	S		3	4	2	4	5	18
8.	1989	Lao PDR	GMS: Northern Economic Corridor	30.0	Mar-08			3	4	2	4	5	18
9.	0082	Lao PDR	GMS-LAO: Northern GMS Transport Network Improvement	27.0	Ongoing			3	4	2	4	5	18
10.	1325	PRC	Yunnan Expressway	150.0	6-Sep-00	HS		2	4	3	4	5	18
11.	1427	PRC	Fangcheng Port Project	52.0	15-Oct-01	HS	S	2	6	2	4	5	19
12.	1691	PRC	Southern Yunnan Road Development	250.0	5-Jan-05	S		2	4	2	4	5	17
13.	1851	PRC	Guangxi Roads Development	150.0	Ongoing	S		3	4	3	4	5	19
14.	2014	PRC	Western Yunnan Roads Development	250.0	Ongoing			2	4	2	4	5	17
15.	2094	PRC	Guangxi Roads Development II	200.0	Ongoing			2	4	2	4	5	17
16.	2116	PRC	Dali–Lijang Railway Project (Yunnan Province)	180.0	Ongoing			2	4	2	4	5	17
17.	2345	PRC	Western Guangxi Roads Development	300.0	Ongoing			2	4	2	4	5	17
18.	1354	Viet Nam	Saigon Port	30.0	1-Nov-00	S	S	2	6	2	4	5	19
19.	1487	Viet Nam	Second Road Improvement	52.0	20-Mar-03	HS		3	4	3	4	5	19
20.	1660	Viet Nam	Phnom Penh–Ho Chi Minh City Highway	100.0	12-May-06	n.a.		3	4	1	4	5	17
21.	1728	Viet Nam	GMS: East–West Corridor (Regional0	25.0	31-Mar-07	S		3	4	2	4	5	18
22.	2222	Viet Nam	GMS Kunming–Haiphong Transport Corridor Noi–Bai–Lao Cai Highway Technical Assistance	6.0	Ongoing			3	4	2	4	5	18
23.	2302	Viet Nam	GMS Kunming–Haiphong Transport Corridor: Yen Vien–Lao Cai Railway Upgrading	60.0	Ongoing			3	4	2	4	5	18
24.	2372	Viet Nam	GMS Southern Coastal Corridor	75.0	Ongoing			3	4	2	4	5	18
25.	2391	Viet Nam	GMS: Kunming–Hai Phong Transport Corridor—Noi Bai–Lao Cai Highway	896.0	Ongoing			3	4	2	4	5	18
26.	2392	Viet Nam	GMS: Kunming–Hai Phong Transport Corridor—Noi Bai–Lao Cai Highway	200.0	Ongoing			3	4	2	4	5	18
			Total (26 GMS Loans and Grant)	**3,267.0**				**3**	**4**	**2**	**4**	**5**	**18**
													Successful

ADB = Asian Development Bank, GMS = Greater Mekong Subregion, HS = highly successful, Lao PDR = Lao People's Democratic Republic, n.a. = not applicable, PCR = project completion report, PPER = project performance evaluation report, PRC = People's Republic of China, PS = partly successful, S = successful, SAPE = sector assistance program evaluation.

Sources: ADB project management database and Operations Evaluation Mission analysis.

Table A12.2: Summary of GMS Transport Projects

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
Cambodia				
Loan 1503-CAM: Siem Reap Airport Status: Closed Date Approved: 12 December 1996 Date Effective: 13 June 1997 Date Closed: 17 April 2003 Loan Amount: $15 million Fund Type: ADF	The major project objective was to provide the required infrastructure and improve the operational capacity of Siem Reap Airport to cater to the expected increase in tourists visiting the Angkor Wat historical sites.	The project was rated by the PCR as partly successful (partly relevant, partly effective, highly efficient, and likely to be sustainable). Outputs: • civil works for aerodrome, operational buildings, and airport terminal; • equipment for air traffic services, aeronautical communications, and navigational aids; and • consulting services to assist in preconstruction activities. Outcomes: • The major project objective was fully achieved. Number of passenger arrivals and departures at Siem Reap Airport was approximately 146,000 in 1995 and increased to 345,171 in 2000, 442,059 in 2001, 578,949 in 2002, and 541,620 in 2003. By the adoption of the Open Sky Policy in December 1999, the number of international visitors to Siem Reap increased from 77,143 in 1999 to 154,680 in 2000. • However, the objective of strengthening the institutional capacity of the EA as the airport	Lessons learned include • Better aid coordination should have been ensured to avoid the unnecessary long conclusion on withdrawal of the grant assistance by the Government of Japan. • The circumstances around the EA changed dramatically from the time of loan appraisal, which also affected compliance with some related covenants. Under such a substantial change in EA's function, the loan covenants and due compliance should have been revised as appropriate, and additional loan covenants should have been agreed upon with the Borrower as a conditionality to continue project implementation. • The contractual dispute between the EA and the first project implementation consultant was caused partly by the direct consultant selection procedure. If consultant recruitment had been carried out following ADB's standard consultant selection procedure, the terms of reference, engineering inputs, and costs	Although the project was relevant to the needs of the country, there was room for improvement in the quality-at-entry. The project is rated partly relevant. Owing to the growth in traffic and the use of private sector in operating the airport, the project is rated effective. Taking into account the high EIRR, the project is rated highly efficient. Owing to the continued demand stemming from the increased tourist traffic, the project is rated likely to be sustainable. Impact of the project is substantial. Overall, the project is rated partly successful.

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
		operator was not accomplished and detracted from the efficacy of goal achievement in the project.	would have been clearer. Direct selection is the easiest way to engage consultants, but strong justification is required to secure transparency and ensure performance of the selected consultant. • EA, consultants, and ADB staff spent much time in preparing bidding documents, reviewing them, evaluating technical and financial bids, and solving issues due to the high number of contract packages required for the project.	
Loan 1659-CAM and Loan 1660-VIE: Phnom Penh to Ho Chi Minh City Highway Project Status: Closed Date Approved: 15 December 1998 Date Effective: 9 November 1999 Date Closed: 20 July 2006 Loan Amount: $40 million (Cambodia) and $100 million (Viet	The main objectives of the project were to encourage traffic and trade flows between Cambodia and Viet Nam by improving the highway link between Phnom Penh and HCMC; improving facilities at the border crossing; and facilitating government efforts to reduce bureaucratic and procedural constraints to cross-border trade.	The PCR rated the project successful (highly relevant, effective, highly efficient, and likely to be sustainable). Outputs: • **Cambodia component** – (i) the road from Neak Loeung to the Cambodia–Viet Nam border at Bavet (105 km) was rehabilitated to a double bituminous surface treatment standard with an overall width of 11.5 meters (m), and (ii) construction of border facilities at Bavet. The interim repairs to 58 km of road between Neak Loeung and Bavet, which was originally part of the scope, was transferred to the Emergency Flood	Major lessons learned: • The prequalification of firms that do not have the capacity to undertake the civil works in a timely manner not only results in delays but extends the period of the construction supervision consultants. The prequalification process needs to be more rigorous to avoid delays caused by the incorrect choice of contractors. • ADB needs to undertake a careful analysis of the legal and policy framework in a country in relation to ADB policy, which may help to anticipate and address potential resettlement risks. • The management structure	The project is rated highly relevant owing to the needs of the participating countries and its positioning in the GMS program. It is rated effective, since traffic has increased on the project road, although the rate of growth in the traffic is not quite as expected at appraisal. In addition, the traffic is predominantly national rather than international. The project is rated efficient based on the EIRRs calculated by the ongoing PPERs. The project is less likely to be sustainable in Cambodia owing to the difficulties in funding maintenance costs. It is likely to be sustainable in Viet Nam. The impact of the project is

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
Nam) Fund Type: ADF		Restoration Project due to floods in 2000 and 2001. • **Viet Nam component** – As envisaged at appraisal, the road improvements to NH1A and NH22A were implemented, including the construction of eight bridges and the rehabilitation of two bridges. Outcomes: • Transborder activities at Bavet/ Moc Bai measured both in terms of persons and vehicles crossing the border and of import and export values started increasing in 2003–2004. The total value of trade through the Bavet/Moc Bai border post increased by about 41% per annum between 2003 and 2006. The number of people crossing the border increased at an average annual rate of 53% between 2003 and 2006, while the number of vehicles crossing the border increased at an average annual rate of 38% during the same period. • VOCs have been reduced by 10% for passenger cars and by 15% for trucks and buses. In Cambodia, travel time from Phnom Penh to Bavet has been reduced by 30%. Similar reductions have been achieved in Viet Nam, especially in urban areas.	for planning and implementing resettlement needs careful thought and planning to avoid conflicts of interest and to ensure efficient implementation. • Environmental problems caused by contractors not taking an active role in protecting the environment could be avoided by more active monitoring.	substantial. Overall, the project is rated successful.

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
		• Traffic has increased and has grown at a much faster rate than expected at appraisal. Actual traffic increased from 851 vpd in 1996 to an average of 1,879 vpd in 2005, excluding motorcycles. In Viet Nam, traffic growth from Cu Chi to Moc Bai has been increasing at about 25% per annum.		
Loan 1945-CAM: Cambodia Road Improvement Status: Active Date Approved: 26 November 2002 Date Effective: 20 May 2003 Closing (est): 30 June 2009 Loan Amount: $50 million Fund Type: ADF Amount Disbursed to Date: $22.11 million (31 May 2008)	The overall objectives of the project are to promote economic activities and facilitate trade among Cambodia, Thailand, and Viet Nam; and to improve the prospects for poverty reduction along the Southern Economic Corridor. The project aims to • reduce transport cost and increase the reliability of transport, encourage the fast-growing tourism industry and subregional trade, and promote general economic growth; • reduce poverty by providing all-year, all-weather access to employment opportunities, markets, and growth centers; • improve social conditions by providing all-year, all-weather access to education and health; • promote private sector participation and strengthen the domestic road contracting industry by providing	Expected outputs include • rehabilitation of a road section of about 150 km of highway and about 45 bridges on National Road 5 and National Road 6. National Road 5 and National Road 6 connect three major towns in the area: Siem Reap, Sisophon (both provincial capitals), and Poipet (the primary border crossing between Cambodia and Thailand); • reconstruction of about 50 bridges on provincial roads National Road 56, connecting Sisophon to Samrong (114 km), and National Road 68, connecting Samrong to Kralanh (79 km), which forms a loop of about 200 km to the north of National Road 6; • poverty reduction monitoring program; • capacity building of the Ministry of Public Works and Transport;	The project is ongoing.	The project is rated highly relevant owing to the needs of the participating countries and its positioning in the GMS program. Taking into account the fact that the road will connect the tourist town of Siem Reap with the international border with Thailand at Poipet, it is likely it will be effective. However, the benefits of the project will be realized after implementation of the CBTA. The project is rated effective on this presumption. It is assumed that traffic will increase on the project road, rendering the project efficient. In Cambodia, the current maintenance regime is not sufficient to ensure appropriate maintenance. In view of this, the project is less likely to be sustainable. However, this rating will need to be reviewed upon project completion. The

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
	opportunities in road construction and maintenance; • work with an experienced nongovernment organization under the national HIV/AIDS framework to support efforts to control the disease and create awareness of it; • initiate a process of reform for the Ministry of Public Works and Transport, particularly for the road sector in which asset management and transparency must be a guiding theme; and • establish effective road maintenance management and road maintenance financing systems.	• road network maintenance strategy and financing mechanism; • HIV/AIDS program; and • cross-border facilities. **Current status (as of 31 May 2008):** At an elapsed loan period of 82%, physical progress is about 62% and financial progress is 37%. Major issues in implementation are (i) slow progress of civil works; (ii) location for new border facilities not yet determined, which is a critical path for the project; (iii) collapsed transmission poles under the Cambodia Transmission Line Project not yet resolved; and (iv) complaints about noncompliance with environmental safeguard policy. EA and ADB agreed on catch-up plan for the contractor. The project is expected to be substantially completed by October 2008.		project is expected to provide substantial impact. Overall, the project is likely to be successful.
Loan 2288-CAM: GMS Rehabilitation of Railway in Cambodia Date Approved: 13 December 2006 Date Effective:	The expected outcome of the project is a rehabilitated and restructured railway that will • increase the efficiency of the overall transport sector by increasing the competitiveness of the railway, • secure the long-term	The expect outputs are • rehabilitation of 594 km of existing railway track and associated structures, passing loops, and spur lines; • reconstruction of 48 km of destroyed railway line to Thailand; • construction of direct railway	The project is ongoing.	The project is rated highly relevant owing to the needs of the participating countries and its positioning in the GMS program. The project is rated effective, taking into account the likely benefits in terms of trade between Cambodia and Viet Nam. It is expected that

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
30 January 2008 Date Closed: 30 June 2010 Loan Amount: $42 million Fund Type: ADF Amount Disbursed to Date: $0.0 million	sustainability of the railway subsector through improved productivity and efficiency and adoption of a market-based tariff, • reduce road damage and road traffic risks associated with the movement of heavy and dangerous goods, • facilitate economic growth in Cambodia by providing cost-effective and efficient railway transport, • facilitate subregional trade and economic growth in Thailand, • pave the way for proposed future construction of a new railway line between Cambodia and Viet Nam, • reduce wear and tear from heavy cargo haulage on Cambodia's road network, • improve road safety by diverting heavy and hazardous cargo from the roads to inherently safer railway transport, and • reduce public sector losses. The project assumes that the railway subsector has been successfully restructured and that a commercial PPP railway operator is in place.	access to the container terminal in the port of Sihanoukville; • restructuring of the railway subsector; • assisting employees made redundant because of the restructuring; and • provision of consulting services and training for project monitoring, engineering design, and supervision of civil works. **Current status (as of 31 May 2008):** At an elapsed loan period of 37%, physical progress is 0% and financial progress is 0%. Project implementation delay was due to delay in loan effectiveness. Elapsed time from approval to effectiveness was more than 12 months. To date, project has made good progress in terms of the commencement of consulting services and awarding of civil works contracts.		traffic will build up on the railway after implementation of the CBTA. In view of this, the project is rated likely to be efficient. The railway project is intended to be operated as a PPP. In view of this, it is likely to be sustainable. The impact of the project is expected to be substantial. Overall, the project is likely to be successful.
Loan 2372-VIE and Loan 2373-CAM:	The expected impact of the GMS-SCC Project will be the	The expected project outputs are • **Rehabilitation of transport**	Project is not yet effective.	The project (including the loans and grants) is rated

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
GMS Southern Coastal Corridor (GMS-SCC) Date Approved: 28 November 2007 Date Effective: Not yet effective Closing (est): 30 June 2017 Loan Amount: $75 million (VIE) and $7 million (CAM) Fund Type: ADF Amount Disbursed to Date: $0.0 million	promotion of economic growth in the project area and GMS by strengthening connectivity with neighboring countries and increasing competitiveness. The expected outcome of the project will be to reduce transport times and costs; and induce more efficient movement of passengers and goods between Thailand, Cambodia, Viet Nam, and within project provinces.	**infrastructure.** In Cambodia, 15 km of National Road 33 will be improved to the border with Viet Nam at Preak Chak. In Viet Nam, 96.1 km of national highway (QL) 80 and QL63 will be improved, including construction of two large bridges across the Cai Be and Cai Lon rivers. • **Cross-border facilities.** New cross-border facilities will be constructed, whose designs will take into account the ongoing work under the ADB's TA 6307-REG on the Implementation of the GMS Cross-Border Transport Agreement approved in 2006. • **HIV/AIDS and trafficking awareness and prevention program** • **Road maintenance in Cambodia**		highly relevant owing to the needs of the participating countries and its positioning in the GMS program. The project is rated effective taking into account the likely benefits in terms of trade between Cambodia and Viet Nam. It is expected that traffic will build up on the road after implementation of the CBTA. In view of this, the project is rated likely to be efficient. In Cambodia, the current maintenance regime is not sufficient to ensure appropriate maintenance. In view of this, the project is less likely to be sustainable. The impact of the project is expected to be substantial. Overall, the project is likely to be successful.
Lao PDR				
Loan 1369-LAO: Champasack Road Improvement Project Status: Closed Date Approved: 31 August 1995 Date Effective: 19 December 1995	The project aimed to • provide continuous all-weather road access for local and transit traffic from the Thai border at Chong Mek to the Cambodian border at Veun Kham via Pakxe; • support economic growth and employment generation (and thereby reduce poverty) in the project road influence area; • reduce transport costs for project road traffic and	The PPER rated the project highly successful (highly relevant, highly effective, highly efficient, and likely to be sustainable). Outcomes: • Traffic survey showed an overall annual growth of 22% since completion. Traffic on the project road ranges from 1,280 vpd in rural areas to 14,461 vpd in urban areas. • The transit time reductions	Lessons identified from the project include • the importance of an integrated approach transcending national borders to plan projects so as to achieve concurrent economic development in a region; • the need to develop synergies by initiating more than one project in a geographic area, e.g., formulating road projects in parallel with irrigation	The project is rated highly relevant, since it enabled efficient, cost-effective traffic movement within the Lao PDR and provided an all-weather road link between Champasack Province and Thailand. Although the PPER rated the project as highly effective, the SAPE has downgraded this rating to effective. The project did enhance transport services in

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
Closing (est): 30 June 2000 Date Closed: 31 March 2001 Loan Amount: $48 million Fund Type: ADF Actual Amount: $42.2 million	thereby support agriculture, industry, and tourism in the project road influence area; • continue to support the Government's road maintenance program; and • promote privatization of road construction and maintenance through civil works contract package sizes attractive to domestic bidders.	average between 40% and 50% depending upon the location of travel. This has had a positive effect on transport prices, which were reduced in the year immediately following project completion. • A socioeconomic survey conducted as part of the OEM indicated that there had been general improvement in household income, land ownership patterns, health care, education, access to markets, and access to credit. • The electricity network was expanded in the project area after project completion. • With diversification of economic activities, the people living in the project-influenced area can supplement their traditional agricultural income with off-farm income. • The participation of women in road maintenance activities has provided new opportunities for women to play a greater role in the economic development of their villages.	projects; • the importance of effective allocation of responsibilities between the construction supervisor and the contractor to avoid disputes during implementation; • the importance of retaining adequate records of specific activities (e.g., road maintenance in different locations) undertaken as part of the periodic maintenance included within a project; • the reality that undertaking benefit monitoring and evaluation at the project level is not always feasible; and • the need to control encroachments onto the project road and into the forests in the adjacent area.	the region by improving the project road. However, the absence of the link road on the Lao PDR–Cambodia border reduced the effectiveness of the project road. This link was expected to be developed, but this has not happened yet. The project is rated highly efficient owing to the rise in traffic. The Lao PDR government is committed to continuing with the road maintenance fund. In view of this, the project is rated as likely to be sustainable. The impact of the project is substantial. Overall, the project is rated successful.
Loan 1727-LAO and Loan 1728-VIE: East–West Transport Corridor Status: Closed	The main objectives of the project were to encourage traffic and trade flows between Thailand, Lao PDR, and Viet Nam by • improving the highway link between the Thai/Lao border	The PCR rated the project successful (highly relevant, effective, efficient, and likely to be sustainable). Outputs: • **Lao PDR component.** (i)	Lessons include the following: • To avoid prequalified contractors submitting low bids that do not allow them to profitably implement the works on schedule and to the required standard, it is	The project is rated highly relevant owing to the needs of the participating countries and its positioning in the GMS program. The project is rated effective, since some of the targeted benefits have been

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
Date Approved: 20 December 1999 Date Effective: 21 September 2000 Date Closed: 28 February 2007 Loan Amount: $32 million (Lao PDR) and $25 million (Viet Nam) Fund Type: ADF	and Dong Ha, • improving facilities at the Lao/Vietnamese border crossing at Dansavanh/Lao Bao, and • facilitating government efforts to reduce constraints to cross-border trade.	rehabilitation of NR9 from Phin to the Lao PDR/Viet Nam border at Dansavanh (78 km), and (ii) improvement of rural community access infrastructure totaling about 178 km. Additional output was the upgrading of 27.8 km between Kaysone Phomvihane and Xeno to a standard consistent with newly upgraded RN9 east of Xeno. Other additions included improved border facilities. • **Viet Nam component.** NH9 was improved between the Lao Bao border crossing and Dong Ha to a standard carriageway of 7 m (and up to 11 m on the bypasses). Additional outputs included the Dong Ha Southern Bypass, which lies along an existing track for much of its length but is essentially a new road with a length of 10.7 km. Outcomes: The outcome of the project as envisaged at appraisal has been substantially achieved. Traffic on NH9 has increased several-fold since 2000, with a more marked increase on the western half of the road, which had not previously been improved. Cross-border passenger movements have increased significantly, more than would have been expected in the absence of the project. In	important that bidders are made fully aware of their contractual obligations before they submit bids (in pre-bid meetings). • The project schedule should reflect realistic allowance for the Borrower's internal approval processes, which commonly take longer than the time allowed. • In Viet Nam, it appears that weaknesses in the designs prepared by local consultants and funded by the Government were caused by insufficient time and resources being allowed for design work and associated investigations. • The cross-effectiveness requirement for loans caused unnecessary delays on the Lao side. ADB has already relaxed this requirement in recent GMS loans.	achieved. It is expected that the regional benefits will be realized after the implementation of the CBTA. The traffic on the road has increased to a level where the project can be rated as efficient. The project is likely to be sustainable taking into account the maintenance regimes in Lao PDR and Viet Nam. The impact of the project is likely to be substantial. Overall, the project is rated successful.

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
		particular, there is now a significant and fast-growing flow of Thai tourists to Viet Nam, some of whom spend time in the Lao PDR, too.		
Loan 1989-LAO: GMS Northern Economic Corridor Status: Active Date Approved: 20 December 2002 Date Effective: 9 February 2004 Closing (est): 30 June 2009 Loan Amount: $30 million Fund Type: ADF Amount Disbursed to Date: $31.01 million (31 May 2008)	The primary goal of the project is to accelerate regional development through more efficient infrastructure networks. A direct link between the PRC and Thailand via the Lao PDR will reduce transport costs in the regional project influence area, and will increase the efficiency of vehicle, goods, and passenger traffic. The road will link two remote provinces of the Lao PDR and help reduce poverty by providing access to markets, extension services, income, and employment opportunities, thus enhancing development potential.	The project outputs include • upgrading of the existing 228-kilometer road between Houayxay and Boten, • area development including a social action plan for the ethnic minorities, and • capacity building in environmental and social monitoring. **Current status (as of 31 May 2008):** At an elapsed loan period of 82%, physical progress is about 99% and financial progress is 90%. The ADB- and PRC-funded road section was completed in September 2007 and is under defects liability period. The Thai-funded road section is only 97% complete due to pavement failures, but was expected to be completed by February 2008 (no recent update). Government was also delayed in complying with loan covenants relating to road charges. EA advised that, while toll infrastructures have been built, no decision was made yet on road charges. ADB encouraged the EA to continue discussions on the matter. Project	The project has recently been completed. Lessons have yet to be identified.	The project is rated highly relevant owing to the needs of the participating countries and its positioning in the GMS program. The project is rated effective taking into account the likely benefits in terms of trade between PRC, Lao PDR, and Thailand. It is expected that traffic will build up on the road after implementation of the CBTA. In view of this, the project is rated likely to be efficient. The project is likely to be sustainable, taking into account the maintenance regime in the Lao PDR. The impact of the project is likely to be substantial. Overall, the project is rated successful.

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
		loan was extended by 2 years up to June 2009, but loan can be closed before the extended date.		
Grant 0082 GMS-LAO: Northern GMS Transport Network Improvement Date Approved: 27 September 2007 Date Effective: 15 January 2008 Closing (est): 30 June 2014 Grant Amount: $41.5 million Fund Type: ADF Amount Disbursed to Date: $0.0 million	The project aims to facilitate regional cooperation and increased economic growth in the GMS by improving the national highway linking the Louangphrabang area with the Lao PDR–Thailand border. Improvement of this road is expected to facilitate increased exports to Thailand of agricultural goods produced in the project area and increased tourism from Thailand to Louangphrabang and northern Lao PDR generally. The expected impact of the project is increased trade and economic growth in the project area and the region. The outcome will be more efficient transport on the regional and national road networks.	The project expects • improvement of 367 km of Route 4 (the project road) from Xiang Ngeun to Nakha, construction of a bridge over the Mekong River on the project road, and improvement of about 100 km of rural access roads in the project area; • procurement of equipment for use in operating and facilitating the border crossing at Kenthao, now under construction, and for enforcement of axle-load controls on the project road; • consulting services for construction supervision and monitoring and evaluation as well as detailed design for the rural access roads; • maintenance of the national road network by providing financing for periodic road maintenance; • improvement of road safety by financing consulting services to continue the ongoing road safety assistance program; and • a program to reduce the risks of HIV/AIDS/sexually transmitted infections (STIs) and human trafficking that may develop during the improvement and operation of the project road.	The project was initiated recently, and no lessons are visible yet.	The project is rated highly relevant owing to the needs of the Lao PDR and its positioning in the GMS program. The project is rated effective, taking into account the likely benefits in terms of trade between Lao PDR and Thailand. It is expected that traffic will build up on the road after implementation of the CBTA. In view of this, the project is rated likely to be efficient. The project is likely to be sustainable, taking into account the maintenance regime in the Lao PDR. The impact of the project is likely to be substantial. Overall, the project is rated successful.

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
PRC				
Loan 1325-PRC: Yunnan Expressway Project Status: Closed Date Approved: 29 September 1994 Date Effective: 18 May 1995 Closing (est.): 31 January 1999 Date Closed: 30 June 2000 Loan Amount: $150 million Fund Type: OCR Actual Amount: $146.9 million	Improve the capacity and integration of the road transport network in Heilongjiang and Yunnan provinces and help eliminate road transport constraints that impede economic growth. Specifically it aimed to • reduce congestion and reduce traffic accidents and VOCs; • improve access to Dalian and Dandong ports, Beijing, Shanghai, and Pearl River Delta; • reduce pressure on the overburdened railway lines in related corridors; and • support policy reforms in road safety, human resource development, and strengthening of relevant sector institutions. Project scope included • construction of a four-lane limited access toll expressway of about 179 km connecting Chuxiong and Dali cities in Yunnan Province, including access roads, interchanges with toll facilities, service and parking areas, bridges and tunnels; • procurement of equipment and facilities for road maintenance and road safety,	The project was rated highly successful (highly relevant, highly effective, efficient, likely to be sustainable, and with substantial institutional impact). Outputs: • All the outputs envisaged at appraisal were achieved at project completion. • Tunnel ventilation, lighting, emergency facilities, communications, and traffic monitoring facilities were not included in the initial design of the project due to the EA's lack of experience in designing long tunnels. These were eventually incorporated in the design, which further enhanced the effectiveness of the project. • Staff of the EA were provided domestic and international training on (i) quality control of civil works; (ii) project management; (iii) expressway design, management, and operation; (iv) traffic engineering; (v) expressway safety; and (vi) environmental protection. Indicators of actual outcomes: • In 1997, the traffic level on NH320 was 6,277 medium truck equivalent/day but it decreased to 4,977 medium	At appraisal, it was estimated that 70% of the traffic would be diverted to the new highway, which resulted in an EIRR of 17.8% and FIRR of 2.4%. At completion, recalculated EIRR was 18.2%, including accident cost savings. The recalculated FIRR, on the other hand, was lower than the appraisal estimate due to the slower than expected diversion of traffic to the new highway. The PCR noted that initial traffic forecasts need to be more accurately prepared, taking into account the likelihood of diversion between roads by making use of the toll diversion model, as well as future economic growth and intermodal impacts arising from (i) the regional transport development plan, and (ii) changes in the prospective shares of other transport modes in the same corridor.	The project is rated relevant owing to the needs of the PRC and its contribution to the GMS program. It provides a link within the country, assuming that the government will ensure construction of the remaining stretch to the international border with the Lao PDR. The project is rated effective, since some of the targeted benefits in terms of national traffic have been achieved. It is expected that the regional benefits will be realized after implementation of the CBTA. The traffic on the road has increased to a level where the project can be rated as highly efficient. The project is likely to be sustainable, taking into account the maintenance regime in the PRC. The impact of the project is likely to be substantial. Overall, the project is rated successful.

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
	construction supervision, materials testing, and toll road operations and communications; and • training for improved institutional capacity	truck equivalent/day in 2000 because of the project expressway. The average speed on NH320 increased from 50 km per hour (km/h) to 60 km/h. • The number of accidents on the project expressway declined from 254 in 1999 to 152 in 2000. Safety awareness of drivers has increased due to measures such as (i) posting traffic regulations on the roadside, (ii) installing warning or speed-limit signs in accident-prone areas, (iii) enforcing traffic laws through the Public Security Bureau and expressway patrol, and (iv) conducting a road safety campaign for drivers.		
Loan 1427-PRC: Fangcheng Port Status: Closed Date Approved: 18 January 1996 Date Effective: 20 June 1997 Date Closed: 15 October 2001 Loan Amount: $52 million	The project's rationale was to promote the economic growth of the poor areas of Guangxi Zhuang Autonomous Region (GZAR) as well as the western region of the PRC by addressing transport constraints through increased port capacity, modernized operations, and improved transport linkages to the hinterland of Fangcheng Port. The project aimed to remove physical constraints on the growth of foreign and domestic trade, and to enhance cost recovery.	Overall, the project is rated by the PPER as successful (relevant, highly effective, efficient, and sustainability is likely). Outputs: • The outputs envisaged at appraisal were generally achieved at completion: (i) construction of a dedicated container terminal and a multipurpose bulk cargo terminal and other port facilities; and (ii) construction of a 20 km section of the 45 km long, 24.5 m wide four-	A key lesson concerns the need to improve traffic demand forecasts for expressways. The project is not unique in having incorrect estimates as demonstrated by a number of recent PCRs for other ADB-financed expressway projects.	While objectives were generally met at completion and remained consistent to the development goals of the country, achievement of these objectives was weakened by design flaws. The inclusion of the highway component at appraisal was anchored on the assumption that cargo carried by rail to and from the port would be transferred to the road once a better road link was established. This, however, has not happened at the level expected at the

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
Fund Type: OCR Actual Amount: $250.0 million		lane dual carriageway linking Fangcheng Port with the Nanning to Beihai expressway, and procurement of highway construction equipment and materials Outcomes: • The capacity of Fangcheng Port was increased by 6.4 million tons per year. Port throughput increased from around 4.5 million tons in 1995 (the time of project preparation) to around 16.0 million tons in 2004. • For bulk cargo owners, the ability to charter larger ships because of the increased water depth alongside berth 9 potentially enables them to obtain lower freight rates. • The contribution of the expressway to the expansion of the port's capacity and improvement of the port's efficiency is less than expected. While at 9,000 vpd in 2004, traffic volumes are similar to those expected, traffic is relatively light, about one fifth to one sixth of capacity, and the vehicle mix differs substantially from expectations.		design stage. The project is rated relevant. The increase in light vehicle traffic outpaced the expected increase in truck traffic, which, in turn, resulted in traffic congestion and rise in road accidents. Nevertheless, port throughput increased dramatically. Without the project, Fangcheng Port could not have handled large amounts of cargo or handled cargo as efficiently. In view of this, the project is rated highly effective. The reevaluation of the EIRR concluded that the project is efficient. In view of the continuing demand, the investment is likely to be sustainable. The impact of the project is substantial. Overall, the project is rated successful.
Loan 1691-PRC: Southern Yunnan Road Development	The objectives of the project were to support economic and social development in the	The project was rated successful (highly relevant, highly effective, efficient, likely to be sustainable):	Key lessons learned from the project include the need for • adequate and timely funding	The project is rated relevant owing to the needs of the PRC and its contribution to the GMS

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
Status: Closed Date Approved: 24 June 1999 Date Effective: 18 May 2000 Date Closed: 5 January 2005 Loan Amount: $250 million Fund Type: OCR	southern part of Yunnan Province by removing a major road transport bottleneck between Yuanjiang and Mohei and helping to create the conditions necessary to reduce poverty by providing poor communities with better access to the economic mainstream. The project was also designed to promote and extend sector reforms initiated under previous ADB-financed projects in areas related to (i) improved design standards and construction quality, (ii) road safety, (iii) pricing policy and road users, and (iv) nongovernment financing. A long-term objective of the project is to promote regional economic cooperation in the GMS by improving a section of the road linking Kunming in the PRC and Chiang Rai in Thailand and facilitating cross-border trade. Project scope included • construction of a four-lane limited access toll expressway of about 147 km from Yuanjiang to Mohei, including nine interchanges,4 large and medium bridges totaling about 25,300 linear meters, and tunnels totaling about 12,300 linear meters;	• It has been implemented as planned, with minor changes in scope that involved mainly the decision to defer the construction of two user service areas that were not needed. • The main objectives of the project have been achieved. The road has significantly reduced congestion on NH323, and with the improvement of about 876 km of feeder roads in the poorer townships, accessibility by the poor has substantially improved. • The project has also extended sector reforms initiated under previous ADB-financed projects. Some of the expressway's operations have been commercialized, and the Yunnan Yuanmo Expressway Corporation is realizing revenues from these activities. • The financial analysis reveals that the project is financially viable over the long term, while the economic analysis shows that the project remains economically viable. • The longer term objective of the project—to promote regional cooperation in the GMS by improving a section of the road link between Kunming in Yunnan Province	for resettlement and closer supervision, earlier identification, and resolution by ADB of potential resettlement issues; • sufficient geological investigations for projects that are in difficult, mountainous terrain to ensure more accurate assessments of designs and costs; • more conservative traffic projections for the initial years of operation; • a basic monitoring framework constructed during project preparation and baseline values for the indicators established, where available, during project preparation and updated at project inception; and • more in-depth review to reconfirm with the EA the exact nature of ADB's requirements concerning benefit monitoring and evaluation and other expectations during project implementation.	program. It provides a link within the country, assuming that the government will ensure construction of the remaining stretch to the international border with the Lao PDR. The project is rated effective, since some of the targeted benefits in terms of national traffic have been achieved. It is expected that the regional benefits will be realized after implementation of the CBTA. The traffic on the road has increased to a level where the project can be rated as efficient. The project is likely to be sustainable, taking into account the maintenance regime in the PRC. The impact of the project is likely to be substantial. Overall, the project is rated successful.

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
	• upgrading of about 540 km of feeder roads; • procurement of equipment for traffic engineering and monitoring, toll collection, quality control, road maintenance and safety, tunnel ventilation and monitoring, and feeder road upgrading; • land acquisition and resettlement of affected people; and • consulting services for project management, construction supervision, training, and project monitoring and evaluation.	in the PRC and Chiang Rai in Thailand—is considered likely to be achieved.		
Loan 1851-PRC: Guangxi Road Development Date Approved: 30 October 2001 Date Effective: 10 January 2003 Date Closed: 12 March 2008 Loan Amount: $150 million Fund Type: OCR	The project aimed to promote sustainable economic growth, and contribute to poverty reduction, by improving economic efficiency and reducing the cost of road transport in the southwestern region of GZAR. The specific project objectives were to • relieve traffic congestion and bottlenecks on a key section of the National Trunk Highway System, and provide better access to growth centers for poor communities; • provide additional transport capacity, reduce congestion, and reduce traffic accidents and VOCs;	The expected outputs include • construction of 136 km of four-lane access-controlled tollway between Nanning (Wuxu) and Ninming and a further 43 km of highway between Ninming and Youyiguan, including interchanges with toll stations, connecting roads, tunnels, bridges, administrative stations, service areas, and 49 km of connecting roads; • improvement of about 507 km of local roads servicing poor areas; • procurement of equipment for maintenance, toll collection, surveillance and communications, vehicle axle	The project was closed on 12 March 2008. The PCR is being drafted.	The assessment here is based on the draft PCR. The project connects areas in Guangxi with the international border with Viet Nam. The project is rated highly relevant owing to the needs of the PRC and its contribution to the GMS program. The project is rated effective owing to the reduction in travel time, incorporation of road safety measures and contribution to the restructuring of the expressway agencies. The recalculation of the EIRR by the PCR indicates that the project is highly efficient. Taking into account the increasing demand on the

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
	• improve access for the poor rural population in the transport corridor; • facilitate regional cooperation by providing better access between PRC and Viet Nam; and • support sector reforms initiated under previous and ongoing ADB-financed projects and regional initiatives.	load testing, and road safety; • land acquisition and resettlement; and • consulting services and capacity building.		expressway and the fact that it is tolled, the project is rated likely to be sustainable. The project impact on the domestic and international trade is likely to be substantial. Overall, the project is rated successful.
Loan 2014-PRC: Western Yunnan Roads Development Status: Active Date Approved: 28 October 2003 Date Effective: 28 October 2004 Closing (est): 31 March 2009 Loan Amount: $250 million Fund Type: OCR Amount Disbursed to Date: $237.085 million (31 May 2008)	The project's main objective is to remove transport barriers and reduce transport costs in western Yunnan. Specifically, it aims to • reduce congestion, reduce travel time and VOCs, and improve road safety; • increase road transport capacity between Kunming and the Myanmar border; • facilitate private sector involvement; • improve access of the poor to markets and social services; and • support road safety and corporate governance reforms.	The project's expected outputs comprise • construction of a 77 km four-lane access-controlled toll expressway from Baoshan to Longling, including access roads, interchanges with toll stations, administrative buildings, and service areas; • upgrading of 294 km of county and township roads to improve access to poor and minority areas; • procurement of equipment for expressway and local road maintenance, toll collection, surveillance and communications, vehicle-weighing stations, road safety, and office administration; • land acquisition and resettlement; and • consulting services for construction supervision, road safety audits, and project M&E.	The project is ongoing.	The project is rated relevant owing to the needs of the PRC and its contribution to the GMS program. It provides a link within the country, assuming that the government will ensure construction of the remaining stretch to the international border with Myanmar. The project is rated likely to be effective, since some of the targeted benefits in terms of national traffic are likely to be achieved. It is expected that the regional benefits will be realized after implementation of the CBTA and construction of the roads in Myanmar. The domestic traffic on the road is likely to increase to a level where the project could be rated as likely to efficient. The project is likely to be sustainable, taking into account the maintenance

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
		Current status: As of the last review mission in July 2007, physical completion was about 80%. The project was delayed by more than a year due to more than 12 months delay in loan signing and effectiveness. Unanticipated geological conditions and fragile environment also caused delays. Loan closing was extended by 1 year to March 2009, and physical components are expected to be completed by end-2008. Implementation progress is currently rated satisfactory. Project outcomes are considered likely to be achieved.		regime in the PRC. The impact of the project is likely to be substantial. Overall, the project is rated successful. However, this rating will need to be reviewed upon project completion.
Loan 2094-PRC: Guangxi Roads Development II Date Approved: 21 October 2004 Date Effective: 11 April 2005 Closing (est.): 31 December 2008 Loan Amount: $200 million Fund Type: OCR	The project's main objective is to lower transport costs, and thereby enhance economic growth and contribute to reducing poverty in the project area. The project is expected to • strengthen connectivity between the national trunk highway system and local roads network; • reduce transport prices, and improve travel time and comfort; • provide better access to markets, services, jobs, growth centers, and isolated communities;	The project's expected outputs consist of • construction of about 188 km of four-lane access-controlled toll expressway, about 25 km of connecting roads, 12 interchanges, 12 toll stations, 3 traffic control centers, 8 roadside stations, and 4 asset management and maintenance centers; • upgrading of about 250 km of intercounty roads and 500 km of minority villages roads; • procurement of equipment for asset management, maintenance, training,	The project is ongoing.	The project is rated relevant owing to the needs of the PRC and its contribution to the GMS program. It provides a link within the country, assuming that the government will ensure construction of the remaining stretch to the international border with Viet Nam as well as within the neighboring province of Yunnan. The project is rated likely to be effective, since some of the targeted benefits in terms of national traffic are likely to be achieved. It is expected that the regional

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
Amount Disbursed to Date: $137.616 million (31 May 2008)	• improve road safety, transport services, roadside station management, corporate governance, asset management, and maintenance; • increase traffic between the western provinces and the seaports in Guangxi; and • improve access to the Viet Nam border and the GMS.	expressway toll collection, surveillance, communications, safety, and vehicle weighing stations; • land acquisition and resettlement; and • consulting services and capacity building. **Current status (31 May 2008):** At an elapsed loan period of 84%, physical progress is 95% and financial progress is 69%. Implementation is rated highly satisfactory.		benefits will be realized after implementation of the CBTA. The domestic traffic on the road is likely to increase to a level where the project could be rated as likely to efficient. The project is likely to be sustainable, taking into account the maintenance regime in the PRC. The impact of the project is likely to be substantial. Overall, the project is rated successful. However, this rating will need to be reviewed upon project completion.
Loan 2116-PRC: Dali–Lijiang Railway Date Approved: 2 December 2004 Date Effective: 14 November 2005 Closing (est): 30 June 2010 Loan Amount: $180 million Fund Type: OCR Amount Disbursed to Date: $41.765 million	The project's objective is to reduce transport constraints in northwestern Yunnan Province and provide connectivity to Kunming, Shanghai, and Beijing through 3 of the 16 east–west and north–south national railway corridors. This will provide accessibility to the ports of Fangcheng and Beihai in the PRC and Haiphong in Viet Nam. The project will promote regional cooperation in the GMS, of which the PRC is an active participant through Yunnan Province, which shares borders with other GMS countries. The project consists of construction of 167 km of single-track, standard gauge, Class I	The project outputs comprise • laying railway track consisting of rails and accessories, concrete sleepers, and stone ballast; • constructing 11 new railway stations complete with facilities; • a safety component that includes providing modern technology and equipment for signaling, communications, a dispatch management information system, freight yard operation, operational safety equipment, mechanized maintenance of tracks; • installing e-governance and management information systems, including computerization and linking	The project is ongoing.	The project is rated relevant owing to the needs of the PRC and its contribution to the GMS program. It provides a link within the country, assuming that the government will ensure construction of the remaining stretch to the international border with Viet Nam as well as within the neighboring province of Yunnan. The project is rated likely to be effective, since some of the targeted benefits in terms of national traffic are likely to be achieved. It is expected that the regional benefits will be realized after implementation of the CBTA. The domestic traffic on the road is likely to increase to a

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
	railway, reserved for electrification, between Dali and Lijiang, and expanding the capacity of the existing Guangtong–Dali line (Guangda line) to accommodate additional traffic.	Dali and Lijiang to the national railway network; • supply of environmental mitigation and protection equipment and facilities; • training in the use and maintenance of equipment provided under the project; and • strengthening institutional capacity of the Ministry of Railways and West Yunnan Railway Company. **Current status (31 May 2008):** At an elapsed loan period of 61%, physical progress is 65% and financial progress is 23%. Project is progressing satisfactorily within anticipated schedules and budgets, despite initial startup delays due to delays in loan signing and effectiveness. Civil works for tunnels, bridges, and railway bed and track-laying are expected to be completed by end-2009. Railway is expected to be fully operational by end-2010. As of December 2007, all related environmental, land acquisition and resettlement concerns had been carried out as planned.		level where the project could be rated as likely to be efficient. The project is likely to be sustainable, taking into account the maintenance regime in the PRC. The impact of the project is likely to be substantial. Overall, the project is rated successful. However, this rating will need to be reviewed upon project completion.
Loan 2345-PRC: Western Guangxi Roads Development Date Approved: 14 August 2007	The project's objective is to contribute to pro-poor sustainable economic growth in western Guangxi and northern Viet Nam by developing an efficient, safe, and environment-	The expected project outputs include • construction of 177 km, access-controlled toll expressway from Baise to Longlin (Guizhou border); and	The project is ongoing.	The project is rated relevant owing to the needs of the PRC and its contribution to the GMS program. It provides a link within the country, assuming that the government will

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
Date Effective: 25 April 2008 Closing (est): 30 April 2013 Loan Amount: $300 million Fund Type: OCR Amount Disbursed to Date: $0.0 million	friendly regional transport system to promote trade in, and through, western Guangxi and reduce trade barriers with Viet Nam.	installation of facilities and equipment at the Wantong Logistics Center at Pingxiang, on the main Nanning–Hanoi corridor; • upgrading of 1,060 km of local roads in Baise comprising 3 priority border road sections totaling 50 km, 3 priority rural road sections totaling 260 km, and village access roads totaling 750 km; and • construction of 2 border area bus stations at Longbang and Yuexu, and 48 township bus stations in Baise; and implementation of the passenger bus route licensing reform in Baise.		ensure construction of the remaining stretch to the international border with Viet Nam as well as within the neighboring provinces of Guizhou and Yunnan. The project is rated likely to be effective, since some of the targeted benefits in terms of national traffic are likely to be achieved. It is expected that the regional benefits will be realized after implementation of the CBTA. Domestic traffic on the road is likely to increase to a level where the project could be rated as likely to be efficient. The project is likely to be sustainable, taking into account the maintenance regime in the PRC. The impact of the project is likely to be substantial. Overall, the project is rated successful. However, this rating will need to be reviewed upon project completion.
Viet Nam				
Loan 1354-VIE: Saigon Port	See Supplementary Appendix A			While objectives were generally met at completion and remained consistent to the development goals of the country, achievement of these objectives was weakened by design flaws. The inclusion of the highway component at appraisal was anchored on the

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
				assumption that cargo carried by rail to and from the port would be transferred to the road once a better road link was established. This, however, has not happened at the level expected at the design stage. Moreover, the increase in light vehicle traffic outpaced the expected increase in truck traffic, which, in turn, resulted in traffic congestion and rise in road accidents. In view of this, the project is rated relevant. The efficiency of break-bulk operations improved considerably from 1996 to 2002, and the corresponding turnaround times for ships calling at Saigon Port have been shortened significantly. The major objective of the project—to rehabilitate the existing break-bulk port facilities—has been fully met. The attached TA helped reduce billing time. Saigon Port can now efficiently process operational and financial information, and make commercially-oriented decisions based on users' actual needs. The project is rated highly effective. Based on the recalculation of the EIRR by the PPER, the project is rated efficient. Taking into

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
				account the sustainable demand for port facilities, the project is likely to be sustainable. The project has made a substantial contribution to the growth of trade, indicating that the project has substantial impact. Overall, the project is rated successful.
Loan 1487-VIE: Second Road Improvement Status: Closed Date Approved: 21 September 1996 Date Effective: 3 July 1997 Date Closed: 20 March 2003 Loan Amount: $120 million Fund Type: ADF	The goal of the project was to improve long-term transport efficiency and safety, and reduce poverty by improving access to rural areas. The project scope comprised • a national highway component (NHC), which would encompass 161 km of NH1 from the border with the PRC to Hanoi, and consulting services for supervision of the NHC; • a rural roads component (RRC), which would improve about 600 km of provincial, district, and commune roads in Lang Son, Ha Bac, and Cao Bang provinces, including consulting services for road selection, design, and supervision; and • an institutional strengthening component (ISC), which would provide advisory services to the Viet Nam Road Administration (VRA).	The PCR rated the project highly successful (highly relevant, highly effective on NHC and effective on the two other, efficient, likely to be sustainable). Outputs: • NHC – improvement of NH1 was implemented as envisaged. Due to loan savings, 27 km of road from intersection with NH5 to intersection with NH18 was improved to four-lane, which was originally designed as two-lane. Four flyovers were also added in the scope. • RRC – 33 provincial roads were selected for improvement for a total of 571 km. • ISC – outputs included (i) a final draft of the Road Act, (ii) institutional improvements on VRA's capability to manage the national road network, (iii) improvement of VRA's planning capacity,	• Although initial project approval was lengthy, the EA acted swiftly thereafter, as seen in the floating of contracts for various project extensions. Until the systemic causes for initial delay are overcome, advance procurement action should always be considered for projects in Viet Nam. • Flexibility is important during project implementation to ensure that opportunities for improvement can be seized. • Untested local contractors can perform adequately, but ample time must be given to allow for the steep learning curve and the many constraints facing such contractors. • The selection procedure in the RRC either should have ensured selection of roads with low traffic volumes, or some of the excess funds should have been reallocated	The project comprised improvement of the road from Hanoi to the international border with the PRC. The project is rated highly relevant owing to the needs of the PRC and its contribution to the GMS program. The project is rated effective owing to the reduction in travel time and general institutional benefits. It is expected that the regional benefits will be realized after implementation of the CBTA. Based on the recalculation of EIRR at project completion stage, the project is rated highly efficient. Taking into account the government's commitment to maintain the road and ADB's recent decision to upgrade the route to an expressway, the project is rated likely to be sustainable. Impact of the project is rated substantial. Overall, the project is rated successful.

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
		(iv) development of VRA's information technology, and (v) development of human resources. Outcomes: • NHC – Rehabilitation has reduced the roughness of the road from 10.5 to typically 2.8 and has reduced the travel time from the border to Hanoi from 5.5 hours to 2.5 hours. Road users save 14–47% on transport cost. • RRC – Rehabilitating rural roads has reduced transport time, secured all-year accessibility, and reduced road user cost by improving road surfaces, typically reducing roughness from about 10 to about 4. Additional traffic has been generated since the road works were completed. • ISC – VRA noted tangible and valuable results of this component: (i) passage of the new Road Act by the National Assembly, effective 1 January 2002, and the associated issuance of 7 decrees and 22 decisions; (ii) Government's observance of the need to establish a road fund; (iii) production of a road management manual; (iv) establishment of a road	to the RRC to enable higher standards on roads with heavy traffic. • There should have been more interaction between ADB, the EA, and the consultant to respond to changing circumstances.	

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
		maintenance database; (v) establishment on a pilot scale of an HDM-4-based road maintenance management system; and (vi) training received.		
Loan 1660-VIE: Phnom Penh–Ho Chi Minh City Highway	Covered under Loan 1659-CAM above			
Loan 1728-VIE: GMS: East–West Corridor (Regional)	Covered under Loan 1727-LAO above			
Loan 2222-VIE: GMS Kunming Haiphong Transport Corridor Noi Bai–Lao Cai Highway Technical Assistance Date Approved: 19 December 2005 Date Effective: 3 October 2006 Closing (est): 30 June 2009 Loan Amount: $6 million Fund Type: ADF	The expected outcome is the construction of the Noi Bai–Lao Cai Highway. The scope of the project includes • detailed engineering design; • updated economic and financial studies based on the detailed engineering designs and costs; • social and environmental studies, including environmental impact assessment (EIA), and resettlement and ethnic minority development plans; and • procurement assistance for civil works and construction supervision consulting services required for the subsequent highway project, so that related contracts will	Loans 2391/92-VIE: GMS Kunming Haiphong Transport Corridor Noi Bai–Lao Cai Highway was approved on 14 December 2007, though not yet effective. The preliminary economic and financial study for the highway project was carried out under PPTA 4050: GMS Kunming Haiphong Transport Corridor Noi Bai–Lao Cai Highway Project. The TA found that the project is highly viable, with overall EIRR of 22.0% and FIRR of 8.7%, assuming that the toll rate for the highway is double the current toll rate. **Status and Achievements** • TA progress is 82% against 86% elapsed time	The project is ongoing.	The TA was provided to assist in the preparation of the subsequent investment project (Loans 2391/2392). Since the proposed project links Ha Noi with Lao Cai on the PRC border, the TA is expected to contribute to regional integration within the GMS program. In view of this, the TA is rated highly relevant. Since the TA has successfully led to the subsequent investment project, it is rated effective. Since the TA is progressing on schedule and within the approved loan amount, it is rated efficient. It is expected that the results of the TA will be sustained during the implementation of the subsequent investment project. It is rated likely to be

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
Amount Disbursed to Date: $4.025 million	be ready for award when project loans become effective. A secondary output would be a significantly strengthened Viet Nam Expressway Corporation (VEC), able to manage the subsequent highway project, and develop and manage similar projects in the future.	• Detailed design documents were completed in January 2008; study to confirm economic and financial viability of the project was completed in December 2007; and study to confirm financial viability of VEC was completed in December 2007. • Procurement of civil works was advertised on February 2008, and bid evaluation for the first civil works will be completed by January 2009. • Pre-physical activities for land acquisition and resettlement started; cadastral maps in May 2008; detailed measurement survey has not yet been fully completed and is expected to be completed by December 2008 and updated REMDP approved by March 2009. • Loans for the investment project expected to be effective by December 2008.		sustainable. The impact of the TA is likely to be substantial. Overall, the TA is rated successful.
Loan 2302-VIE: GMS Kunming–Haiphong Transport Corridor: Yen Vien–Lao Cai Railway Upgrading Project Date Approved: 19 December 2006	The project is expected to support Viet Nam's economic development and strengthen regional integration by enabling cost-effective and efficient railway services on a strategic transport corridor within Viet Nam and between Viet Nam and the PRC. Specifically the project is expected to	The project's expected outputs are • improved alignment of the existing track, replacement of worn-out rails with heavier hardened-steel rails, replacement of old sleepers and fastenings to prevent gauge expansion, replacement of worn-out	The project is ongoing.	The project connects Hanoi with the international border with the PRC at Lao Cai. The project is rated highly relevant, owing to the needs of Viet Nam and its contribution to the GMS program. The project is rated likely to be effective, since some of the targeted benefits in terms of national

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
Date Effective: 25 September 2007 Closing (est): 31 December 2012 Loan Amount: $60 million Fund Type: ADF Amount Disbursed to Date: $0.0 million	• remove a capacity constraint on the existing railway line; • improve rail transportation services on a vital stretch of the Kunming–Hai Phong transport corridor, improve safety; and • support institutional reform in the railway subsector.	turnouts on the main line, and ballasting of track; • construction of 6 new bridges, rehabilitation of 13 war-damaged and corroded bridges, and strengthening of up to 60 substandard bridges to enable use of heavier and more powerful locomotives; and • construction of a new intermediate station at Mai Tung at km 124+200 including passing loops; additional passing loops at nine stations; extensions to existing passing loops at a further eight stations; upgrading of station facilities at North Yen Vien, Van Phu, Yuan Giao 'A,' and Lao Cai; and provision of operational facilities at selected stations. **Current status (31 May 2008):** At an elapsed loan period of 21%, physical progress is 0% and financial progress is 0%. Implementation is late. Loan became effective 8.2 months after approval. Shortlisting of consultants took longer than expected due to the EA's confusion regarding Vietnamese and ADB's bid regulations. EA requested for ADB to conduct training to explain ADB's bid procedures to avoid further delays.		traffic are likely to be achieved. It is expected that the regional benefits will be realized after implementation of the CBTA. The domestic traffic on the road is likely to increase to a level where the project could be rated as likely to be efficient. The project is likely to be sustainable, taking into account the demand and the maintenance regime in Viet Nam. The impact of the project is likely to be substantial. Overall, the project is rated successful. However, this rating will need to be reviewed upon project completion.

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
Loan 2372-VIE: GMS-SCC Attached Grant 0095 to Viet Nam ($25.5 million)	Covered under Loan 2373-CAM above			
Loan 2391-VIE and Loan 2392-VIE: GMS Kunming–Haiphong Transport Corridor: Noi Bai–Lao Cai Highway Date Approved: 14 December 2007 Date Effective: not yet effective Closing (est): 30 December 2012 Loan Amount: $896 million (OCR) and $200 million (ADF) Fund Type: OCR and ADF(Blend) Amount Disbursed to Date: $0.0 million	The project's expected impacts are (i) sustainable economic growth and poverty reduction in the project area and along the Kunming–Hai Phong transport corridor, (ii) strengthened connections with Yunnan Province and strengthened international competitiveness, and (iii) enhanced mobility of people living along the highway. The project objectives are to • construct an efficient, safe, and reliable high-standard road from Noi Bai to Lao Cai; • create a new freight transport link between the PRC's Yunnan Province, Hanoi, and Hai Phong and Cai Lan ports in northern Viet Nam; • enable 1-day transport between Kunming, Hanoi, and Hai Phong; • stimulate operations of long-distance bus transportation services and local public transportation; • generate revenue for VEC through the highway toll; and	The expected project outputs are • a 244-kilometer grade-separated and access-controlled highway, including 10 interchanges with toll booths and five service areas, starting at Noi Bai in a suburb of Hanoi and ending at Lao Cai, on the border with PRC in northwest Viet Nam; • electric, communications, and tolling systems and associated facilities, and VEC's highway operation and maintenance equipment and vehicles; and • capacity building for VEC on management of project implementation, corporate financing management, operation and maintenance of highways, and safeguard planning and implementation.	The project loan is yet to become effective.	The project connects Hanoi with the international border with the PRC at Lao Cai. The project is rated highly relevant, owing to the needs of Viet Nam and its contribution to the GMS program. The project is rated likely to be effective, since some of the targeted benefits in terms of national traffic are likely to be achieved. It is expected that the regional benefits will be realized after implementation of the CBTA. Domestic traffic on the road is likely to increase to a level where the project could be rated as likely to be efficient. The project is likely to be sustainable, taking into account the demand and the maintenance regime in Viet Nam. The impact of the project is likely to be substantial. Overall, the project is rated successful. However, this rating will need to be reviewed upon project completion.

Project Details	Project Objective	Assessment (per PCR/PPER/PPR)	Lessons Learned	SAPE Assessment
	• create business opportunities and employment for local people along the highway.			

ADB = Asian Development Bank, ADF = Asian Development Fund, CAM = Cambodia, CBTA = Cross-Border Transport Agreement, EA = executing agency, EIRR = economic internal rate of return, FIRR = financial internal rate of return, GMS = Greater Mekong Subregion, HCMC = Ho Chi Minh City, HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome, km = kilometer, Lao PDR = Lao People's Democratic Republic, m = meter, M&E = monitoring and evaluation, MOR = Ministry of Railways, NH = national highway, OCR = ordinary capital resources, OEM = Operations Evaluation Mission, PCR = project completion report, PPER = project performance evaluation report, PPP = public–private partnership, PPR = project performance report, PRC = People's Republic of China, REG = regional, REMDP = Resettlement and Ethnic Minority Development Plan, RN = route national, SAPE = sector assistance program evaluation, TA = technical assistance, VIE = Viet Nam, VOC = vehicle operating cost, vpd = vehicle per day.

Source: Project completion reports, reports and recommendation of the President, and Operations Evaluation Mission analysis.

REVIEW OF PROJECT PREPARATORY TECHNICAL ASSISTANCE TO THE GREATER MEKONG SUBREGION TRANSPORT SECTOR

1. The purpose of this appendix is to review project preparatory technical assistance (PPTA) projects under the Greater Mekong Subregion (GMS) transport sector. Specifically, it assesses the extent to which the technical assistance (TA) outputs have been used in the design of resultant projects. The ratings of the PPTA operations are provided in Table A13.1.

2. PPTA operations comprise the majority of TA operations in the GMS transport sector. As of April 2008, 37 TA grants amounting to $23.8 million had been approved. Twenty-one projects have so far resulted from these PPTA grants, of which eight have already been completed. Two TA operations in Thailand did not result in loans, and one project did not result from a PPTA.[1] The rest are still ongoing or yet to result in a loan. The overall rating of the PPTA operations is provided in Table A13.2.

3. TA 5586[2] was approved to investigate the feasibility of a transport corridor connecting northeast Thailand, central/southern Lao People's Democratic Republic (Lao PDR), and central Viet Nam. The study investigated three options: a northern corridor using Road 8 in the Lao PDR leading to the port of Cia Lo near Vinh, a central corridor using Road 9 leading to Da Nang, and two alternate routes in the south leading to the ports of Da Nang and Quy Nonh. The study recommended implementation of the central corridor, and this was agreed to by the governments of Thailand, Lao PDR, and Viet Nam. TA 5710[3] carried out the detailed feasibility of the chosen route, including the identification of essential transport infrastructure components that would require construction, rehabilitation, and improvement.

4. TA 5649[4] was approved to carry out the feasibility and detailed design of the Phnom Penh–Ho Chi Minh City Highway Project. The scope of works and design specified by the PPTA were largely implemented and achieved at completion, despite some changes in the project's original scope. Some of the works in the Cambodia component were taken out of the project scope and transferred to the Emergency Flood Rehabilitation Project because of floods in 2000. Both the Cambodia and Viet Nam components realized savings, which were reallocated to finance additional works. Overall, the total length of highway and the associated improvements were carried out with substantial additional outputs at project completion.

5. TA 3642[5] was carried out to prepare the Western Yunnan Roads Development Project in the People's Republic of China (PRC). The entire length of road investigated under the TA and all recommended works and associated improvements were included in the project scope. The project is still ongoing. TA 3817,[6] meanwhile, carried out the feasibility and detailed design for

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1 ADB. 1995. *Report and Recommendation of the President to the Board of Directors for the Proposed Loan and Technical Assistance Grant to Viet Nam for the Saigon Port Development Project*. Manila (Loan 1354-VIE, for $30 million, approved on 2 March).

2 ADB. 1994. *Technical Assistance for the Study of the Lao–Thailand–Viet Nam–East-West Transport Corridor.* Manila (TA 5586-REG, for $1 million, approved on 18 July).

3 ADB. 1996. *Technical Assistance for the GMS East–West Transport Corridor.* Manila (TA 5710-REG, for $3 million, approved on 11 December).

4 ADB. 1995. *Technical Assistance to Cambodia and Viet Nam for the Greater Mekong Subregion Infrastructure Improvement-Phnom Penh to Ho Chi Minh City Highway Project.* Manila (TA 5649-REG, for $3 million, approved on 9 November).

5 ADB. 2001. *Technical Assistance to the People's Republic of China for Preparing the Western Yunnan Road Development Project.* Manila (TA 3642-PRC, for $770,000, approved on 20 March).

6 ADB. 2001. *Technical Assistance to the Lao People's Democratic Republic for Preparing the Northern Economic Corridor Project-Lao PDR.* Manila (TA 3817-LAO, for $600,000, approved on 19 December).

Table A13.1: Summary of GMS Project Preparatory Technical Assistance Projects for Transport and Trade Facilitation Sectors, 1992–2008 (as of 30 April 2008)

	TA Type	TA No.	Project Name	Date Approved	Amount	TCR Rating	SAPE Rating					
							Relevance (0–3)	Effectiveness (0–6)	Efficiency (0–3)	Sustainability (0–6)	Impact (0–6)	Overall
1	Core	5535	Promoting Subregional Cooperation Among Cambodia, the PRC, Lao PDR, Myanmar, Thailand and Viet Nam — Phase II	10-Jun-93	4,500	GS	3	4	3	5	5	20
2	PPTA	1981	Heilongjiang and Yunnan Expressways - PRC	16-Nov-93	320	No TCR	3	4	3	5	5	20
3	PPTA	1982	Second Ports Development - PRC	16-Nov-93	400	No TCR	3	4	3	4	4	18
4	PPTA	1997	Second Road Improvement - Viet Nam	29-Nov-93	2,100	No TCR	3	3	2	5	5	18
5	PPTA	2197	Airports Improvement - Cambodia	4-Nov-94	500	No TCR	1	3	2	4	4	14
6	PPTA	5586	Study of the Lao–Thailand–Viet Nam East–West Transport Corridor	18-Jul-94	-	No TCR	3	4	3	5	5	20
7	PPTA	1997	(Supplementary) Second Road Improvement - Viet Nam	31-May-95	850	No TCR	3	3	2	4	4	16
8	PPTA	5649	GMS Infrastructure Improvement: Ho Chi Minh City to Phnom Penh	9-Nov-95	3,000	No TCR	3	4	3	5	5	20
9	PPTA	5691	Thailand–Cambodia–Viet Nam Southern Coastal Road Corridor	18-Jul-96	100	No TCR	3	3	2	4	4	16
10	PPTA	5710	Study of the Lao–Thailand–Viet Nam East–West Transport Corridor	11-Dec-96	3,000	No TCR	3	4	3	4	4	18
11	PPTA	5728	Chiang Rai–Kunming Road Improvement via Lao PDR	27-Feb-97	600	No TCR	0	0	0	0	0	0
12	PPTA	2903	Border Towns Urban Development - Thailand	27-Oct-97	800	No TCR	0	0	0	0	0	0
13	PPTA	3220	Guangxi Highway Development - PRC	12-Jul-99	540	No TCR	3	4	3	5	5	20
14	PPTA	5885	GMS Pre-Investment Study for the East-West Economic Corridor	22-Dec-99	350	S	3	4	3	4	4	18
15	PPTA	3642	Preparing the Western Yunnan Roads Development Project - PRC	20-Mar-01	770	No TCR	3	4	3	5	5	20
16	PPTA	3780	North–Northeast Region Area Development - Thailand	26-Nov-01	1,000	No TCR	0	0	0	0	0	0
17	PPTA	3817	Preparing the Northern Economic Corridor Project - Lao PDR	19-Dec-01	600	No TCR	3	4	3	4	4	18
18	PPTA	3852	GMS: Cambodia Road Improvement Project - Small-Scale Technical Assistance for Economic Analysis	4-Apr-02	150	No TCR	3	4	1	4	4	16
19	PPTA	3854	GMS: Cambodia Road Improvement Project - Small-Scale Technical Assistance for Environmental Assessment	11-Apr-02	60	No TCR	3	4	1	4	4	16
20	PPTA	3855	GMS: Cambodia Road Improvement Project - Small-Scale Technical Assistance for Resettlement Study and Social Impact Assessment	11-Apr-02	150	No TCR	3	4	1	4	4	16
21	PPTA	3868	GMS: Cambodia Road Improvement Project Engineering Design Update	31-May-02	400	No TCR	3	4	1	4	4	16
22	PPTA	4050	Preparing the Kunming–Haiphong Transport Corridor Project - Viet Nam	17-Dec-02	1,000	No TCR	3	3	2	4	4	16
23	PPTA	4119	Guangxi Road Development II - PRC	23-May-03	500	No TCR	3	4	3	5	5	20
24	PPTA	4129	Dali–Lijiang Railway - PRC	18-Jul-03	500	No TCR	3	4	3	5	5	20
25	PPTA	6227	Coordinating for GMS: North–South Economic Corridor Bridge Project (formerly Third Mekong Bridge)	23-Dec-04	415		3	4	3	0	0	10
26	PPTA	6235	GMS Southern Coastal Corridor	10-Mar-05	1,000	No TCR	3	4	3	5	5	20
27	PPTA	4050	(Supplementary) Preparing the Kunming–Haiphong Transport Corridor (GMS Hanoi Lao Cai Railway Upgrading)	14-Jun-05	350	No TCR	3	4	3	4	4	18
28	PPTA	6251	GMS Rehabilitation of the Railway in Cambodia	12-Aug-05	500	No TCR	3	3	2	2	2	12
29	PPTA	4657	Yunnan–Yuxi Mengzi Railway	29-Sep-05	500	No TCR	3	4	3	4	4	18
30	PPTA	6251	(Supplementary) GMS Rehabilitation of the Railway of Cambodia	6-Dec-05	125	No TCR	3	3	2	0	0	8

	TA Type	TA No.	Project Name	Date Approved	Amount	TCR Rating	SAPE Rating					
							Relevance (0–3)	Effectiveness (0–6)	Efficiency (0–3)	Sustainability (0–6)	Impact (0–6)	Overall
31	PPTA	4742	GMS Northern Transport Network	19-Dec-05	800	No TCR	3	4	3	4	4	18
32	PPTA	4782	Central Yunnan Roads Development (PPTA-PRC) [Wuding–Kunming]	28-Apr-06	500	No TCR	3	3	3	4	4	17
33	PPTA	6235	(Supplementary) GMS Southern Coastal Corridor	28-Apr-06	75	No TCR	3	4	3	4	4	18
34	PPTA	4792	Guangzi Longlin-Baise Expressway (PPTA-PRC)	26-May-06	500	No TCR	3	4	3	4	4	18
35	PPTA	4913	GMS: Luang Prabang Airport Improvement	8-Dec-06	600	No TCR	2	3	2	2	2	11
36	PPTA	6227	(Supplementary) Coordinating for GMS: North–South Economic Corridor Bridge Project (formerly Third Mekong Bridge)	24-Apr-07	100		3	4	3	3	3	16
37	PPTA	4970	Western Yunnan Roads Development II (PPTA-PRC) [(formerly [Ruili–Longlin] Expressway)]	28-Sep-07	500	No TCR	3	4	3	4	4	18
38	PPTA	4970	(Supplementary) Western Yunnan Roads Development II - PRC	14-Mar-08	100	No TCR	3	4	3	4	4	18
			AVERAGE		**28,255**		3	3	2	4	4	16

GMS = Greater Mekong Subregion, GS = generally successful, Lao PDR = Lao People's Democratic Republic, PPTA = project preparatory technical assistance, PRC = People's Republic of China, S = successful, SAPE = sector assistance program evaluation, TA = technical assistance, TCR = technical assistance completion report.

Sources: Operations Evaluation Mission and Asian Development Bank technical assistance database.

the GMS: Northern Economic Corridor Project. The recommended improvement of about 228 kilometers (km) of road along National Highway 3 in the Lao PDR was included in the project scope. Other recommendations including axle-load control facilities, development of rural access roads, and upgrading of ferry facilities to cross the Mekong River from Houayxay to Chiang Khong in Thailand were selectively included. The project is also ongoing.

Table A13.2: Overall Bottom-Up Rating of PPTA

Item	Relevance (scale of 0–3)	Effectiveness (scale of 0–6)	Efficiency (scale of 0–3)	Sustainability (scale of 0–6)	Impact (scale of 0–6)	Overall Rating	Description
TA rating	3	3	2	4	4	16	Successful

PPTA = project preparatory technical assistance, TA = technical assistance.
Source: Operations Evaluation Mission.

6. TA 4050[7] evaluated the feasibility of transport corridors under consideration by the Viet Nam Government. The TA narrowed down the options to two road projects and two rail projects and recommended, as first priority, the improvement of the 260 km limited-access expressway from Noi Bai to Lao Cai. This recommendation was subsequently taken up under the GMS: Kunming–Haiphong Transport Corridor–Noi Bai-Lao Cai Expressway Project. With regard to railways, the TA recommended the upgrading of the existing rail line from Lao Cai to Yen Vien. The TA was granted supplementary financing to carry out the detailed analysis of this project, which later resulted in a loan for the GMS: Kunming–Haiphong Transport Corridor–Yen Vien–Lao Cai Railway Upgrading Project.

7. The Rehabilitation Project of the Railway in Cambodia was prepared under TA 6251.[8] The TA proposed rehabilitation works that would only be limited to repairs of existing infrastructure. The proposal of the TA has largely been taken up in the scope of the project.

8. TA 5728[9] was intended to investigate the feasibility of improving about 1,200 km of roads from Kunming in the PRC to Chiang Rai in Thailand. However, due to the scarcity of secondary road data and limited planning and implementation capacity of transport agencies in the Lao PDR, the study focused on the road section in the Lao PDR. This TA did not result in a project loan for this specific road section. Improvement of the expressway from Yuanjiang to Mohei in Yunnan Province was taken up instead. The comprehensive feasibility study and environmental/social analysis for this project were undertaken by the Provincial Government of Yunnan.

[7] ADB. 2002. *Technical Assistance to Viet Nam for Preparing the Kunming-Haiphong Transport Corridor Project*. Manila (TA 4050-VIE, for $1 million, approved on 18 December).
[8] ADB. 2005. *Technical Assistance for Preparing the Greater Mekong Subregion: Rehabilitation of the Railway in Cambodia.* Manila (TA 6251-REG, for $500,000, approved on 12 August).
[9] ADB. 1997. *Technical Assistance for the Chiang Rai–Kunming Road Improvement via Lao PDR.* Manila (TA 5728-REG, for $600,000, approved on 27 February).

Table A13.3: Summary of Individual Project Preparatory Technical Assistance to the GMS Transport Sector

PPTA No. and Title	PPTA Activities/Recommendations	Resulting Loan No. and Title	Project Description (as per RRP)	Project Description (as completed)
TA 1981-PRC: Heilongjiang and Yunnan Expressway (approved on 16 November 1993; $320,000)	The TA reviewed the preliminary designs, economic and financial evaluations, and the environmental impact assessments carried out by the Provincial Communications Department in Heilongjiang and Yunnan. Further, the TA analyzed the impact of the proposed highways on the industries and livelihoods in the influence areas.	Loan 1325-PRC: Heilongjiang and Yunnan Expressway Project (approved on 29 September 1994; $150 million)	• For the Yunnan Province component, the scope included (i) construction of a four-lane limited access toll expressway of about 200 km in length, connecting Chuxiong and Dali cities, including seven interchanges with toll facilities, 11 bridges, service areas, and two tunnels; (ii) equipment and facilities for road maintenance and road safety, construction supervision, materials testing, toll road operations, and communications; and (iii) consulting services for construction supervision and training.	• All the outputs envisaged at appraisal were achieved at project completion. • Tunnel ventilation, lighting, emergency facilities, communications, and traffic monitoring facilities were not included in the initial design of the project due to the EA's lack of experience in designing long tunnels. These were eventually incorporated in the design, which further enhanced the effectiveness of the project. • Staff of the EA were provided domestic and international training on (i) quality control of civil works; (ii) project management; (iii) expressway design, management, and operation; (iv) traffic engineering; (v) expressway safety; and (vi) environmental protection.
TA 1982-PRC: Second Ports Development (approved on 16 November 1993; $420,000)	The TA undertook the review of the ports subsector in the PRC. It also reviewed the feasibility of the proposed ports for development, which included Fangcheng and Yantai. The review included the proposed access road for Fangcheng port and the environmental impacts of the proposed investments.	Loan 1427-PRC: Fangcheng Port (approved on 19 January 1996; $120 million)	• Port component: (i) construction of a one-berth container terminal and a one-berth bulk cargo terminal with a combined length of 486 m and a depth of 11.65 m; backup operational and open storage areas totaling 250,000 m^2; dredging of the port approach; expansion of the port rail marshalling areas and sidings; construction of related port buildings; and ancillary services; and (ii) procurement of handling equipment and port construction materials. • Highway component: (i) construction of a 20-km segment of 45-km two-lane port access expressway connecting the port with Nanning; and (ii) procurement of highway construction equipment and highway construction materials. • Support for policy reforms in port pricing, management efficiency and	All project components were carried out as the planned at appraisal.

PPTA No. and Title	PPTA Activities/Recommendations	Resulting Loan No. and Title	Project Description (as per RRP)	Project Description (as completed)
			autonomy, human resource development, and strengthening of port and highway planning institutions, construction, and O&M.	
TA 1997-VIE: Second Road Improvement (approved on 29 November 1993 for $2.1 million; supplementary financing amounting to $850,000 was approved on 31 May 1995)	Under this TA, a feasibility study was carried out for improving other sections of NH1, including the section from the PRC border to Hanoi and a 700-km section from Nha Trang to Dong Ha. The design report was completed in November 1995. The study found improvement of both sections feasible. During project preparation, it became apparent that developing the southernmost 60 km of the project road and considerable, but isolated, parts of the northernmost 100 km would require substantial involuntary resettlement. Initial surveys indicated that about 20,000 residents in about 5,000 households along the southern section alone would need to be resettled. On the northern section, resettlement requirements were lower, but the road traverses mountainous terrain, and a safe horizontal and vertical alignment would be prohibitively expensive. Extensive lengths of the highway were realigned to reduce resettlement problems and ensure traffic safety at an acceptable cost. Detailed engineering for the selected alignment of the national highway component was prepared under the TA, together with an EIA, a resettlement plan, and an action plan for ethnic minorities.	Loan 1487-VIE: Second Road Improvement (approved on 21 September 1996; $52 million)	• Rehabilitation of 161 km of NH1 from Hanoi north to the PRC border to a standard two-lane single carriageway with a width of 7 m and paved shoulders for slow-moving traffic. The southernmost 60 km were designed for future widening to four-lane dual carriageway standard. • Improvement of about 600-km of provincial, district, and commune roads in Lang Son and Ha Bac provinces where the highway passes, and the adjacent Cao Bang Province. • Institutional strengthening of the EA.	• **Highway Component.** When contractors were appointed and began detailed surveys, they found the design produced during project preparation seriously flawed. The design overlapped with an existing rail line, required realignment into a river, underestimated how soft the soil is over the last 60 km toward Hanoi, and significantly underestimated the work required for tasks such as rock excavation. Redesign was required for most of the highway project, and was performed by the supervision consultants and a team from the EA. Nevertheless, the improvement of about 161 km of NH was implemented as envisaged. The project road consists of 109 km of new alignment. The remaining 52 km coincides with the alignment of the old highway, which was rehabilitated. • During project implementation, significant savings were realized, and these were used to finance the expansion to four lanes on the southernmost 27 km of the road from the intersection with NH5 (which links Hanoi with Haipong and has four lanes) and NH18 (which links Haipong with Hanoi's international airport, and is being reconstructed to have four lanes). • In mid-2000, the Government requested the financing of four flyovers on the section of the road being constructed with four lanes, to allow for nonlevel crossing of major national/provincial roads with high traffic volumes.

PPTA No. and Title	PPTA Activities/Recommendations	Resulting Loan No. and Title	Project Description (as per RRP)	Project Description (as completed)
				• **Rural Roads Component.** Screening and prioritization of the provincial and district road networks was undertaken at the start of this component, based on information extracted from socioeconomic surveys conducted in each province. As a result, 33 provincial and district roads were selected, with a total length of 571 km.
TA 2197-CAM: Airports Improvement Project (approved on 3 November 1994; $500,000)	The PPTA assisted the Government and Civil Aviation Authority of the Kingdom of Cambodia to identify priority areas for further investment and to prepare one or more projects suitable for ADB assistance. It addressed the feasibility and immediate requirements for upgrading the airports (Siem Reap and Kang Keng) to the International Civil Aviation Organization appropriate Code C operational standards. It was also intended to produce an Airport Master Plan for the staging of development in line with forecast demand up to the airports' ultimate capacity.	Loan 1503-CAM: Siem Reap Airport (approved on 12 December 1996, $15 million)	The project consisted of the following main components: • civil works for aerodrome, operational buildings, and airport terminal; • equipment for air traffic services, aeronautical communications, and navigational aids; and • consulting services to assist in preconstruction activities (preparation of designs, tender documents, bid evaluation), project management, and construction supervision.	The intended project outputs were generally achieved at completion. Following the adoption of the Open Sky Policy in 1999 allowing the landing and departure of international flights at Siem Reap Airport, the Government requested ADB to change the terminal design from a domestic to an international airport in late 2000. ADB decided not to finance the international terminal but agreed to finance the construction of the domestic terminal building as designed at appraisal.
TA 5586-REG: Study of the Lao-Thailand–Viet Nam East–West Transport Corridor (approved on 18 July 1994; $1 million funded by the Government of France) TA 5885-REG: GMS Pre-Investment Study for the East–	**TA 5586-REG** • Three corridors were investigated: (i) Northern Corridor using Road 8 and leading to the port of Cua Lo near Vinh; (ii) Central Corridor using Road 9 leading to Da Nang; and (iii) two alternative new routes for the southern corridor from Pakxe, southern Lao PDR to the port of either Da Nang or Quy Nhon. **Recommendations** • First priority for investment should be the upgrading of the Central Corridor, comprising Road 9 in Lao PDR, and NH9 in Viet Nam. Road improvements should be supported by expansion of Da Nang port for container movements, and by construction of a bridge across the	Loan 1727-LAO and Loan1728-VIE: East–West Corridor Project (approved on 20 December 1999; $32 million-LAO and $25 million-VIE)	• Rehabilitation of Road 9 in the Lao PDR (about 78 km) and upgrading and partial rehabilitation of Road 9 in Viet Nam (about 83 km); • Construction and improvement of rural roads, bridges, river crossing systems, and other rural infrastructure in project area in the Lao PDR; • Implementation of mitigation measures as designed in the project; • Resealing, overlay, or reconstruction in various sections of existing road pavement from Xeno to the Viet Nam border, a distance of about 208 km. Some refurbishment of bridges and drainage structures included in costing; • Resealing or reconstruction in various	PCR is yet to be finalized. A draft PCR is available. Based on the findings of the draft PCR and of the PPER carried out in April 2008, the scope of the project was widened, utilizing loan savings arising due to construction contracts being much lower than estimated. In the Lao PDR, it included (i) upgrading a further 27.8 km of National Road 9 Kaysone Phomvihane–Xeno including street lighting and road-markings, (ii) expansion of the rural access program to 9 roads (total length 190 km) and construction of a bridge at Xe Namkok, (iii) additionals and renovations to border facilities, and (iv) various emergency flood repairs to roads in 5 provinces in 2002. In Viet Nam, it included (i) Dong Ha Southern

PPTA No. and Title	PPTA Activities/Recommendations	Resulting Loan No. and Title	Project Description (as per RRP)	Project Description (as completed)
West Economic Corridor (approved on 22 December 1999; $350,000) TA 5710-REG: Study of the Lao–Thailand-Viet Nam East–West Transport Corridor (approved on 11 December 1996; $3 million)	Mekong River between Mukdahan in Thailand and Kaysone Phomvihane in the Lao PDR. • A similar high priority exists for the Northern Corridor to at least maintain and progressively upgrade Road 8 in the Lao PDR and NH8 in Viet Nam. **Corridor Review** • The Northern Corridor, Road 8/NH8, remains a highly viable project and should proceed. • The Central Corridor, Road 9/NH9, is also a viable project. Assumed to be upgraded to a reasonable standard in the base network assumptions, it should be limited to minor upgrading and pavement repair to maintain the benefits currently provided. • The Southern Corridor B, Route 60, is also a highly viable project and should have priority in a medium-term construction program. **TA 5885-REG** • The RETA aimed to provide both a framework for cooperation and also coordinated follow-up action; identifying the priority projects, policies, programs, and institutions required to realize EWEC's full potential; quantifying the financial resources required and possible sources of financing; and clarifying the roles of the public and private sectors in corridor development. **TA 5710-REG** • Scope of TA included (i) Mekong River crossing comprised of the Second Thai–Lao Mekong Bridge and its associated approach roads and facilities, (ii) reconstruction of Road 9 in the Lao PDR, and (iii) upgrading of facilities in Da Nang and assessment of access roads improvement to the port.		sections of existing road pavement from Dong Ha, junction with highway NH1, to the Lao PDR border, a distance of about 83 km. Work should include some realignment for section between Khe Sanh and Dakrong. Some refurbishment of bridges and drainage structures included in costing.	Bypass (10.7 km) to accommodate through-traffic between Road 9 and Highway 1 south of the town; (ii) road widening and construction of sidewalks, kerbs and longitudinal drains through Cam Lo, Khe Sanh, and Lao Bao towns; (iii) frontage roads on Dong Ha Northern Bypass to preserve road access for dwellings following grade separation between road and railway; (iv) new maintenance facilities at Dong Ha, Cam Lo, and Khe Sanh; and (v) new border crossing facilities at Lao Bao.

PPTA No. and Title	PPTA Activities/Recommendations	Resulting Loan No. and Title	Project Description (as per RRP)	Project Description (as completed)
TA 5535-REG: Promoting Subregional Cooperation among Cambodia, the PRC, Lao PDR, Myanmar, Thailand, and Viet Nam – Phase II (approved on 10 June 1993; $4.5 million) TA 5649-REG: GMS Infrastructure Improvement: HCMC to Phnom Penh (approved on 9 November 1995; $3 million)	• Detailed designs have been prepared for the rehabilitation of the project road between Phnom Penh and HCMC which mostly follows existing alignments. Two significant exceptions in Cambodia are the 64 km of road at Ngik Ngouk, which need to be realigned to avoid resettlement; and at Svay Rieng (about 124 km), where a bypass has been designed for the town. • The road conditions along the project vary greatly with roughness levels recording deflection levels that indicate the need for reconstruction in Cambodia and significant asphaltic concrete overlays in Viet Nam.	Loan 1659-CAM and Loan 1660-VIE: Phnom Penh–HCMC Highway Project (approved on 15 December 1998; $40 million-CAM and $100 million-VIE)	• Improve about 240 km of road link from Phnom Penh to HCMC (160 km in Cambodia and 80 in Viet Nam) • Rehabilitate 105 km of road from Neak Loeung in Cambodia to border with Viet Nam at Bavet (105 km), and rehabilitate and repair roads from Phnom Penh to Neak Loeung (58 km). The road from Neak Loeung to the border at Bavet would be improved to double bituminous surface treatment standard with an overall width of 11.5 m. In addition, four new bridges would be built and six existing bridges rehabilitated. Works would pass through the provinces of Kandal, Prey Veng, and Svay Rieng. Works would also include construction of customs, immigration and other infrastructure at the border crossing. • In Viet Nam, the road would commence as Highway 22 at Moc Bai on the border of Cambodia, until the outskirts of HCMC, where it would form part of Highway No. 1 (would pass through Tay Ninh and Binh Duong provinces). Carriageway would vary from 2 to 6 lanes. Works would also include construction of customs, immigration and other infrastructure at the border crossing.	**Cambodia Component** • Plans for the Cambodia side were all implemented as envisaged, but the interim repairs of the Phnom Penh–Neak Loeung section were transferred to the Emergency Flood Rehabilitation Project (EFRP) because of floods in 2000. • The rehabilitation of Trabek bridges 1 and 2 was deleted from the scope to be undertaken under EFRP. • The main civil works bids for Neak Loeung–Bavet were significantly lower than the estimate. The savings were used to finance the rehabilitation of road RN11 (about 97 km), which had been damaged by the floods. A reallocation of about $8 million was made to cover civil works under EFRP. • The completed border facilities at Bavet have had X-ray machines, closed circuit television, and fire-fighting equipment installed. **Viet Nam Component** • Works were generally carried out as envisaged. The road improvements to NH1A and NH22A were implemented, but with delays. The road was improved to asphalt concrete standard with carriageways of 33 m, 26 m, of 14 m width, one or two lanes, and paved shoulders. • The works also included the construction of eight bridges and the rehabilitation of two bridges. • Loan savings were used to improve traffic efficiency and reduce the high rate of traffic accidents upon requests of the EA. • At appraisal, it was envisaged that a total of 80 km would be completed, but, because of the additional works, the

PPTA No. and Title	PPTA Activities/Recommendations	Resulting Loan No. and Title	Project Description (as per RRP)	Project Description (as completed)
				length of road improved under the Viet Nam component eventually totaled 96.35 km.
TA 5691-REG: Thailand–Cambodia–Viet Nam Southern Coastal Corridor (approved on 18 July 1996; $100,000) TA 6235-REG: GMS Southern Coastal Corridor (approved on 10 March 2005; $1 million; supplementary financing approved on 28 April 2006 for $75,000)	TA 5691-REG undertook the prefeasibility study covering engineering, economic, environmental, and social issues for the southern coastal road linking Thailand, Cambodia, and Viet Nam. The final report established the project's viability based on a preliminary analysis that focused on the Vietnamese portion of the Corridor. TA 6325-REG took on the findings from the previous TA and established the viability of the Cambodian portion connecting Route National 33 with the Lork border crossing to Viet Nam. From Xa Xia to Rach Gia, the alignment of the project road is clear. However, from Rach Gia to Ca Mau there are alternative routes, of which only one was considered under the previous TA. This TA, therefore, focused on identifying alternative routes; analyzing these alternatives for technical, economic, social, and environmental feasibility; and recommending the optimum alignment and standard of construction.	Loan 2372-VIE and Loan 2373-CAM: GMS Southern Coastal Corridor (approved on 28 November 1997; $75 million-VIE and $7 million-CAM)	• **Rehabilitation of Transport Infrastructure.** In Cambodia, National Road 33 will be improved to national road standard from the intersection with National Road 31 in Kampong Trach to the border with Viet Nam at Preak Chak, a distance of 15 km. The work will include replacing an existing steel bridge in the center of the border neutral zone. In Viet Nam, NH80 between the Cambodia border at Xa Xia and the start of the Ha Tien bypass, and NH63 between Minh Luong and the start of the Tac Cau Bypass, will be widened along the existing alignments. At Tac Cau, a 6.4 km bypass will be constructed about 1 km south and east of the existing NH63. This bypass requires four bridges, including two large bridges across Cai Be River (about 600 m total length) and Cai Lon River (about 680 m total length). NH63 between the end of the Tac Cau bypass and Thu Bay will be widened, and the construction of Thu Bay Bypass will be completed under the Project. • **Cross-Border Facilities.** A complete new facility will be constructed at Preak Chak on the Cambodian side; on the Vietnamese side, additional facilities to facilitate passenger and cargo inspections and processing are required to supplement those provided in a recently completed building. At Koh Kong, a new facility will be constructed on the Cambodia side that will be designed to take into account the requirements of the GMS CBTA.	Project is ongoing.

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TA 5728-REG: Chiang Rai–Kunming Road Improvement via Lao PDR (approved 27 February 1997; $600,000)	• A total of 1,200 km of roads from Kunming to Chiang Rai was investigated under the TA, although main focus of investigation had been on Route 3 of the Lao PDR section of the road because of the limited availability of secondary road data. • The Provincial Government of Yunnan has prepared a comprehensive feasibility and environmental/social analysis for the planned improvement of the Yuanjiang–Mohei road section. • The Department of Highways in Thailand likewise had good planning and implementation capabilities for upgrading and maintaining roads between Chiang Rai and the Lao PDR border at Chiang Khong.	Loan 1691: Southern Yunnan Road Development (approved on 24 June 1999; $250 million)	• Construction of 147 km of four-lane new access-controlled toll expressway between Yuanjiang and Mohei in Yunnan Province, PRC. Also includes 9 interchanges and 4 large and medium bridges totaling about 25,300 linear m. • Upgrading of about 540 km of feeder roads in designated areas in Yunajiang, Mojiang, and Pu'er counties.	• The actual completed length of expressway is 147 km, including nine interchanges as planned at appraisal, large and medium bridges totaling about 31,409 linear m, and tunnels totaling about 12,764 linear m. • The length of total large and medium bridges and tunnels was 17% more than the appraisal estimate. • Originally, the project included five service areas, but only three were constructed, as two were considered unnecessary. • The project expressway was constructed in accordance with technical standards for highway engineering issued by the Ministry of Communications in January 1998. ADB-supported TA contributed to the new design standards, which were appropriate and beneficial in many respects, particularly with regard to environmental protection, road safety, and integrated highway development. • The quality of construction of the Yunnan Yuan Mo Expressway is good, with average pavement roughness index of 0.75, falling well within the international roughness index for an expressway. • Lane widths ranged from 3.50 to 3.75 m with the provision of 3.5 m for climbing lanes in hilly areas to facilitate the passage of heavy vehicles. • Speed limits were set for all tunnels, even though these were not mandatory in the 1998 highway design manual. • Other specific safety measures taken to improve road safety included nine emergency escape lanes, 8 of which were constructed in 2004, and the placement of antiskid pavements in

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				tunnels, which have prevented more than 30 potentially major accidents caused by brake failures, mechanical breakdowns, and skidding.
TA 2903-THA: Border Towns Urban Development (approved on 27 October 1997; $800,000)	The scope of the TA comprised the preparation of • a strategic framework and a comprehensive package of development strategies, including (i) an assessment of the developmental roles of border towns in light of resource endowments, locational advantage, and policies and programs on decentralization, and opportunities emerging from subregional cooperation; (ii) selection of towns and assessment of constraints to productive capacity as well as the potential for development; (iii) strategic investment areas in both private and public sectors, and forecasts of future growth; and (iv) a set of strategies in priority sectors, infrastructure, policy, regulatory, financial, and institutional terms; and • an investment package for improving infrastructure, urban services, and management in selected border towns, including (i) detailed feasibility studies and preliminary cost estimates; (ii) social, financial, economic, and environmental analyses for project components; and (iii) project proposals and implementation arrangements.	TA did not result in an ADB project.		
TA 3220-PRC: Guangxi Highway Development (approved on 12 July 1999; $540,000)	The TA was intended to supplement the feasibility study prepared by the Guangxi Communications Planning, Survey, and Design Institute and the environmental impact assessment and resettlement plan undertaken by the Xi'an Highway University. Specifically, the TA (i) refined the feasibility studies in line with ADB's requirements;	Loan 1851-PRC: Guangxi Roads Development (approved on 9 October 2001; $150 million)	• Construction of 136 km of four-lane access-controlled tollway from Nanning (Wuxu) to Ningming, 43 km of four-lane class I road from Ningming to Youyiguan at the Viet Nam border, and 49 km of class II connector roads between the project road and major towns, including interchanges with toll	Loan was closed on 12 March 2008.

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	(ii) identified the need for transport services to support poverty reduction and minority development, and designed a road network improvement program to address these needs; (iii) carried out a detailed social analysis of the project and assisted GCD in preparing a minority people's development plan, and a resettlement plan; (iv) prepared the EIA report and the summary EIA in ADB's format; (v) reviewed the existing road maintenance system and proposed an improved road maintenance program to be adopted by GCD; (vi) reviewed the existing road safety design and traffic control and monitoring system in Guangxi, and assisted GCD in preparing a road safety improvement program; and (vii) assisted GCD in commercializing and corporatizing construction and operation of the project highway.		stations, bridges, administrative stations, service areas, and improvement of about 100 km of access roads to affected villages along the project road alignment. • Upgrading of about 507 km of complementary county and village roads to improve the local road network and the access to poor areas. • Procurement of equipment for road maintenance, toll collection, surveillance and communications, vehicle axle load testing, road safety, and office administration. • Land acquisition and resettlement. • Consulting services for construction supervision, monitoring, and evaluation, and in-country and international training for capacity building.	
TA 3642-PRC: Preparing the Western Yunnan Roads Development Project (approved on 20 March 2001; $770,000)	• The primary component would be the 80 (NH320) km of four-lane, limited access tolled expressway connecting Baoshan City with Longling, including 4 interchanges with toll stations, bridges, administrative stations, and rest-service areas. • The project would also include 294 km of local roads in Baoshan Prefecture. • The project would have no substantial human settlement impact but would have environmental implications, as the project road would include 24 km of tunnels and a large number of deep cuts. The expressway would also pass 4 km away from a United Nations protected area.	Loan 2014-PRC: Western Yunnan Roads Development (approved on 28 October 2003; $250 million)	• Construction of a 77 km four-lane access-controlled toll expressway from Baoshan to Longling, including 14.5 km of access roads, four interchanges, toll stations, administrative buildings, and service areas. • Upgrading of 294 km of local roads to improve access to poor and ethnic minority areas. • Procurement of equipment for road maintenance, toll collection, surveillance and communications, vehicle-weighing stations, and office administration. • Land acquisition and resettlement. • Consulting services for construction supervision, road safety audits, capacity building, and monitoring and evaluation.	Project is ongoing.
TA 3780-THA: North–Northeast Region Area	The TA was to prepare a sector project to help the Government implement in its policy to decentralize governance to local	TA did not result in an ADB project.		

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Development (approved on 26 November 2001; $600,000)	government agencies (LGAs), focusing on those within close proximity to major international highway corridors in the north and northeast. It was intended to assist LGAs to (i) identify, assess, and evaluate their overall development goals, and prepare master plans; (ii) based on agreed upon selection criteria and the findings of (i), prepare high priority subproject investments under the broad master plan; and (iii) prepare capacity-building proposals for LGAs to sustain their achievements.			
TA 3817-LAO: Preparing the Northern Economic Corridor Project-Lao PDR (approved on 19 December 2001; $600,000)	• Improvement of Lao PDR NH3 between Houayxay and Boten • Works would include 228 km of 7-m wide asphalt surface pavement **TA Recommendations** • Surface and minor widening improvements to the existing highway through the towns of Houayxay and Luang Namtha • Axle-load control facilities to be installed to prevent overloading • Development of rural access roads • Provision of temporary ferry facilities to cross Mekong River from Houayxay to Chinag Khong in Thailand • Project road improvement to be implemented under a design-build contract	Loan 1989-LAO: GMS–Northern Economic Corridor (approved on 20 December 2002; $30 million)	• The project road consists of approximately 228 km of NH3 from Houayxay in Bokeo Province to Boten in Louang Namtha Province. Of the 228 km, the last 20 km will follow the existing national route 13N to Boten. • The civil works will consist of (i) reconstruction and upgrading of the entire length of the road to a sealed, two-lane road; (ii) construction of new bridges, and widening of existing bridges as required; (iii) upgrading of ferry facilities at the Mekong River; and (iv) construction of 7.1 km of new bypass around the town of Louang Namtha.	Project is ongoing.
TA 5535-REG: Promoting Subregional Cooperation among Cambodia, the PRC, Lao PDR, Myanmar, Thailand, and Viet Nam –	The individual SSTAs were intended to confirm the findings of an earlier feasibility study undertaken under TA 5535.	Loan 1945-CAM: Cambodia Road Improvement (approved on 26 November 2002; $50 million)	**National Road 5 and National Road 6**: • Rehabilitation of a road section of about 150 km of highway and about 45 bridges on National Road 5 and National Road 6 to a two-lane asphalt-concrete carriageway with paved shoulders. Although the road alignment will be generally retained, horizontal and vertical curves at bridge approaches will be improved. The road will have	Project is ongoing.

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Phase II (approved on 10 June 1993; $4.5 million) SSTA 3852-CAM: Economic Analysis for the GMS-Cambodia Road Improvement Project (approved on 4 April 2002; $150,000) TA3854-CAM: Environmental Assessment for the GMS Cambodia Road Improvement Project (approved on 11 April 2002; $60,000) TA 3855-CAM: Resettlement Study and Social Impact Assessment for the GMS Cambodia Road Improvement Project (approved on 11 April 2002; $150,000) TA 3868-CAM: Cambodia Road Improvement Project			adequate drainage structures, and the embankment will be raised to 20-year event flood level. • Construction of cross-border facilities in Poipet, which will provide single-stop, single-window facilities for vehicles. • Construction of weigh stations on National Road 5 in Poipet and on National Road 6 in Siem Reap to deter overloaded traffic. **NR56 and NR68:** • Reconstruction of about 50 bridges on the provincial roads National Road 56, connecting Sisophon to Samrong (114 km), and National Road 68, connecting Samrong to Kralanh (79 km), which forms a loop of about 200 km to the north of National Road 6. • Rehabilitation of the pavements of National Road 56 and National Road 68 is not envisaged under the project.	

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Engineering Design Update (approved on 31 May 2002; $400,000)				
TA 4050-VIE: Preparing the Kunming–Haiphong Transport Corridor Project-Viet Nam (approved on 17 December 2002; $1 million)	• TA evaluated two road sections: (i) Road E1-290km of four-lane highway currently under consideration by the Vietnamese government (Highway No.70, 113 km from Ho Kieu Bridge to 85-km post, 4 lane of Highway Nos.70 and 2, the section with 124 km from 85 km to Hung Temple, and Bypass of Highway No.2 for 4-6 lanes from Hung Temple to Noi Bai; and (ii) Road E2 - limited access toll expressway from Lao Cai to Noi Bai (260 km from Lao Cai at the border to the PRC, From Yen Bai the proposed expressway with 2-4 lanes will follow the existing rail alignment to Viet Tri and thereafter follow the similar alignment to Noi Bai airport but with the expressway standard. **TA Recommendation** • In consideration of the analysis undertaken under the TA as the first priority, the investment in the road sector was recommended with the construction of an expressway (E2), which is upgrading the existing highway network from Lao Cai to Noi Bai.	Loan 2222-VIE: GMS Kunming–Haiphong Transport Corridor–Noi Bai-Lao Cai Highway Project Technical Assistance (approved 19 December 2005; $6 million) Loan 2391/92: GMS: Kunming–Haiphong Transport Corridor–Noi Bai–Lao Cai Highway Project (approved on 14 December 2007; $1,096 million)	**Loan 2222-VIE** • TA Loan is to undertake (i) detailed engineering design; (ii) updated economic and financial studies based on the detailed engineering designs and costs; (iii) social and environmental studies, including EIA, and resettlement and ethnic minority development plans; and (iv) procurement assistance for civil works, and construction supervision consulting services required for the highway project, so that related contracts will be ready for award when project loans become effective. • TA Loan is ongoing and is expected to be completed by 30 June 2009. **Loans 2391–2392-VIE** • The Project covers the first stage of the highway, four lanes for the Noi Bai–Yen Bai section and two lanes for the Yen Bai–Lao Cai section. **Expected Outputs** • 244 km highway, including 10 grade-separated interchanges with toll booths and axle-weighing equipment, and five service areas, starting at Noi Bai and ending at Tran Hung Dao Road in Lao Cai City • electric, communication, and tolling systems for the highway and associated facilities, and highway O&M equipment and vehicles • access roads, underpasses, and overbridges connecting land and	Both projects are ongoing.

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			communities on either side of the highway to be provided at 500-m intervals on average, to ensure an appropriate balance between social impacts and construction costs	
TA 4119-PRC: Guangxi Roads Development II (approved on 23 May 2003; $500,000)	The TA was to assist GCD to (i) refine the feasibility study, including the EIA and summary EIA, resettlement plan, and poverty impact analysis for the proposed Project, in conformity with ADB's requirements; (ii) broaden the scope to make it more pro-poor by integrating a local road component into the Project; (iii) identify socioeconomic indicators and the monitoring mechanisms; (iv) confirm the technical, economic, and financial viability of the proposed investments; (v) review and update transport and road profiles; and (vi) provide the basis for further policy dialogue in such areas as the poverty impact of road projects, vehicle emissions, nongovernment financing, expressway corporatization and commercialization, road safety, asset management, and pricing policies for road users.	Loan 2094-PRC: Guangxi Roads Development II (approved on 16 September 2004; $200 million)	• Construction of about 188 km of a four-lane access-controlled toll expressway, 25 km of class II connecting roads, 12 interchanges, 12 toll stations, 3 traffic control centers, 8 roadside stations, and 4 asset management and maintenance centers. • Upgrading of 250 km of intercounty roads and 500 km of minority village roads. • Equipment for asset management and road maintenance, and expressway toll collection, surveillance, communications, safety, and vehicle-weighing stations. • Land acquisition and resettlement. • Capacity building.	Project is ongoing.
TA 4129- PRC: Dali–Lijiang Railway (approved on 18 July 2003; $500,000)	The TA's principal objective was to review and strengthen the project feasibility study, the EIA, the resettlement plan, and related studies to meet ADB's requirements. It also sought to identify policy measures and institutional development needs that will improve the railway's operational efficiency and management, ensure financial sustainability of its operations, and identify the social dimensions to be incorporated in the project design, including measures proposed to enhance social development and reduce poverty in the project area.	Loan 2116-PRC: Dali–Lijiang Railway Project (approved on 2 December 2004; $180 million)	• Construction of 167 km of single-track, standard gauge, Class I railway, reserved for electrification, between Dali and Lijiang, and expansion of the capacity of the existing Guangtong–Dali line (Guangda line) to accommodate additional traffic.	Project is ongoing.

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TA 6227-REG: Coordinating for GMS–North South Economic Corridor Bridge Project (approved on 23 December 2004; $415,000)	The objective of the TA is to select the best site for the bridge in light of the engineering survey, economic and financial analyses, and initial social and environmental impacts assessment. The TA will hold coordination meetings to facilitate mutual agreements on the bridge project among the governments of PRC, Lao PDR, and Thailand, and ADB so that the ensuing stage of the bridge project such as detailed designs of the bridge, construction supervision, toll arrangements, cross-border traffic operation, and bridge maintenance may be started. TA is still ongoing and is expected to be completed by September 2009.	Has not yet resulted in a loan.		
TA 6235-REG: GMS Southern Coastal Corridor (approved on 10 March 2005; $1 million; supplementary financing amounting to $75,000 was approved on 28 April 2006)	The intended TA outputs were (i) analyses of transport links and determination of the economic, technical, social, and environmental feasibility for (a) each component, (b) components within each country, and (c) the project as a whole; (ii) a matrix ranking components and options for combinations of components to form logical projects for a range of funding levels; (iii) determination of facilities required at the Cambodia–Viet Nam border on the project road; and (iv) a multimodal study on the movement of goods and people within the project influence area.	Loans 2372-VIE and 2373-CAM: GMS Southern Coastal Corridor (approved on 28 November 2007 for $75 million-VIE and $7 million-CAM)	• **Rehabilitation of transport infrastructure.** In Cambodia, 15 km of NR33 will be improved to the border with Viet Nam at Preak Chak. In Viet Nam, 96.1 km of NH80 and NH63 will be improved, including construction of two large bridges across the Cai Be and Cai Lon rivers. • **Cross-border facilities.** New cross-border facilities will be constructed, whose designs will take into account the ongoing work under the ADB's TA 6307-REG on the Implementation of the GMS Cross-Border Transport Agreement approved in 2006. • **HIV/AIDS and trafficking awareness and prevention program** • **Road maintenance in Cambodia**	Project became effective on 29 May 2008.
TA 4050-VIE: (Supplementary: Preparing the Kunming–Haiphong Transport	• TA also evaluated two railway projects: (i) Rail R1 – limited upgrading of the existing rail from Lao Cai to Yen Vien; and (ii) Rail R2 **–** dual-track railway capacity expansion from Lao Cai to Yen Vien	Loan 2302-VIE: GMS–Kunming-Haiphong Transport Corridor: Yen Vien–Lao Cai	• The project railway line is a non-electrified single-track meter-gauge line, traversing about 285 km in a generally northwesterly direction from Yen Vien station, along the northern bank of the Red River to Lao Cai.	Project is ongoing.

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Corridor (GMS Hanoi–Lao Cai Railway Upgrading) (approved on 14 June 2005; $350,000)	**TA Recommendation** • The TA recognized that R1, limited railway upgrading, is a viable option for consideration as a second priority, especially for facilitation of local mobility over the section of Viet Nam for the time being. R1 is a cost-effective project from short-term and financial view. Upgrading with rehabilitation of existing line will provide double the capacity but will reach capacity constraint soon, probably in less than 10 years based on traffic demand forecast.	Railway Upgrading (approved on 19 December 2006; $60 million)	**Expected Project Outputs** • **Track component.** (i) improving the alignment of about 240 km of existing track, especially at sharp curves and in the vicinity of the Red River; (ii) replacing worn-out rails with heavier hardened-steel rails; (iii) replacing old sleepers and fastenings to prevent gauge expansion; (iv) replacing worn-out turnouts on the main line, and (v) ballasting of track. • **Bridge component.** (i) construction of six new bridges, (ii) rehabilitation of 13 bridges, and (iii) strengthening of up to 60 substandard bridges. • **Terminals component**. (i) constructing a new intermediate station at Mai Tung at km 124+200 including passing loops; (ii) constructing additional passing loops (each with length of 480 m) at nine stations; (iii) extending existing passing loops (minimum length of 450 m) at a further eight stations; (iv) upgrading station facilities at North Yen Vien, Van Phu, Yuan Giao 'A', and Lao Cai; and (v) providing operational facilities at selected stations.	
TA 6251-REG: GMS Rehabilitation of the Railway in Cambodia (approved on 12 August 2005; $500,000; supplementary financing approved on 6 December 2005 for $125,000)	• The planned rehabilitation works are limited to those basic items, such as, ballast, sleepers, rail joints, improvement of track irregularities, and rehabilitation/reconstruction of bridge and culverts. **Specific Recommendations** • Improvement of fork station • Rail welding on Southern Line • Replacement of rails and sleepers on Northern Line • Signaling and telecommunications system	Loan 2288-CAM: GMS Rehabilitation of the Railway in Cambodia (approved on 13 December 2006; $42 million)	• **Rehabilitate the Southern Line.** (i) rehabilitation of the Southern Line from Phnom Penh to Sihanoukville (approximately 254 km), including repairs to embankments, sleepers, fittings, and ballasting; (ii) rehabilitating or reconstructing structures including bridges, culverts, buildings, and drains; (iii) constructing a new passing loop; (iv) tamping track to restore an operational speed of 50 km per hour; (v) rehabilitating the rail link to the port in Sihanoukville, and extending it to the container port; and (vi) undertaking	Project is ongoing.

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	• Realignment of Thai–Cambodia route • Construction of cargo handling facilities near fork station		ancillary works at level crossings. • **Rehabilitate the Northern Line**. (i) rehabilitating the Northern Line from Phnom Penh to Sisophon (approximately 340 km), including repairs to embankments, ballasting, and installation of missing fittings; (ii) rehabilitating or reconstructing structures including bridges, culverts, buildings, and drains; (iii) tamping track to restore an operational speed of 50 km per hour; (iv) rehabilitating an existing rail link to the port at Phnom Penh on the Mekong River; and (v) undertaking ancillary works at level crossings. • **Reconstruct the destroyed rail link**. (i) reconstructing the destroyed rail link from Sisophon to Poipet (48 km) and reestablishing the railway connection across the border, including making major repairs to embankments, preparing track bed and ballasting, rehabilitating or reconstructing structures including bridges, culverts, buildings and drains, and laying track; (ii) constructing ancillary facilities at level crossings; and (iii) building passing loops and a station at Poipet with facilities for border crossing.	
TA 4657-PRC: Yunnan–Yuxi Mengzi Railway (approved on 29 September 2005; $500,000)	The TA had two components: (i) Yuxi–Mengzi Railway Project, and (ii) Railway Safety Development Project. The specific activities under the TA included the following: • assisted the Government to review and strengthen the feasibility study, the EIA, and the resettlement plan to satisfy the requirements for ADB financing of the proposed construction of a 141 km Class I railway between Yuxi to Mengzi; and	Has not yet resulted in a loan.		

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	• assisted the Government to review and strengthen the feasibility study for the development of railway safety component, which covered technical, institutional, economic, and financial analysis to help enhance safety in national railway operations. **Changes in Scope** • ADB approved on 7 February 2006 a major change in scope replacing the Yuxi–Mengzi Railway component with the Fuling–Lichuan Railway. • ADB approved on 29 Aug 2006 a minor change in scope to include the section from Chongqing to Fuling, thereby changing the project component from Fuling–Lichuan Railway to Chongqing–Lichuan Railway.			
TA 4742-LAO: GMS Northern Transport Network (approved on 19 December 2005; $800,000)	The expected output from the TA was a project design and feasibility study agreed upon by ADB and the Government. Specific activities were: • analysis of transport links to determine the economic and technical feasibility and the social and environmental acceptability of upgrading roads; several routings were identified from Thailand to Route 4; • a matrix that ranks components and provides options for combining components to form logical projects for a range of funding levels; • review of the facilities at the Lao–Thai border on the project road; • assessment of the road subsector suitability for a sectorwide approach (SWAp) by the developing partners and setting up a program to adopt a SWAp; and • review of EA's capacity to implement a	Grant 0082-LAO: Northern GMS Transport Network (approved on 27 September 2007; $27 million)	Activities under the project include • improvement of 367 km of Route 4 from Xiang Ngeun to Nakha, construction of a bridge over the Mekong River on the project road, and improvement of about 100 km of rural access roads in the project area; • procurement of equipment for use in operating and facilitating the border crossing at Kenthao, now under construction, and for enforcement of axle-load controls on the project road; • construction supervision and monitoring and evaluation as well as detailed design for the rural access roads; • maintenance of the national road network by providing financing for periodic road maintenance; • improvement of road safety by financing consulting services to continue the ongoing road safety assistance program; and	Project is ongoing.

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	SWAp.		• a program to reduce the risks of HIV/AIDS/sexually transmitted infections (STIs) and human trafficking that may develop during the improvement and operation of the project road.	
TA 4782-PRC: Central Yunnan Roads Development (approved on 28 April 2006; $500,000)	The TA is expected to develop an integrated road transport system supporting sustainable economic growth in Yunnan Province and facilitating cooperation among GMS countries. Key TA activities include • analysis of transport demand in the region, assessment of road infrastructure and road transport services; • review of the technical and financial aspects of local road maintenance; • development of a results-based monitoring system, including performance indicators; • development of policy reform measures; • review of the potential for private sector participation; and • social and poverty assessment, financial, economic analyses, and institutional analyses. All the above activities have been completed. The TA was closed on 30 September 2008.	Has not yet resulted in a loan.		
TA 4792-PRC: Guangxi–Longlin–Baise Expressway (approved on 26 May 2006; $500,000)	Some key TA activities included • analysis of transport demand in the region, assessment of adequacy of road transport, and assess adequacy of transport services; • improvement of project design and feasibility study to a level suitable for ADB financing and agreed upon by the Government and ADB; • social and poverty assessment, financial and economic analysis, and institutional analysis;	Loan 2345-PRC: Western Guangxi Roads Development Project (approved on 14 August 2007; $300 million)	• Construction of 177 km, access-controlled toll expressway from Baise to Longlin (Guizhou border); and installation of facilities and equipment at the Wantong Logistics Center at Pingxiang, on the main Nanning–Hanoi corridor • Upgrading of 1,060 km of local roads in Baise comprising (i) 3 priority border road sections totaling 50 km, (ii) 3 priority rural road sections totaling 260 km, and (iii) village access roads	Project is ongoing.

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	• baseline survey and initial environmental examination; and • finalization of project design and monitoring framework. All of the above were accomplished satisfactorily.		totaling 750 km • Construction of 2 border area bus stations at Longbang and Yuexu, and 48 township bus stations in Baise, and implementation of the passenger bus route licensing reform in Baise	
TA 4913-LAO: Greater Mekong Subregion Louangphrabang Airport Improvement (approved on 8 December 2006; $600,000)	The expected output of TA is a feasibility study for improvement of Louangphrabang Airport and a project suitable for financing. Some key TA activities include • preparation of traffic forecast for Louangphrabang Airport; • preparation of a preliminary design for the project; • conduct of economic, financial, and distribution analysis; • consultations with stakeholders including government officials, project beneficiaries, and affected people, including women and the poor; • finalization of the project design, monitoring framework, and results-based monitoring system, including performance indicators; and • development of institutional structure and sources of financing for the project. All the above activities have been completed, but TA is still ongoing and is expected to be closed by 30 April 2009.	Has not yet resulted in a loan.		
TA 4970-PRC: Western Yunnan Roads Development II (approved on 28 September 2007; $500,000; supplementary financing	The TA intends to examine the project documents, and prepare a project that is technically, economically, and financially feasible and complies with ADB's safeguard policies on the environment, resettlement, and indigenous peoples. The TA is also expected to help develop a results-based monitoring system with adequate baseline and target values identified. Key activities	Has not yet resulted in a loan.		

PPTA No. and Title	PPTA Activities/Recommendations	Resulting Loan No. and Title	Project Description (as per RRP)	Project Description (as completed)
amounting to $100,000 approved on 14 March 2008)	will include field surveys, document review, data analysis, and discussion with stakeholders, including government officials, project beneficiaries, and project-affected people. TA is still ongoing and is expected to be completed by 31 December 2008.			

ADB = Asian Development Bank, CBTA = Cross-Border Transport Agreement, EA = executing agency, EIA = environmental impact assessment, EWEC = East–West Economic Corridor, GCD = Guangxi Communication Department, GMS = Greater Mekong Subregion, HCMC = Ho Chi Minh City, HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome, km = kilometer, Lao PDR = Lao People's Democratic Republic, m = meter, NH = national highway, O&M = operation and maintenance, PCR = project completion report, PPER = project performance evaluation report, PPTA = project preparatory technical assistance, PRC = People's Republic of China, RETA = regional technical assistance, RRP = report and recommendation of the President, SSTA = small-scale technical assistance, TA = technical assistance.
Sources: Operations Evaluation Mission and Asian Development Bank technical assistance database.

CHANGE IN THE MOVEMENT OF PEOPLE AND VEHICLES ON GMS REGIONAL ROADS

1. Tables A14.1 and A14.2 show the changes in the number of people crossing two key international borders at Moc Bai and Lao Bao. The figures indicate a consistent increase in the number of persons and vehicles after the completion of the project improvement between 2004 and 2007.

Table A14.1: Persons and Vehicles Crossing Viet Nam–Cambodia Border at Moc Bai–Bavet

	Persons Crossing			Vehicles Crossing		
Year	From Viet Nam to Cambodia	From Cambodia to Viet Nam	Total	From Viet Nam to Cambodia	From Cambodia to Viet Nam	Total
1997	26,631	27,759	54,390	6,799	6,839	13,638
1998	22,063	23,040	45,103	2,967	3,075	6,042
1999	34,762	37,408	72,170	3,513	3,451	6,964
2000	37,267	38,397	75,664	2,042	2,040	4,082
2001	58,044	59,885	117,929	2,057	2,070	4,127
2002	81,644	87,978	169,622	805	804	1,609
2003	64,504	67,508	132,012	2,888	1,468	4,356
2004	151,993	243,552	395,545	1,751	2,024	3,775
2005	232,637	242,583	475,220	2,852	2,538	5,390
2006	300,906	171,120	472,026	5,640	5,766	11,406
2007	541,989	165,641	707,630	7,442	7,605	15,047

Source: Tay Ninh Customs Office.

Table A14.2: Persons and Vehicles Crossing Viet Nam–Lao Border through Lao Bao

Year	Persons Crossing	Vehicles Crossing
1998	69,279	35,886
1999	83,357	41,812
2000	95,543	47,738
2001	95,643	38,683
2002	84,047	33,511
2003	101,366	45,138
2004	135,225	58,088
2005	143,048	51,416
2006	183,557	51,815
2007	273,872	55,544

Source: Lao Bao Customs.

2. The movement of freight across the border has also increased, as seen in Tables A14.3 and A14.4.

Table A14.3: Exports and Imports through Viet Nam–Cambodia Border at Moc Bai–Bavet

Year	Exports		Imports		Total	
	Weight (mil. tons)	**Value** ($ million)	**Weight** (mil. tons)	**Value** ($ million)	**Weight** (mil. tons)	**Value** ($ million)
1997	4.9	5.8	9.7	1.5	14.6	7.3
1998	5.8	3.1	3.7	2.1	9.5	5.2
1999	10.2	7.0	5.1	3.3	15.3	10.3
2000	7.6	5.9	2.1	2.3	9.7	8.2
2001	10.6	5.9	1.2	1.5	11.8	7.4
2002	NA	4.6	NA	0.3	NA	4.9
2003	NA	23.9	NA	0.2	NA	24.1
2004	38.9	21.3	0.8	0.5	39.7	21.8
2005	30.6	27.5	9.0	15.3	39.6	42.8
2006[a]	19.7	20.5	17.1	47.5	36.8	68.0

[a] Estimated based on the data for January and February 2006.

Source: Tay Ninh Customs Office.

Table A14.4: Exports and Imports through Lao Bao Border Crossing

Year	**Weight** (tons)	**Value** ($)
1998	184,859	91,339,826
1999	192,670	128,563,507
2000	261,750	57,990,697
2001	167,550	45,978,669
2002	89,765	21,531,199
2003	101,925	29,287,016
2004	172,568	46,302,796
2005	194,530	67,964,397
2006	279,870	136,188,281
2007	373,968	148,503,140

Source: Lao Bao Customs.

3. Despite the positive changes seen in the above tables, the cross-border roads face a limitation. The majority of the traffic on the roads is national rather than international. Using a sample of vehicles on the East–West Corridor and the Phnom Penh–Ho Chi Minh Highway, it was found that international traffic was a small percentage of the overall traffic (Table A14.5). While this in itself is not necessarily a negative feature, it reduces the effectiveness of the main aim, which is cross-border trade. It also points to the fact that there remains potential for growth in the cross-border trade. It is expected that this growth will happen after the implementation of the Cross-Border Transport Agreement.

Table A14.5: Distribution of National vs. International Traffic

Country	**Project**	**International Traffic** (%)	**National Traffic** (%)	**Total Number of Vehicles Surveyed**
Viet Nam	National Highway 9 (East–West Corridor)	26	74	2,067
	National Highway 22 (Phnom Penh–Ho Chi Minh City Highway)	7	93	5,019
Cambodia	Route National 1 (Phnom Penh–Ho Chi Minh City Highway)	20	80	2,367
Lao PDR	Route National 9 (East–West Corridor)	36	64	

Lao PDR = Lao People's Democratic Republic.

Source: Operations Evaluation Department consultant's survey.

4. Three road projects have been completed in the People's Republic of China within the Greater Mekong Subregion program. The Yunnan Expressway (Loan 1325), Southern Yunnan Road (Loan 1691), and Guangxi Roads (Loan 1851) involved constructing new expressways in Yunnan Province. Table A14.6 provides a comparison of the average annual daily traffic forecast at appraisal, at completion, and the current estimate. The figures indicate that the traffic forecast was distinctly scaled down at completion in view of the fact that the forecast at appraisal was optimistic. Subsequently, the traffic has grown in line with the increasing economic activity in the two provinces.

Table A14.6: Annual Average Daily Traffic on PRC Roads

Project Data Source	AADT Forecast for 2007 at Appraisal (from RRP)	AADT Forecast for 2007 at Project Completion (from PCR)	Actual AADT in 2007 (from Government)
Yunnan Chuda Expressway (Loan 1325)	8,723	5,861	9,353
Yuanmo Expressway (Loan 1691)	8,159	5,046	6,130
Average for the whole expressway alignment of Guangxi Roads Development Project (Loan 1851)	3,785	2,420	The project was completed in March 2008. The PCR forecast provides the latest figures.

AADT = annual average daily traffic, PCR = project completion report, PRC = People's Republic of China, RRP = report and recommendation of the President.
Source: Provincial Department of Communications in Yunnan and Guangxi.

5. Table A14.7 shows the international traffic on the Mohan–Boten border between Yunnan and the Lao People's Democratic Republic (Lao PDR). There was a gradual increase in the traffic until 2007, when there was a major rise in traffic due to the opening of the northern economic corridor linking the People's Republic of China with Thailand.

Table A14.7: International Traffic on Mohan–Boten Border between Yunnan Province and the Lao PDR

Year	Passenger Volume Number of Persons	Cargo Volume (10,000 tons)	Number of Vehicles from Yunnan to Lao PDR	Number of Vehicles from Lao PDR to Yunnan
2003	8,961	3.56	2,114	6,679
2004	27,841	3.89	2,408	6,088
2005	39,254	4.75	4,152	6,153
2006	58,361	7.34	6,279	12,138
2007	95,182	41.03	15,356	29,306

Lao PDR = Lao People's Democratic Republic.
Source: Yunnan Provincial Highway Department.

6. The economic reevaluation of the Champasack Road Improvement Project (Loan 1369) was carried out in 2005. This road connects Pakxe town in the Lao PDR with the Cambodian and Thai borders. Table A14.8 shows the average daily traffic on the various sections of the road. Although there has been an increase in the daily traffic, most of it is national traffic.

Table A14.8: Average Daily Traffic on Champasack Road Improvement Project in the Lao PDR

Survey	Contract A Pakxe–Chong Mek (Thai border)	Contract B1 Pakxe–Km 8 Junction	Contract B2 Km 8 Junction–Phiafay	Contract C Phiafay–Nasenphan	Contract D Nasenpan-Veun Kham (Cambodia border)
Appraisal (1994)	445	1,500	653	84	—
Project Completion (2000)	1,289	6,211	2,726	262	265
Operations Evaluation (2005)	2,778	14,461	4,942	1,389	1,280

— = not available, km = kilometer.
Sources: Asian Development Bank loan documents and Operations Evaluation Mission traffic survey.

7. The stories in the box illustrate how road improvement has changed the life of farmers.

Case Studies

Case Study on the Phnom Penh–Bavet Road in Cambodia
Won Phi, a farmer, lives in a middle-size brick house located along road RN1 a few kilometers outside of Bavet. He has been living in the area since 1981 but built the present house in 2005 when the road was completed. He owns 2 hectares (ha) of rice fields and three water buffaloes. He has traditionally been selling his rice surplus to Viet Nam. He can now get $0.25/kilogram (kg) for rice compared with $0.1/kg before. Road improvement has changed his life and brought to him a new source of income. When the road was completed, he bought a motorcycle and now goes to Viet Nam to pick fruits, which he sells at the Svay Rieng market. He started this operation in 2004. In 2002–2003, his monthly income was $20–30. In 2007, his average monthly income resulting from his new economic activity climbed to $50–75.

Case Study on East–West Corridor (RN9) in Dansavanh, Lao PDR
Mr. Khamkhong is a farmer in Dansavanh village. His family comprises seven members. He owns 1.6 ha. The household income comes from the rice fields. Some years, they can get cash income by selling surplus rice, but other years they do not have enough rice for their own consumption. They do gardening to grow vegetables, bananas, and other cash crops to earn more money. Before road completion, they could produce a lot of rice, but it was difficult to bring it to the market. After road completion, their production has increased by 50% through the expansion of the rice fields by using machines to grow rice on steep slopes and by adding fertilizer. Now, after road completion, it is easier to bring the production to the market. Prices are also better. Two years back, rice was only around KN2,500/kg. Now it sells for almost KN5,000/kg.

Case Study of a Vendor in Dansavanh, Lao PDR
Mrs. Doung is a salesperson in Dansavanh village, and she also operates a private bus from Dansavanh to Kaysone Phomvihane. There are eight private buses and eight public buses in service. Mrs. Doung provides services three times per week, switching with the public buses. Her family includes her husband and two children and her parents. Before road completion, she was a gardener. Her family has a garden of around 2 ha along the Xepon River. They have been planting fruit trees, corn, and some vegetables and also 500–600 rubber trees. She gets income from the sale of these products at Dansavanh market. Her family does not have rice fields, so she needs to buy rice. After road completion, her sales increased, and it is easier to buy things to sell in the Dansavanh market. She and her husband have been operating their private bus service from Dansavanh border to Kaysone Phomvihane for 3 years since road completion. From this business, her family can earn an additional income of KN3,000,000/month.

Lao PDR = Lao People's Democratic Republic, RN = route national.
Source: Operations Evaluation Department consultants' surveys.

ECONOMIC ANALYSIS OF TRANSPORT PROJECTS

A. Background

1. This economic analysis used the following road projects to analyze the indicative economic viability and the economic benefits likely to be achieved on other Greater Mekong Subregion (GMS) projects:

(i) Phnom Penh–Ho Chi Minh City (HCMC) Highway; and
(ii) East–West Economic Corridor (EWEC) linking Kaysone Phomvihane in the Lao People's Democratic Republic (Lao PDR) to Dong Ha in Viet Nam.

2. These two projects are among the few GMS road projects completed, and they were the ones selected by GMS country delegates as first priority corridors.

3. The series of economic analyses carried out at appraisal as well as at completion of these projects concluded that the two road projects were highly economically justifiable as a whole and for each road component. This meant that the projects were perceived as a win-win situation for Cambodia, Lao PDR, and Viet Nam. Approximately 10 years after the first project economic appraisal, this sector assistance program evaluation (SAPE) is carrying out a reevaluation of the economic analyses to support its bottom–up assessment.

B. Objectives of a New Road Project Economic Analysis

4. The economic reevaluation in this appendix provides answers to the following questions:

(i) Are the road projects, under current conditions, still as highly economically justifiable?
(ii) Are the project net economic benefits, under current conditions, in line with what was expected at appraisal?
(iii) How are the net economic benefits distributed among participant countries, and is that distribution similar to what was expected at appraisal?
(iv) What is the contribution of international traffic to the net economic benefits, and how does this compare with the expectation at appraisal?
(v) Expanding on question (iii) above, who are the real beneficiaries of the projects (by citizenship), and what has been the trend in the benefit differential since project completion?

5. The methodology required to answer the above questions implies carrying out series of new economic analyses. The approach is in line with that discussed by Ramesh Adhikari and John Weiss in their 1999 paper entitled "Economic Analysis of Subregional Projects" with special attention given to noncommercial application (highways).

C. Traffic Surveys

6. New traffic counts[1] were carried during March 2008 in Cambodia, Lao PDR, and Viet Nam. To the extent possible, traffic counts took place at the same locations[2] as previously. Daily

[1] Five-day, 18-hour traffic counts were carried out in at least three locations on all segments of the road projects.
[2] Locations were carefully selected in order not to register local urban traffic. It was not easy, however, to ensure that counts were conducted at the same locations as the ones used by previous reports. First, in quite a few of the referenced reports, there is no clear indication of the exact locations of traffic counts. Second, Cambodia, Lao PDR, and Viet Nam do not yet conduct regular traffic counts.

averages could, without significant risk of error, be interpreted as annual average daily traffic (AADT) without recourse to expansion factors.[3]

7. Traffic counts were recorded according to the vehicle classification[4] used by the Highway Development Management (HDM)-4 and road economics decision (RED) models. Often, traffic surveys in the past used different vehicle classifications, and therefore assumptions were made to permit comparisons. The findings below from the surveys are presented by country. AADT is calculated with and without motorcycles.

1. Cambodia

8. For the purpose of the economic analysis, AADT at Neak Loeung (after the ferry) is selected as the typical representative traffic along the stretch from Neak Loeung to Bavet (105 km). AADT without motorcycles, 2,449, is the figure retained (Table A15.1).

Table A15.1: Cambodia Annual Average Daily Traffic (2008)

Item	MC	Car	Light Bus/Van	Medium Bus	Large Bus	Light Truck or Pick Up	Medium Truck	Heavy Truck	Articulated Truck	With MC	Without MC
A. Neak Leoung RN11											
Traffic count	5,810	521	178	33	6	107	225	230	15	7,125	1,315
AADT	**5,810**	**526**	**180**	**33**	**6**	**114**	**239**	**258**	**16**	**7,182**	**1,372**
B. Neak Leoung RN1											
Traffic count	7,248	894	655	30	44	241	247	240	20	9,615	2,367
AADT	**7,248**	**903**	**662**	**30**	**44**	**256**	**262**	**269**	**23**	**9,697**	**2,449**
C. Bavet RN1											
Traffic count	3,974	3,234	643	129	43	362	99	62	43	8,589	4,615
AADT	**3,974**	**3,266**	**650**	**129**	**43**	**384**	**105**	**70**	**47**	**8,668**	**4,694**
Expansion Factor	**1.00**	**1.01**	**1.01**	**1.00**	**1.00**	**1.06**	**1.06**	**1.12**	**1.08**		

AADT = annual average daily traffic, MC = motorcycle, RN = route national.

Note: RN11 traffic survey was conducted a few kilometers from the intersection between RN11 and RN1. RN1 at Neak Loeung was conducted at the entrance of the town in the direction of Svay Rieng, while the Bavet survey was conducted at the intersection with the special economic zone.

Source: Operations Evaluation Mission estimate.

2. Lao People's Democratic Republic

9. In Table A15.2, AADT for the Lao PDR is presented at the two locations retained for the economic analysis: Km 25 from Kaysone Phomvihane on Route National (RN) 9 before the Xeno intersection, and Km 204 after the intersection of the gold/copper mine road leading to Vilabouly. The average daily traffic near Kaysone Phomvihane was relatively higher at 1.467 vehicles per day as compared to that near the border, which was 735 vehicles per day.

[3] Traffic surveys were conducted during weekdays and no public holidays to avoid possible discrepancies. Information available confirms that March is a typical month. There is generally no traffic after midnight and, therefore, little need for an expansion factor. Using information collected by the Japan International Cooperation Agency for the Road Master Plan for Cambodia, an expansion factor was proposed.

[4] Vehicles are motorcycles, cars, light buses/vans, medium buses, large buses, light trucks/pickups, medium trucks, heavy trucks, and articulated trucks.

Table A15.2: Summary of ADT in Both Directions RN9 – March 2008

	Location			
	Km 25 (Scale measuring point)		Km 204 (After junction to Vilabouly district)	
Vehicle Type	**ADT**	**%**	**ADT**	**%**
Average daily traffic	**2,281**	**100**	**2,012**	**100**
Motorcycle	814	36	1,277	63
Average daily traffic of 4-wheel vehicles	**1,467**	**64**	**735**	**37**
Car	204	9	16	1
Light bus/van	299	13	122	6
Medium bus	38	2	16	1
Large bus	47	2	26	1
Light truck/pickup	574	25	324	16
Medium truck	182	8	129	6
Heavy truck	69	3	51	3
Articulated truck (loaded)	40	2	24	1
Articulated truck (empty)	14	1	26	1

ADT = average daily traffic, km = kilometer, RN = route national.
Source: Operations Evaluation Mission estimate.

3. Viet Nam

10. In Viet Nam on the East–West National Highway (NH) 9, there were three locations for the traffic surveys: at the border in Lao Bao; 15 km off the border near Khe Sanh; and along the South Dong Ha Bypass, the additional work added to the original scope. On the road from HCMC to Phnom Penh, there were three locations: on NH22 at Hoc Mon, on NH22 at Trang Bang, and finally near the border gate in Moc Bai (Table A15.3).

Table A15.3: Viet Nam Annual Average Daily Traffic (2008)

Item	MC	Car	Mini Bus	Medium Bus	Large Bus	Light Truck	Medium Truck	Heavy Truck	Articulated Truck	With Total	Without Total
A. East–West Corridor (NH9)											
Lao Bao border	624	144	42	35	33	60	49	52	126	1,166	542
Khe Sanh (15 km from BCP)	3,006	343	377	228	149	334	323	249	63	5,070	2,064
South Dong Ha bypass	589	108	62	42	45	186	144	89	26	1,292	702
B. Phnom Penh– Ho Chi Minh City Highway											
NH22 Hoc Mon	38,171	5,808	1,608	402	1,094	776	5,236	2,091	470	55,655	17,485
NH22 Trang Bang	35,805	1,346	924	560	361	1,055	458	234	81	40,823	5,019
NH22 Moc Bai border	5,817	193	4	20	34	19	38	31	21	6,177	360

BCP = border-crossing point, MC = motorcycle, NH = national highway, RN = route national.
Source: Operations Evaluation Mission estimate.

11. For the purpose of the evaluation of the Dong Ha–Lao Bao road (80 km), the Khe Sanh location was retained. For the Phnom Penh–HCMC Highway Project, there are three components. For the first two (V1 + V2), the location of Hoc Mon was retained; and for the last component, the location of Trang Bang was retained.

12. There is little traffic at the Lao Bao–Dansavanh border and also at Moc Bai. The situation is different at Bavet. The traffic counts were not taken at the border. Traffic counts at the border may not make sense because of the continuous movements of vans from the casinos coming to pickup customers.

D. Comparing Annual Average Daily Traffic Over Time

13. Over time, traffic growth and vehicle composition are likely to change. To get a measure of traffic growth and changes in vehicle composition, observed AADT can be compared with survey findings at the time of appraisal and at the time of the project completion report (PCR). Such a comparison is given in Table A15.4.

Table A15.4: Comparison by AADT by Country over Time, from Different Sources

Item	MC	Car	Bus	Truck	Total With	Total Without
Cambodia: Phnom Penh–Ho Chi Minh City Highway						
Appraisal TA (1996)	4,161	572	140	355	5,228	1,067
Appraisal RRP (1996)	9,023	569	30	252	9,874	851
PCR (2005)	3,148	542	621	494	5,027	1,879
Consultant (2008)	7,248	903	736	810	9,697	2,449
Viet Nam: Phnom Penh–Ho Chi Minh City Highway						
V1 and V3 NH1						
Appraisal TA (1996)	23,653	703	878	5,904	31,138	7,485
Appraisal RRP (1996)	28,155	1,551	391	5,128	35,225	7,070
PCR (2005)	35,168	3,578	5,992	17,223	61,961	26,793
Consultant (2008)	38,171	5,808	3,104	8,103	55,186	17,015
V2 on NH22						
Appraisal TA (1996)	15,790	717	652	1,896	19,055	3,265
Appraisal RRP (1996)	19,765	1,038	261	1,628	22,692	2,927
PCR (2005)	16,728	2,692	1,909	5,710	27,039	10,311
Consultant (2008)	35,805	1,346	1,845	1,828	40,824	5,019
Lao People's Democratic Republic: RN9 Phin–Dansavanh						
Appraisal TA (1995)	60	15	19	106	200	140
Appraisal RRP (1997)	977	46	53	389	1,465	488
PCR (2006)	1,566	93	194	338	2,191	625
Consultant (2008)	1,277	113	164	458	2,012	735
Viet Nam: NH9						
Appraisal RRP (1997)	1,477	56	65	480	2,078	601
PCR (2006)	1,362	256	539	352	2,509	1,147
Consultant (2008)	3,006	343	754	969	5,072	2,066

AADT = annual average daily traffic, MC = motorcycle, NH = national highway, PCR = project completion report, RN = route national, RRP = report and recommendation of the President, TA = technical assistance.
Source: Operations Evaluation Mission estimate.

14. However, such a comparison needs to note that there could be variations in survey locations and vehicle classification. The PCR does not indicate survey locations, and in case of the Phnom Penh–HCMC Highway in Viet Nam, traffic intensity was already high in the past and is now very high. As a result, the numbers are quite sensitive to the exact location of the traffic surveys.

15. A few observations can be made from Table A15.4. In Cambodia, along the N1, traffic did not change[5] much from 1996 until completion of the road. Growth from 2003 onward has been maintained. But growth has been uneven, with the bus category seeing a fivefold increase, the truck category a two-fold increase, and cars increasing by 58%. In Viet Nam, still along the

[5] Such information is confirmed from traffic surveys carried out in 2000 and 2001 and reported in the ADB Cambodia Transport Sector Strategy, 2003.

Phnom Penh–HCMC Highway, the growth pattern is very different between the urban part of the road and the more rural part. In the HCMC suburb area, traffic was already high in 1996 and has continued to be strong, dominated by motorcycles and trucking. But a major change in vehicle distribution has taken place with a five- and seven-fold increase, respectively, for cars and buses. In the Lao PDR, traffic increases on RN9 have been slow to materialize with an overall increase of only 50% over more than 10 years. With stronger economic development along the road, traffic growth has been more sustained on the Viet Nam side of National Road 9, with the overall vehicle traffic increasing more than three times.

16. The objective of the two road corridors is to improve connectivity between GMS countries. One way to measure the contribution to that objective is to analyze the intensity of international and transit traffic along the corridors. This requires close analysis of the border crossing traffic and outputs of the origin–destination surveys.

E. Traffic Forecasts

17. Reassessing the economic viability of road projects using current traffic observations implies calibrating the traffic forecasts. The purpose is not to propose a new traffic forecast based on a different set of assumptions, but rather to keep the same forecasting methodology of previous PCR with the revamped traffic observations of March 2008.

18. The forecasting methodology adopted during appraisal followed common practice, with passenger demand (traffic) assumed to vary according to gross domestic product (GDP) per capita, population growth, and GDP passenger demand elasticity. Freight demand (traffic), on the other hand, was expected to vary according to GDP and GDP freight demand elasticity.

19. The set of growth rates used is given in Table A15.5. Consultant estimates for the period before 2008 are calculated by interpolation between starting dates and 2008. After 2008, the SAPE estimates used PCR/appraisal growth rates.[6]

[6] Growth rates for the starting date to 2008 are often less than growth rates envisaged at appraisal, because expected traffic did not materialize. In the long run, the Operations Evaluation Mission is confident that proposed growth rates remain valid with coming improvements like the bridge on the Mekong in Cambodia and the special economic zone in Kaysone Phomvihane.

Table A15.5: Traffic Growth Rates (%)

Item	MC	Car	Mini Bus	Medium Bus	Large Bus	Light Truck	Medium Truck	Heavy Truck	Articulated Truck
Cambodia RN1 Phnom Penh–Ho Chi Minh City Highway									
Consultant growth rate (%)									
Growth rate 2000–2005	10.0	10.6	12.7	0.0	0.0	13.0	12.0	12.0	12.0
Growth rate 2006–2008		18.5	4.4	20.0	20.0	3.0	1.0	1.0	1.0
Growth rate 2009–2013	6.0	8.4	8.4	8.1	8.1	8.4	7.9	7.9	7.9
Growth rate 2014 onward	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Appraisal growth rate (%)									
Growth rate 1996–2000	11.3	4.5		18.8				15.0	
Growth rate 2001–2005	9.0	6.8		13.5				11.3	
Growth rate 2006–2010	7.7	7.0		8.4				7.0	
PCR growth rate (%)									
Growth rate 2005–2008	10.0	8.8	8.8	8.1	8.1	8.8	8.4	8.4	8.4
Growth rate 2009–2013	8.0	8.4	8.4	7.9	7.9	8.4	7.9	7.9	7.9
Growth rate 2014 onward	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Viet Nam									
Phnom Penh–Ho Chi Minh City Highway (NH1–NH22)									
Consultant growth rate									
Growth rate 1996–2008	5.1	13.9	13.9	11.8	11.8	4.4	4.4	4.4	4.4
Growth rate 2009–2013	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Growth rate 2014 onward	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Appraisal growth rate									
Growth rate 1996–2005	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6
Growth rate 2005–2009	10.0	10.4	10.4	9.9	9.9	9.9	9.9	9.9	9.9
Growth rate 2009–2013	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Growth rate 2014 onward	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Phnom Penh–Ho Chi Minh City Highway (NH22)									
Consultant growth rate									
Growth rate 1996–2008	6.5	6.7	6.7	11.1	11.1	1.0	1.0	1.0	1.0
Growth rate 2009–2013	6.0	6.0	6.0	6.0	6.0	3.0	3.0	3.0	3.0
Growth rate 2014 onward	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Appraisal growth rate									
Growth rate 1996–2005	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Growth rate 2005–2009	10.0	10.4	10.4	9.9	9.9	9.9	9.9	9.9	9.9
Growth rate 2009–2013	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Growth rate 2014 onward	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Lao Bao–Dong Ha (NH9)									
Consultant growth rate									
Growth rate 2003–2008	8.1	25.0	24.3	23.9	3.0	29.7	18.7	25.2	5.1
Growth rate 2009–2010	8.0	6.8	11.0	11.0	11.0	6.8	9.2	9.2	9.2
Growth rate 2011–2020	7.5	6.8	9.0	9.0	9.0	6.8	8.2	8.2	8.2
Appraisal growth rate									
Growth rate 2000–2010	8.0	6.8	11.0	11.0	11.0	6.8	9.2	9.2	9.2
Growth rate 2011–2020	7.5	6.8	9.0	9.0	9.0	6.8	8.2	8.2	8.2
Lao PDR (RN9)									
Consultant growth rate									
Growth rate 2000–2008	10.4	11.6	16.0	13.0	13.0	1.0	1.0	1.0	1.0
Growth rate 2009–2010	10.4	11.6	5.3	5.3	5.3	8.2	8.2	8.2	8.2
Growth rate 2010–2020	10.2	11.6	7.2	7.2	7.2	8.2	8.2	8.2	8.2
Appraisal growth rate									
Growth rate 2001–2010	10.4	11.6	5.3	5.3	5.3	8.2	8.2	8.2	8.2
Growth rate 2011–2020	10.2	11.6	7.2	7.2	7.2	8.2	8.2	8.2	8.2

Lao PDR = Lao People's Democratic Republic, MC = motorcycle, NH = national highway, RN = route national.
Sources: Operations Evaluation Mission estimates, project completion reports, and reports and recommendation of the President.

20. A summary of traffic forecasts is presented in Table A15.6. Vehicle traffic by type is presented for all road projects for the starting year, 2000 (Phnom Penh–HCMC), 2001 (Lao PDR), and 2003 (Viet Nam) and the ending year (2019, 2020, or 2022, respectively).

Table A15.6: Summary of Traffic Forecasts

Item	Car	Mini Bus	Medium Bus	Large Bus	Light Truck	Medium Truck	Heavy Truck	Articulated Truck	Total
Cambodia RN1 Phnom Penh–Ho Chi Minh City Highway									
2000	327	319		40	151	349			1,186
2019 Consultant	1,917	1,406	63	84	516	512	498	41	5,037
2019 Appraisal	1,482	1,589		105	607	1,305			5,088
Viet Nam RN1 Phnom Penh–Ho Chi Minh City Highway									
2000	2,610		611			6,092			9,313
2019 Consultant	12,100	3,346	837	2,278	1,614	10,909	4,355	975	36,414
2019 Appraisal	11,011		2,726			35,749			49,486
Viet Nam NH22 Phnom Penh–Ho Chi Minh City Highway									
2000	1,345		397			1,694			3,436
2019 Consultant	2,555	1,753	1,063	685	1,736	754	384	133	9,063
2019 Appraisal	6,846		1,691			10,545			19,082
Lao PDR RN9 East–West Corridor									
2001	51	43	7	11	185	119	47	44	507
2020 Consultant	413	271	36	58	590	335	131	129	1,963
2020 Appraisal	413	124	20	34	885	566	227	208	2,477
Viet Nam NH9 East–West Corridor									
2001	112	127	78	128	91	137	81	49	803
2022 Consultant	860	1,307	789	515	838	991	764	193	6,257
2022 Appraisal	391	742	455	747	318	653	386	234	3,926

Lao PDR = Lao People's Democratic Republic, NH = national highway, RN = route national.
Source: Operations Evaluation Mission estimate.

F. Diverted and Generated Traffic

21. Traditionally, a traffic forecast is divided between normal traffic growth, diverted traffic growth, and generated traffic growth. Diverted vehicle traffic is the traffic of vehicles that, before project completion, were traveling on an alternative road (or alternative transport mode) and have now switched to the project road because of better road conditions and vehicle operating cost (VOC) saving. Generated traffic is traffic that did not exist before road project completion. The distinction among the three is sometimes difficult to establish. When high growth rates are being used for normal traffic, it has the tendency to capture part (sometimes a large part) of the diverted and generated traffic.

1. Phnom Penh–Ho Chi Minh City Highway Project

22. On the Phnom Penh–HCMC Highway Project, at appraisal, it was expected that the improved road would be able to capture a significant diversion of the present volume of trade between Viet Nam and Cambodia currently using waterborne transportation. Also, as the road corridor moves to an economic corridor, new economic development was supposed to occur along the road both in Cambodia and in Viet Nam.

23. On the Cambodia side, the project road was in use before and continues to be used as an alternative to RN1, which goes through Tay Ninh, passing the Cambodian border at Trapang Phlong Pin and continuing in Cambodia on RN72 and RN7 through Kampong Cham before reaching Phnom Penh.[7] This road makes use of the bridge on the Mekong and avoids the Neak Loeung ferry. In 1995, it was estimated[8] that trade was 50,000 tons at that border compared with a meager 15,000–20,000 tons at that time for the Bavet–Moc Bai border (or 5–10 trucks a day). The overall distance from HCMC to Phnom Penh through this road is 325 km compared with 245 km on the project road. This road remains an alternative, since trade volume at that border

[7] Of course, part of the border crossing trade here is destined to Kampong Cham and probably even to Siem Reap.
[8] Quoted from the TA 5649-REG: Ho Chi Minh City to Phnom Penh Highway Improvement Road Project.

crossing is estimated to vary between 500,000 and 765,000 tons per year.[9] Quick calculations show that the road could be economically justifiable if delays above 60 minutes[10] are expected at the Mekong ferry crossing.

24. At appraisal, it was estimated that the VOC saving would bring generated traffic of 10% per year. The PCR adopted the same hypothesis. As explained in Table A15.10, the SAPE has followed a different approach based on implicit price effects.

25. The Operations Evaluation Mission (OEM) carried out interviews with freight forwarders[11] in Cambodia and Viet Nam to assess the competitiveness of the road corridor with the Mekong route. On average, the net cost of sending a container by road from Phnom Penh to HCMC is $1,000 ($800 in the other direction), or $300 if coming by barge along the Mekong River. By road, the average time is now 8 hours, and by river 40–96 hours. Therefore, the road can presently compete with the river only for high value goods requiring timely delivery. In short, it will be economically justifiable to use the road if the time value per hour of transporting a container is greater than $10.[12] This should be put in perspective with a cargo time delay value of $2.

26. It is, therefore, not surprising that road container traffic has not been picking up after road completion. It is estimated that the ratio of road to river transportation for container traffic is one tenth. According to the present volume of traffic, the maximum diversion traffic on RN1 in Cambodia is of the order of 54,000 tons,[13] far less than the 155,000 tons[14] expected of diversion after road completion. Therefore, a maximum of 10 vehicles growing at 8% could be considered for 2008 in the economic analysis.

27. No positive “Viet Nam” diversions are being considered along the Viet Nam portion of the Phnom Penh– HCMC Highway with the exception of the 10 vehicles mentioned above. Once the transport corridor moves to a fully functioning logistic corridor, there is the possibility that some of the trade between Thailand and Viet Nam will move overland using RN1 and crossing the border at Bavet. Allowing for rest time and customs clearance time, the overland total transport time between Bangkok and HCMC through Cambodia varies between 37 and 48 hours (2,200 km). This compares with 2 days for air cargo and 3–8 days for shipping (depending if connection is immediate or not). The arithmetic is simple: the time value of the vehicle transporting the reference cargo varies between $7 and $22, far above the average time value for cargo delay. Therefore, no significant Thai imports or exports are expected on the project road. Bavet customs do not report any transit goods from Thailand to Viet Nam and vice versa.

[9] According to information provided by the Cambodian Ministry of Public Works and Transport, there are currently 700 4-wheel vehicles crossing the border every day, of which 300 are medium/heavy trucks and 50 articulated trucks, assuming respectively average loads of 8 and 20 tons and a conservative loading factor of 50% and 75%, giving a range of trade volume at the border between 500,000 and 765,000 tons.

[10] Assuming average speed of 65 kilometers per hour and a crossing time of 20 minutes, a delay of 60 minutes makes the alternative road attractive.

[11] Calculations are based on shipping rates given by three road freight forwarders in Cambodia and two freight forwarders/road transporters in Viet Nam, as well as an interview with one of the main container shipping operators along the Mekong between HCMC and Phnom Penh.

[12] Assume $900 for net road cost and $300 for shipping cost, 8 hours for road transportation and 72 hours for shipping transportation, then the road is competitive with shipping if time value/hour > $9.4. If the container value is $40,000, assuming 1,750 hours/year for container truck utilization and 8% interest rate, the value of cargo time delay per vehicle per hour is $2.

[13] The only Cambodian transport operator transporting containers by road to and from Viet Nam gave a figure of 300 containers per month; assuming an average of 15 tons per container gives a volume of 54,000 tons.

[14] From TA 5649-REG.

2. East–West Economic Corridor

28. The EWEC runs from Myanmar (Mawlamyaing Port) on the Adaman Sea to Da Nang Port in Viet Nam on the South China Sea. National Road 9 linking Kaysone Phomvihane (Lao PDR) to Dong Ha (Viet Nam) is a key section of the EWEC, especially with the new bridge on the Mekong at Mukdahan, which was opened in December 2006. At appraisal (project preparatory technical assistance [PPTA] and report and recommendation of the President [RRP]), there was great expectation that the improved National Road 9, with the new bridge on the Mekong, would bring significant trade diversion from Thailand toward Viet Nam ports as demonstrated in Table A15.7.

Table A15.7: Expected Incremental Average Annual Daily Traffic (Thai diversion)

Item	2000	2010	2020
PPTA incremental traffic following Mekong bridge	113	190	408
RRP incremental traffic with estimates of trade diversion	182	279	634

PPTA = project preparatory technical assistance, RRP = report and recommendation of the President.
Note: PPTA figures are calculated from difference between with- and without-traffic forecast estimates; RRP traffic is derived from estimates of trade diversion.
Sources: TA 5710-REG: East–West Transport Corridor consultant and RRP.

29. The expectation of 200 vehicles[15] on top of normal traffic growth (for 2010) has not been realized. The average daily traffic along the new Friendship Bridge on the Mekong is only 150, mostly buses and private cars. Data from the Dansavanh border crossing mention that for the whole month of February, only 47 Thai vehicles (buses) passed through the border, or fewer than 2 vehicles per day. This situation, of course, may change over time with full implementation of the Cross-Border Transport Agreement (CBTA). However, the use of relatively strong growth rates in traffic forecasts somewhat indirectly accounts for such an occurrence.

30. Japan, through a series of logistic studies and workshops, has been actively promoting the development of the EWEC. Different trial runs have been sponsored by Japan along the corridor to establish bottlenecks and problem areas and to recommend solutions. The container traffic between Thailand and Viet Nam was reported to be 61,000 twenty-foot equivalent units (TEU) in 2004, with approximately 20,000 TEU for Hanoi. Sea shipping takes 15 days and land transportation approximately 3 days[16] for the 1,700 km through RN9 in the Lao PDR. The land transportation cost of $3,000 compares with $1,000 for the shipping cost.[17] Therefore, unless transportation cost is reduced and processing time improved, competing with sea shipping will remain difficult as the implicit container/hour value of that land transportation is $7, which has to be compared with container delay value estimated on average at $2 per container truck per hour.

G. Border Crossing and International Traffic

31. The connectivity performance of the two road corridors can be evaluated by looking at the trends in traffic volume crossing the borders as shown in Tables A15.8 and A15.9. The numbers for Dansavanh–Lao Bao are consistent with figures quoted by the PCR (Appendix 11, Table A11.2: Border Movements at Lao Bao [Viet Nam] 2000–2007).

[15] The PPTA does not specify, but for the RRP, incremental vehicles are trucks carrying the diverted trade volume.
[16] All the above information is quoted from a workshop organized by Japan in Vientiane in February 2008 entitled "Partnership on International Logistics Competitiveness." The actual measured transit time was 52 hours including 12 hours of rest. The custom procedural time was 30 hours, with 5–6 hours of real processing time and 24 hours to wait for customs to open. Before departing, export and transit clearance documentation took a total of 96 hours.
[17] Japan External Trade Organization Sensor, February 2006.

Table A15.8: Cross-Border Traffic Along Road Corridors

Item		Year	Traffic Passengers	Traffic Vehicles	AADT	Trade in $1,000	% of Total Trade	Trade in Volume (t)
Bavet–Moc Bai								
PPTA	Total	1996		1,825–3650	5–10[a]			15–20,000
Viet Nam customs	Exports	2005				17,843	3.2	
	Imports	2005				662	0.4	
Cambodian customs	Total	2003	121,646					2,500
	Total	2007	605,557	24,346	67			40,384
Dansavanh–Lao Bao								
Viet Nam customs	Total	1998	69,279	35,886	98	91,340		184,859
	Total	2001	95,643	38,683	106	45,979		167,550
	Total	2005	143,225	51,416	141	67,964		194,530
	Exports	2005				21,600	31.2	
	Imports	2005				41,000	42.0	
	Total	2006	183,557	51,815	142	138,188		279,870

AADT = annual average daily traffic, PPTA = project preparatory technical assistance.
[a] Only trucks.
Source: Obtained by the Operations Evaluation Mission from customs offices at the respective border points.

Table A15.9: Monthly Traffic at Dansavanh–Lao Bao (Customs Data from Border Crossing Point) from 25 January 2008 until 25 February 2008

	In			Out			Total		
Item	**Number**	**Pax**	**Ton**	**Number**	**Pax**	**Ton**	**Number**	**Pax**	**Ton**
Car/pickup/van	609	1,631		609	1,804		1,218	3,435	
Public bus	164	2,636		213	3,886		377	6,522	
Tour bus	452	7,418		358	5,887		810	13,305	
Truck loaded	327		14,119	679		27,157	1,006	0	41,276
Truck empty	601			131			732	0	
Total	**2,153**	**11,685**	**14,119**	**1,990**	**11,577**	**27,157**	**4,143**	**23,262**	**41,276**

Source: Obtained by the Operations Evaluation Mission from customs office at Lao Bao.

32. At the Bavet–Moc Bai border, there is no doubt that road completion has had a significant effect on the numbers of passengers crossing the border in buses going from Phnom Penh to HCMC and also coming to the casinos in Bavet. The number of passengers increased five times between 2005 and 2007, reaching an average of 1,660 per day (both directions). The CBTA is not yet implemented in the border-crossing point, and the number of vehicles remains low, averaging 67. Most of these vehicles are cars and buses. As a consequence, the volume of trade is still low, accounting only for 3% of total Vietnamese exports to Cambodia and less than 1% of total Vietnamese imports from Cambodia (2005). It is estimated that 40,000 t transit through the border crossing per year. This may be a significant increase from 2003, when the road was still under construction, but less significant if compared with 1996.

33. The situation at the Dansavanh–Lao Bao border is different. Since the completion of the road, passenger traffic has also been increasing significantly, rising from 95,000 in 2000–2001 to almost 185,000 in 2006 and most likely close to 300,000 in 2008. But contrary to Bavet/Moc Bai, the volume of trade at the border is quite significant, accounting for $138 million (2006) and 280,000 t. This trade represents 31% of Vietnamese exports to the Lao PDR and 42% of Vietnamese imports from the Lao PDR. Table A15.9 provides further details of the activities at the border crossing. A total of 70% of the traffic at the border-crossing point can be classified as heavy vehicles (buses or trucks). There is a significant volume of empty Vietnamese trucks coming to the Lao PDR to pick up gypsum (approximately 20 trucks a day). All trucks carry heavy loads (40 tons on average). Most of vehicles are from Viet Nam (54%) and a lesser portion from the Lao PDR (45%), with transit vehicles from Thailand accounting for only a small part (1%).

34. The Lao PDR Ministry of Transport benefit monitoring and evaluation report of 2006 states that 50% of the traffic was heavy traffic on the RN9 with the majority of the trucks (68% in 2006 and 64% in 2002) being Vietnamese.

35. The OEM also conducted origin–destination surveys[18] along the two project roads, and this gives further information on the nature of international and transit vehicle traffic. In Cambodia, along RN1, international traffic consists only of Vietnamese buses operating between Phnom Penh and HCMC, accounting for 10.4% of the total number of vehicles surveyed.

36. In the Lao PDR at km 25 in the direction of Kaysone Phomvihane, 9.2 % of traffic is international, being vehicles from Bangkok. In the opposite direction, 9% is also international traffic going to Viet Nam, with 7% originating from Kaysone Phomvihane and 2% from Thailand. At the border point itself, traffic originates (and goes) equally from and to three locations—Dong Ha, Hue, and Da Nang. In the Lao PDR, the origin–destination locations are Kaysone Phomvihane, Atsaphangthong (cement factory and gypsum quarry), and Xepon (mining exploitation). Transit vehicles coming and going to Thailand account for 7–9% of vehicles surveyed at the border.

37. For Bavet–Moc Bai, available information from the Cambodian Department of Immigration reveals that the number of Vietnamese and other international tourists crossing the border has increased significantly in number and in proportion. In 2003, Vietnamese and other international tourists were 29% and 25%, respectively, of the total movements. They now account for 37% and 30%, respectively.

H. Rationale for a New Economic Assessment of the Two Road Projects

38. A reassessment of the economic viability of the road projects was carried out using recent observations from new traffic counts and origin–destination surveys. This new set of economic analyses helps to comparatively assess how economic benefits are evolving among participating countries. Comparisons with past project economic analyses will naturally be attempted, though caution is required here. Findings from economic analyses are very sensitive to traffic intensity forecasts and assumptions on international roughness index (IRI)[19] and VOCs. These background details are often not fully available, and caution is suggested when comparing economic internal rate of return (EIRR) and net present value (NPV) from previous sources.

39. To carry out economic analyses, a set of parameters have to be defined, and they are summarized in Table A15.10. They are a combination of SAPE assumptions based on observations collected by consultants during March 2008. They also make use, after updating, of assumptions used by previous analyses when available. The economic analysis of the two road projects has been conducted using HDM-4 for the calculations of VOC and RED[20] for the complete economic evaluation.

[18] Origin–destination surveys were conducted at the following locations: (i) in Cambodia at the ferry terminal, interviewing 86 drivers; (ii) in the Lao PDR RN9 Dansavan border crossing (284 + 235 interviews) and km 25 (337 + 515); (iii) in Viet Nam on NH9 at Lao Bao border crossing and along NH9 (traffic count location). Surveys were also conducted at Moc Bai and along NH22.

[19] It is ironic that road economic evaluation software like HDM-4 and RED is sensitive to IRI assumptions, which are often the result of wide engineering guessing generally not supported by regular road roughness surveys. It is not that engineers cannot get an estimate of the road roughness at a point in time when doing visual inspection. The problem comes more from the common nonscientific technique used when coming up with an aggregate figure for a specific stretch of road in carrying out project evaluation.

[20] The RED model was originally developed by the Sub-Saharan Africa Transport Policy Program sponsored by the World Bank. HDM-4 software is the successor of the HDM 3 (highway design and maintenance) model originally developed by the World Bank and now managed by a consortium.

Table A15.10: Parameters for Economic Analyses of Road Projects

Parameter	Assumption and Comment
Construction Cost	Financial costs came from the PCR looking at contract value and allocating to the road only the relevant costs including their share of supervision and resettlement. Construction costs were adjusted to 2007–2008 prices using price adjustment factors.
Vehicle Operating Cost (VOC)	Surveys were conducted in Cambodia, Lao PDR, and Viet Nam to obtain market and economic prices of VOC components reflecting 2007–2008 price situations. It was decided to use two sets of tables, VOC Cambodia/Lao PDR and VOC Viet Nam. Fuel prices are higher than figures used in the PCR, but lower than the latest price hike of a barrel of oil on the world market. VOCs in Cambodia/Lao PDR are higher than VOCs in Viet Nam largely because of fuel prices.[a]
International Roughness Index (IRI)	IRI were extracted from previous reports (RRP or PCR) and confirmed by interviews and visual inspection during the OEM. **Phnom Penh–Ho Chi Minh City Highway Project** N1 (Cambodia): IRI = 7.0 m/km without project and 2.2 with project (very good road); NH22 (Viet Nam): IRI = 5.8 m/km without project and 2.2 with project; and NH1/1A (Viet Nam): IRI = 3.7 m/km without project and 2.2 with project. **East–West Economic Corridor Project** RN9 (Lao PDR) Pinh–Border: IRI = 11.8 m/km without project and 2.5 m/km with project; RN9 (Lao PDR) Kaysone Phomvihane–Xeno: IRI = 3.7 m/km without project and 2.0 m/km with project; and RN9 (Viet Nam) IRI = 5.8 m/km without project and 2.2 m/km with project.
Traffic Forecast	Two types: forecasts adjusted for observed 2008 traffic counts and forecasts non-adjusted, both using growth rates defined in the PCR (and at appraisal).
Generated Traffic	RED for generated traffic gives the choice between a percentage of normal traffic or a calculation based on demand VOC elasticity. This method was retained with elasticity (along PPTA suggestions) retained as 1.0 for passenger vehicles and 0.5 for freight vehicles.
Conversion Factor (CF)	CFs to adjust financial costs to economic costs; CF varies among reports. For standardization, it has been decided to apply CF = 0.85 for Cambodia, Lao PDR, and Viet Nam.
Diverted Traffic	As explained above, volume of diverted traffic is presently low to nonexistent. Based on information collected in interviews, some minimum diversion effect has been assumed for Cambodia and Lao PDR.
Value of Time of Passengers	Value of time ($/hour) for passengers varying if working or not working hours, with nonworking hours being 1/3 of value of working hours. At appraisal, working value varied between $0.45 and $0.5; at PCR (2007) value used was $0.76. Value for passenger cars has been assumed to be $1, and $0.5 for bus passengers.
Value of Time of Cargo	Value of cargo delay has been estimated at $0.4/vehicle-hour based on 8% interest (real) rate, 1,750 working hours, and average value of truck load $1,000/t for a 10 t truck. Value is $0.2 for medium truck and $0.8 for articulated truck.
Road Maintenance Expenditure	In 2002, Cambodian MPWT was spending on road maintenance on national roads a maximum of $1,000/km, which converts to $1,300 in 2007 (routine and minor repairs). Maintaining current situation without the road project requires more than $1,300 and was assumed by the PCR to be $4,000/km. For a road project, $1,500/km is assumed sufficient for routine maintenance.
Road Accident	No systematic data exist. Clear accident reductions are reported only in Viet Nam (reduction by half), and assumed value of $1,000 per accident was selected. Elsewhere, no benefits from road safety are assumed.

k = kilometer, Lao PDR = Lao People's Democratic Republic, m/km = meter per kilometer, MPWT = Ministry of Public Works and Transport, NH = national highway, OEM = Operations Evaluation Mission, PCR = project completion report, PPTA = project preparatory technical assistance, RED = road economics decision, RN = route national, RRP = report and recommendation of the President.

[a] Selected economic cost fuel price for Cambodia/Lao PDR was chosen as $0.58/liter which corresponds to $80 per barrel prevailing at that time with 15% refinery charge. Viet Nam, being an oil producer, has a lower economic price of $0.52/liter. The Phnom Penh– HCMC Highway PCR used $0.39/liter which, adjusted for price rise at the pump, gives $0.48/liter in 2008.

Source: Operations Evaluation Mission.

40. The calculations are in constant 2008 prices.[21] This applies to VOCs, which reflect an average of 2007–2008 (1st quarter) prices. For consistency, construction costs[22] have also been adjusted by a price factor using country consumer price index (CPI).[23]

[21] In reality, many prices are 2007 and therefore constant prices should be called 2007–2008 constant prices.

[22] Construction was spread over many years, with some occurring even in 2006, determining a proper construction price index was not readily available. CPI has been used instead, but this could introduce a bias, because the construction industry is very competitive, and prices generally do not follow so closely the CPI, which is dominated by fuel and food price changes.

[23] Cambodia: 1.2; Lao PDR: 1.146; Viet Nam (NH9): 1.07; and Viet Nam (NH22): 1.26.

41. Estimated VOCs using HDM-4 are presented in Table A15.11 with comparisons of VOCs from previous studies.

Table A15.11: Summary of VOC Comparison

	SAPE (postevaluation)				PCR		SAPE (postevaluation)				PCR			
	Cambodia RN1		Viet Nam NH22		RN1 + NH22 + NH1A		Lao PDR RN9		Viet Nam NH9		Lao PDR RN9		Viet Nam NH9	
Vehicle Type	VOC $/veh-km IRI = 2.2	VOC $/veh km IRI = 7	VOC $/veh-km IRI = 2.2	VOC $/veh-km IRI = 6.0	VOC $/veh-km IRI = 2.0	VOC $/veh-km IRI = 4.0	VOC $/veh-km IRI = 2.5	VOC $/veh km IRI = 11.8	VOC $/veh-km IRI = 2.2	VOC $/veh km IRI = 5.8	VOC $/veh-km IRI = 2.2	VOC $/veh km IRI = 11.8	VOC $/veh-km IRI =2.2	VOC $/veh km IRI =5.0
Car Medium	0.225	0.249	0.204	0.221	0.15	0.28	0.226	0.290	0.204	0.220	0.19	0.280	0.22	0.25
Goods Vehicle	0.179	0.199	0.164	0.177	0.14	0.19	0.180	0.231	0.164	0.176				
Bus Light	0.207	0.227	0.189	0.202			0.208	0.260	0.189	0.201	0.19	0.230	0.25	0.31
Bus Medium	0.353	0.433	0.301	0.358	0.17	0.23	0.357	0.528	0.301	0.355			0.66	0.70
Bus Heavy	0.456	0.532	0.345	0.401	0.30	0.41	0.459	0.639	0.345	0.397	0.27	0.320	0.90	0.96
Truck Light	0.182	0.203	0.165	0.178	0.12	0.17	0.183	0.232	0.165	0.177	0.37	0.470	0.23	0.28
Truck Medium	0.286	0.324	0.247	0.272	0.21	0.27	0.288	0.375	0.247	0.270	0.42	0.560	0.32	0.41
Truck Heavy	0.579	0.636	0.469	0.524	0.37	0.51	0.581	0.741	0.469	0.521	0.52	0.670	0.51	0.63
Truck Articulated	0.773	0.862	0.644	0.701			0.776	1.010	0.644	0.697	0.77	1.030	0.84	1.08

IRI = international roughness index, km = kilometer, Lao PDR = Lao People's Democratic Republic, NH = national highway, PCR = project completion report, RN = route national, SAPE = sector assistance program evaluation, VOC = vehicle operating cost.
Source: Operations Evaluation Mission.

42. Numbers from the Phnom Penh–HCMC Highway PCR were found to be debatable in terms of level and variations according to IRI. Numbers from the EWEC[24] PCR were more in line with the current estimates. Average estimated saving in VOC for Phnom Penh–HCMC Highway is 9–10% and 9–22% for EWEC.

I. Limitations of the Economic Analysis

43. The most important limitations to the economic analysis derive from the use of RED for the full economic evaluation of the road projects. The advantages of RED are certain—its simplicity; capacity to account for normal, diverted, and generated traffic; capacity to account for time savings and external benefits; use of HDM-4 for VOCs; and finally a quick display of useful tables of outputs in Excel format. The disadvantages are in the constrained formatting of the software:

(i) construction periods cannot exceed 3 years;
(ii) road benefits start only in the year following full completion of the road;
(iii) value of time is fixed for the whole period;
(iv) evaluation period is fixed at 20 years;
(v) no possibility to enter an end of period value for road asset;
(vi) traffic grows according to a series of vehicle growth rates defined along periods of 5 years; and
(vii) no capacity to account for reductions in congestion.

44. RED was designed to help economic analysis of rural or semirural roads, not urban roads. Despite the above, RED and the use of HDM-4 for VOCs were judged sufficiently reliable to reassess the road projects with a certain margin of error.

45. There are other minor limitations. The economic analysis of any road project, and this one makes no exception, is focused around savings in VOCs and savings in traveling time. RED allows benefits from road safety to be added. Information on road accidents and on costs of road projects is not very reliable and can be contradictory. Results from the economic analysis depend on traffic forecasts. It was beyond the scope of this economic analysis to start afresh, forecasting traffic on road projects. This would have involved new macroeconomic assessment and reestimation of price elasticity. Therefore, traffic forecasts use growth rates developed by previous

[24] Though their estimation methodology is rather simple, since it adjusts the RRP VOCs with a standard annual inflation rate of 3%.

studies and calibrated to the observed 2008 traffic. Results are also very sensitive to roughness measurement before and after road completion. For this, the SAPE had to rely on numbers[25] quoted in previous reports (PPTA, appraisal, PCR, benefit monitoring and evaluation).

J. Summary of Findings

46. Findings from the different simulations using RED are summarized in Table A15.12. The discount rate for NPV is 12%.

Table A15.12: EIRR and NPV Comparison

Road Project	EIRR (%)	NPV (12%) in $ million	Appraisal EIRR (%)	PCR EIRR (%)
Phnom Penh–Ho Chi Minh City Highway				
Cambodia				
RN1 (SAPE)	12	(0.11)	22	24.10
RN1 (Appraisal/PCR simulation)	13	1.5		
Viet Nam				
NH22 (SAPE)	11	(3.32)	18	25.40
NH22 (Appraisal/PCR simulation)	14	4.44		
NH1A (SAPE)	(2)	(36.4)	34	28.70
NH1A (Appraisal/PCR simulation)	(1)	(34.5)		
East–West Corridor				
Lao PDR				
RN9 (SAPE)	13	1.56	16 (19[a])	20.60
RN9 (Appraisal/PCR simulation)	14	2.92		
Viet Nam				
NH9 (SAPE)	16	6.01	16 (23[a])	17.60
NH9 (Appraisal/PCR simulation)	14	1.97		

EIRR = economic internal rate of return, Lao PDR = Lao People's Democratic Republic, NH = national highway, NPV = net present value, PCR = project completion report, RN = route national, SAPE = sector assistance program evaluation.

[a] With additional regional trade traffic benefits.

Sources: Operations Evaluation Mission's reevaluation, PCRs, and reports and recommendation of the President.

47. New economic analysis on road projects reflects the observed traffic situation, with growth prospects after 2008 identical to what was envisaged at appraisal and at PCR. In Table A15.12, the two first columns are the EIRR and NPV from the SAPE's calculations and for the "appraisal/PCR" simulation carried out as a sensitivity analysis. The "appraisal/PCR" simulation, estimated by using new VOCs and adjusted construction prices, allows traffic to grow as expected at appraisal (and at PCR). The last two columns give results stated in the RRP and PCR.

48. For the Phnom Penh–HCMC Highway Project, the reestimated EIRR was less than 12% or much lower than expected, resulting in a rating of "less efficient" for the Project.[26] Findings from this economic reevaluation were sensitive to traffic intensity forecasts and assumptions on road roughness and VOCs. Among the reasons for the lower EIRRs is the fact that traffic has not increased as fast as expected, since trade through the land route has yet to pick up strongly, and estimates of VOC are conservative.

[25] On occasion, reports differ on roughness index before road completion.

[26] A new economic analysis was carried out with new prices for VOC and construction, and new traffic surveys. This shows that the growth in traffic has been lower than estimated. Moreover, as shown in Table 5, the traffic is predominantly still local with little subregional traffic. With full implementation of the CBTA still pending, only a few vehicles cross the border. Under these conditions, the Project comes out as economically less viable as compared with expectations at appraisal and completion.

49. The EIRR is lower on the Viet Nam side of the Phnom Penh–HCMC Highway Project owing to the fact that the incremental benefits of the road improvement have been limited. The project road was in good condition before it was rehabilitated but it was heavily congested. The project enabled road widening, which was costly and led to high capital costs. The incremental benefit in terms of higher traffic was not sufficient to raise the EIRR. Importantly, the EIRR does not incorporate the benefits of reduction in congestion. This is a significant benefit for HCMC, which is difficult to quantify. Moreover, this economic analysis is based on conservative assumptions and does not quantify benefits from reduction in congestion in the areas near HCMC, benefits on informal trade in the area, savings in time taken to cross the border, and incremental benefits of ensuring imports and exports continue to be handled efficiently at the border. For example, the economic reevaluation used 2007–08 prices and the equivalent long term oil price of $80/barrel. A higher oil price would almost certainly push the 11% EIRR above 12%.

50. A few important conclusions can be made from Table A15.12:

(i) With this new economic assessment, most road projects on the two corridors are now marginal, being around the threshold of 12% but with EWEC faring better than the Phnom Penh–HCMC Highway. However, caution is required in the interpretation. Limitations in the economic analysis suggest that a margin of error of +/- 1% is in order.

(ii) Generally at the beginning of the project and up to now (2008), traffic (here we refer to normal traffic) has not grown as fast as expected. This is why the simulations called “appraisal/PCR” are generally higher than the SAPE simulations by one or two percentage points. There is, however, an exception in the case of the Viet Nam side of National Road 9, where, on the section from Lao Bao to Dong Ha, traffic has been growing faster than expected.

(iii) No economic analysis was carried out on certain road components:

  (a) The Xeno–Kaysone Phomvihane stretch was completed a year ago. This was an additional work. The road was not in bad condition (IRI not available) but was considered to be below standard to meet the requirements of the yet to be developed special economic zone. Analysis based on VOC saving would not give substantial economic benefits.

  (b) The 10.7 km of the Southern Dong Ha Bypass is another example of additional work. No appraisal was carried out, and no estimate of road condition before the project was readily available. A traffic survey conducted by the SAPE consultants shows that traffic had not built up to the expectation of what is essentially a suburban road, part of the Dong Ha road network.

  (c) Improvement on the 22 km of NH1A was part of the original scope of the Phnom Penh–HCMC Highway. The road is part of the urban road network of HCMC and was heavily congested. Roughness was not the issue. Widening and grade separation were required, with special lanes for motorcycles. This is a densely populated area, and the resettlement cost turned out to be very high. In this case, traditional economic analysis using RED is inadequate to evaluate the economic benefits of the investment, which explains the negative results in Table A15.12. It does not imply that the road improvement was not economically justifiable.

(iv) Estimated EIRRs are substantially lower than estimates at appraisal and at PCR. The absence of substantial diverted traffic, which was included in appraisal calculations could partly account for the difference. However, the high values for VOC savings found at appraisal and PCR could also be a major cause for the difference.

K. Net Economic Benefits for Each Participating Country

51. Table A15.13 summarizes the net economic benefits for each participating country for the Phnom Penh–HCMC Highway Project. Costs and benefits are expressed in economic terms and discounted by a 12% rate.

Table A15.13: Benefit Distribution of Phnom Penh–Ho Chi Minh City Highway Project

Item	Total Project ($ million)	Cambodia RN1 ($ million)	Viet Nam NH22 ($ million)
Discounted Economic Cost	55.83	23.35	32.48
Discounted Economic Benefits	52.39	23.24	29.15
Net Economic Benefits	(3.44)	(0.11)	(3.33)
B/C	0.94	1.00	0.90
EIRR	11%	12%	11%

B/C = benefit/cost ratio, EIRR = economic internal rate of return, NH = national highway, RN = route national.
Note: NH1 and additional works not included.
Source: Operations Evaluation Mission.

52. Table A15.14 presents the findings for the EWEC.

Table A15.14: Benefit Distribution of the East–West Corridor Project

Item	Total Project ($ million)	Lao PDR RN9 ($ million)	Viet Nam NH9 ($ million)
Discounted Economic Cost	29.11	15.43	13.68
Discounted Economic Benefits	36.68	16.99	19.70
Net Economic Benefits	7.58	1.56	6.02
B/C	1.26	1.10	1.44
EIRR	15%	13%	16%

B/C = benefit/cost ratio, EIRR = economic internal rate of return, Lao PDR = Lao People's Democratic Republic, NH = national highway, RN = route national.
Note: Kaysone Phomvihane–Xeno and additional works in Viet Nam not included.
Source: Operations Evaluation Mission.

53. The Phnom Penh–HCMC Highway is now around the 12% threshold and does not come out as a strong project. Traffic has not yet materialized as expected, witness the fact that the appraisal-PCR simulation was 13–14%. Cambodia is benefiting slightly more than Viet Nam, since Viet Nam is contributing to 58% of the cost while getting 56% of the benefits. On the EWEC, starting with a very low traffic base, projects are economically justifiable even if, in the Lao PDR, growth has been less than expected. Here, Viet Nam is benefiting more from the project than the Lao PDR, getting 54% of the total benefits while contributing 47% of the cost. The relatively high economic benefits on the Viet Nam side are caused by the fact that the project was delayed[27] and started in 2003 when the Laotian side was finishing.

54. Beyond the overall results, one could attempt to give the total distribution of benefits by type and by country once assumptions are made on the percentage distribution of economic benefits among consumers, producers, and transporters (Table A15.15). In addition, Vietnamese benefits in Lao PDR and Cambodia and vice versa are derived from observations collected and from interviews. Results are provided in Tables A15.16 and A15.17.

[27] Delayed projects bring higher benefits because of positive traffic growth. However, what was not accounted for is the loss of welfare (economic benefits) of road vehicle users because the new road is available only a few years later.

Table A15.15: Distribution of Benefits
(%)

Vehicle Type	Vehicle Operating Costs			Value of Time		
	Transporters	Producers	Consumers	Transporters	Producers	Consumers
Cars[a]	20	0	80	20	0	80
Bus[b]	20	0	80	0	0	100
Trucks[c]	30	50	20	20	70	10

VOC = vehicle operating costs, VOT = value of time.
[a] Most benefits passed to consumers (private vehicle owners are consumers). Cars are 50:50 taxis and VOC benefits split between transporters and consumers.
[b] Competitive market where most benefits passed to consumers.
[c] Producers keep most of the benefits of VOC and VOT.
Source: Operations Evaluation Mission estimates.

Table A15.16: Phnom Penh–Ho Chi Minh City Highway Project Benefit Distribution ($ million)

Item	Total VOC ($ million)	Total VOT ($ million)	Cambodia Transporter VOC + VOT Benefit	Cambodia Producer VOC + VOT Bus	Cambodia Consumer VOC + VOT Truck	Viet Nam Transporter VOC + VOT Benefit	Viet Nam Producer VOC + VOT Benefit	Viet Nam Consumer VOC + VOT Benefit	Cambodia Total VOC + VOT Benefit	Viet Nam Total VOC + VOT Benefit
CAM - RN1	17.91	5.12	4.78	3.33	12.98	0.05	0.83	1.06	21.09	1.94
Viet Nam - NH22	21.02	8.15	0.05	0.37	0.14	5.32	3.31	20.03	0.56	28.66
Grand Total	**38.93**	**13.27**	**4.83**	**3.70**	**13.12**	**5.37**	**4.14**	**21.09**	**21.65**	**30.60**

CAM = Cambodia, NH = national highway, RN = route national, VOC = vehicle operating cost, VOT = vehicle operating time.
Source: Operations Evaluation Mission.

Table A15.17: East–West Economic Corridor Project Benefit Distribution ($ million)

Item	Total VOC ($ million)	Total VOT ($ million)	Lao PDR Transporter VOC + VOT Benefit	Lao PDR Producer VOC + VOT Bus	Lao PDR Consumer VOC + VOT Truck	Viet Nam Transporter VOC + VOT Benefit	Viet Nam Producer VOC + VOT Benefit	Viet Nam Consumer VOC + VOT Benefit	Lao PDR Total VOC + VOT Benefit	Viet Nam Total VOC + VOT Benefit
Lao PDR - RN9	14.05	2.83	3.13	4.39	7.17	0.77	0.41	1.01	14.68	2.19
Viet Nam - NH9	14.95	4.76	0.17	0.17	0.81	3.62	3.30	11.87	1.15	18.79
Grand Total	**29.00**	**7.59**	**3.30**	**4.56**	**7.98**	**4.39**	**3.71**	**12.88**	**15.83**	**20.98**

Lao PDR = Lao People's Democratic Republic, NH = national highway, RN = route national, VOC = vehicle operating cost, VOT = vehicle operating time.
Source: Operations Evaluation Mission.

55. The higher total economic benefits (VOC + vehicle operating time) in Phnom Penh–HCMC Highway compared with the EWEC reflect higher vehicle traffic and higher proportion of passenger vehicles. In Phnom Penh–HCMC Highway, Viet Nam gets more benefits when using RN1 than the reverse because of the relatively high proportion of Vietnamese buses traveling in Cambodia and the trucking movements related to the special economic zone in Bavet.

56. Consumers on the Phnom Penh–HCMC Highway Project are expected to get the lion's share of the economic benefits, accounting for 74% of the total (61% in Cambodia and 82% in Viet Nam). Vietnamese consumers in total volume are getting twice as much economic benefit as Cambodian consumers.

57. On the EWEC, economic benefits are slightly more evenly distributed between Laotian and Vietnamese consumers. In total, consumers are getting 56% of the total benefits (50% in Lao PDR and 61% in Viet Nam).

L. Comparison with Previous Studies

58. In the case of the Phnom Penh–HCMC Highway Project, results at appraisal and PCR have been put in parallel in Tables A15.18–A15.19:

Table A15.18: Appraisal Summary

Item	**NPV B** ($)	**NPV C** ($)	**NPV NB** ($)	**B/C**	**EIRR** (%)
Cambodia	39.03	24.09	14.95	1.62	22
Viet Nam	103.33	71.26	53.83	1.45	24
Total	**142.36**	**107.32**	**68.78**		**23**

B/C = benefit-cost ratio, EIRR = economic internal rate of return, NPV = net present value.
Source: Report and recommendation of the President.

Table A15.19: Project Completion Report Summary

Item	**NPV B** ($)	**NPV C** ($)	**NPV NB** ($)	**B/C**	**EIRR** (%)
Cambodia	37.69	23.30	14.39	1.62	24
Viet Nam	130.75	74.10	56.65	1.76	26
Total	**168.44**	**97.41**	**71.03**		**25**

B/C = benefit-cost ratio, EIRR = economic internal rate of return, NPV = net present value.
Source: Project completion reports.

59. At appraisal, the road project scored high on EIRR—23% for the overall project—with 22% for Cambodia and 24% for Viet Nam. But the EIRR does not tell the whole story. When looking at the NPV of net benefits, they are both positive with a discount rate of 12%, but Viet Nam got more than three times the benefits as Cambodia. This is not surprising, as the Viet Nam component includes a significant urban road development likely to bring high benefits because of the heavy traffic. However, if one looks at the benefit-cost ratio (B/C), one can note that Cambodia scores better than Viet Nam (1.62 instead of 1.45). In short, at appraisal, it was expected that Viet Nam would get a larger volume of benefits but at a higher cost, making a win-win situation for both countries.

60. In Cambodia, the PCR findings in terms of NPV calculated in 2006 are quite close to the appraisal figures. There is more divergence for Viet Nam, because traffic has been growing faster than expected. This has caused the EIRR to be higher than at appraisal, as well as B/C (26% instead of 24%, and 1.76 instead of 1.45). Viet Nam net benefits are now four times greater than in Cambodia. In short, with time, though the project remains profitable for both countries, Viet Nam, according to the PCR findings, will profit more from the project. Of course, conclusions based on NH22 would not support this view.

61. For the EWEC, only the PCR table can be constructed (Table A15.20).

Table A15.20: Project Completion Report Summary

Item	**NPV B** ($)	**NPV C** ($)	**NPV NB** ($)	**B/C**	**EIRR** (%)
Lao PDR	32.30	18.30	14.00	1.76	21
Viet Nam	16.80	11.30	5.50	1.48	24
Total	**49.10**	**29.60**	**19.50**		**22**

B/C = benefit-cost ratio, EIRR = economic internal rate of return, Lao PDR = Lao People's Democratic Republic, NPV = net present value.
Source: Project completion reports.

62. According to the EIRR, Viet Nam is benefiting more from the project than the Lao PDR; but according to the B/C, it is the reverse. The volume of economic benefits is significantly higher in the Lao PDR than in Viet Nam. Our findings do not support that view.

M. Conclusions

63. At appraisal and PCR, the Phnom Penh–HCMC Highway and the EWEC projects were both rated highly economically justifiable, with EIRRs running above 20% for the whole project and for each component.

64. The SAPE's reevaluation was carried out with new prices for VOC and construction, and new traffic surveys. This shows a different picture as compared with the PCR. Traffic has not been growing according to expectation. Traffic is predominantly still local, with little international traffic. Borders, for all practical purposes, have not yet implemented the CBTA, and only a few vehicles are crossing. Under these new conditions, the two road projects do not come out as very strong economic projects.

65. The Phnom Penh–HCMC Highway Project comes out as marginal, with an EIRR below the threshold of 12%. Net economic benefits between the two countries being relatively equal, Viet Nam is paying more but getting more benefits.

66. The EWEC Project or the road from Pinh to Dong Ha comes out slightly better, with the EIRRs for Lao PDR and Viet Nam being 13% and 16%, respectively. However, here again the major diversion of trade from Thai ports has not yet materialized. On the whole, Viet Nam is benefiting slightly more from the project than the Lao PDR.

67. Limitations to the economic analysis and to the comparison with previous assessments were noted. These limitations have been clearly spelled out in the text. The main message, however, remains valid: Under present situations, road projects are only marginally economically justifiable, and far more trade expansion and traffic growth are required to turn these marginal projects into success stories.

STATUS OF IMPLEMENTATION OF SOCIAL AND ENVIRONMENTAL SAFEGUARDS

Loan No.	ADB Assistance	Approval	Completion	Social Safeguards	Environmental Safeguards
Cambodia					
1659	Phnom Penh–Ho Chi Minh City Highway	15-Dec-98	20-Jul-06	Resettlement became an issue with the rehabilitation of National Road 1. The resettlement issue became complicated, with several affected households expressing dissatisfaction with the level of compensation received such that it was necessary to carry out a resettlement audit to resolve the matter.	Compliance of environmental impact mitigation measures was poor initially, but after repeated warnings to the contractors, the performance improved and all the measures were implemented. Apart from this, the environmental safeguards were implemented appropriately.
1945	GMS: Cambodia Road Improvement	26-Nov-02	Ongoing	No land acquisition or resettlement issues were reported. Compliance on all eight project-specific social covenants, as per PPR dated 31 May 2008, has been satisfactory. Delayed compliance to undertake poverty reduction monitoring noted.	Compliance with 2 of 3 project-specific covenants (including developing and implementing an Environmental Management Plan) has been satisfactory. Other covenants are not yet due.
1503	Siem Reap Airport	12-Dec-96	17-Apr-03	No land acquisition or involuntary resettlement causing activities under the project.	No significant adverse impact
Lao PDR					
1369	Champasack Road Improvement	31-Aug-95	26-Jul-01	No adverse impact caused by the project.	No direct adverse impact caused by the project. Indirectly, the improvement of the road did result in increased logging activities as well as a rise in migration leading to slash-and-burn activities.
1727	East–West Corridor Project	20-Dec-99	28-Feb-07	No adverse impact caused by the project.	The project was classified in environmental category B. During construction, some residents complained about noise and dust near quarry sites.
1989	GMS: Northern Economic Corridor	20-Dec-02	Ongoing	No land acquisition or resettlement issues reported. Compliance with all seven project-specific social covenants, as per PPR dated 31 May 2008, has	Compliance with 4 of 6 project–specific covenants has been satisfactory. Two covenants, which were partly complied with, relate to

Loan No.	ADB Assistance	Approval	Completion	Social Safeguards	Environmental Safeguards
				been satisfactory. Three information centers were opened, and consultations are ongoing as part of Resettlement Plan.	the PCR contractor contract for environmental management, which does not contain a requirement for an environmental bond.
PRC					
1325	Yunnan Expressway	29-Sep-94	6-Sep-00	Resettlement audit conducted in 1999 found that majority of the people were satisfied with the resettlement conditions and arrangements.	No adverse impact was reported by the PCR
1691	Southern Yunnan Road Development	24-Jun-99	5-Jan-05	Resettlement was deemed to have been successful by the PCR because of the indirect support measures undertaken by the local governments. The PCR reported that the impact on ethnic minorities was minimal but distinct.	Preliminary independent evaluations of environmental and water conservancy measures have concluded that the mitigation measures were effective. No adverse environmental impacts were reported by the PCR.
1851	Guangxi Roads Development	9-Oct-01	Ongoing	No land acquisition or resettlement issues reported. Compliance with all five project-specific social covenants, as per PPR dated 31 May 2008, has been satisfactory.	Compliance with project-specific environmental covenants has been satisfactory. These relate to implementing mitigation measures and environmental monitoring program, and vehicle emissions control along the project road.
2014	Western Yunnan Roads Development	28-Oct-03	Ongoing	Compliance with four ongoing project-specific social covenants, as per PPR dated 31 May 2008, is satisfactory. Land acquisition and resettlement are substantially completed. A social safeguard review mission in 2005 was generally satisfied with implementation except for late fielding of HIV/AIDS consultant. A campaign on HIV/AIDS prevention was carried out.	Compliance with environmental covenant, i.e., implementing mitigation measures and environmental monitoring program, is ongoing and considered satisfactory. An environment safeguard review mission was satisfied with mitigation measures being undertaken. Environmental mitigation measures were incorporated in construction contracts. At campsite, garbage is regularly collected and properly disposed of. Wastewater is treated in septic tanks.

Loan No.	ADB Assistance	Approval	Completion	Social Safeguards	Environmental Safeguards
2094	Guangxi Roads Development II	16-Sep-04	12-Mar-2008	The project involved significant amount of land acquisition and resettlement. The PCR states that 4.6% of the affected people were not satisfied with the resettlement. Apart from this, no adverse impacts were reported in the PCR.	Project was classified as Category A. The PCR confirmed that the EIA was implemented satisfactorily.
2116	Dali–Lijiang Railway Project (Yunnan Province)	2-Dec-04	Ongoing	Compliance with 15 project-specific social covenants, as reported in PPR dated 31 May 2008, is ongoing and considered satisfactory. Land acquisition commenced in January 2005. Detailed measurement survey completed in November 2005. Independent institution has been engaged by the EA to carry out external monitoring and evaluation of the RP.	Compliance with covenant on environmental measures is ongoing and considered satisfactory. However, the summary EIA states that, although the railway will run along the shores of Erhai Lake, an important source of water supply, the railway will not transport toxic and hazardous chemicals. However, the freight forecast in the loan document states that it will carry petroleum, chemicals, manganese, lead, and zinc ores. This casts doubts on the quality of the EIA.
1427	Fangcheng Port Project	19-Jan-96	15-Oct-01	Households affected by the expressway component were reported by the PPER as better off than before the Project as a result of better quality housing and other facilities, and improved access after the construction roads were converted to local roads.	The PPER reported no significant environmental impact.
Viet Nam					
1660	Phnom Penh–Ho Chi Minh City Highway	15-Dec-98	12-May-06	All the project-affected persons had their living conditions improved or restored because of the increase in economic activity in the area. No serious adverse impact was seen.	Compliance with environmental impact mitigation measures was poor initially, but after repeated warnings to the contractors, the performance improved, and all the measures were implemented. Apart from this, the environmental safeguards were implemented appropriately.

Loan No.	ADB Assistance	Approval	Completion	Social Safeguards	Environmental Safeguards
1728	East–West Corridor Project	20-Dec-99	31-Mar-07	No adverse impact caused by the Project	None of the contractors fulfilled their obligations to implement the specified environmental protection measures. On completion of the works, debris, waste construction materials, and remnants of demolished structures were left on roadsides and in waterways. Apart from this, no serious adverse impacts were seen.
2222	GMS Kunming–Haiphong Transport Corridor–Noi Bai–Lao Cai Highway Technical Assistance	19-Dec-05	Ongoing	Compliance with two project-specific social covenants, as reported in PPR dated 31 May 2008, is ongoing and considered satisfactory. Consulting services will assist the Viet Nam Expressway Corporation with detailed design, i.e., preparing district-level updated resettlement and ethnic minority development plan.	Compliance with environmental covenant, i.e., implementing mitigation measures and environmental monitoring program, is ongoing and considered satisfactory.
2302	GMS Kunming–Haiphong Transport Corridor: Yen Vien–Lao Cai Railway Upgrading Project	19-Dec-06	Ongoing	No progress yet on complying with nine project-specific social covenants as reported in PPR dated 31 May 2008. Loan became effective on 25 September 2007.	No progress yet on four project-specific environmental covenants. Loan became effective on 25 September 2007.
1354	Saigon Port	2-Mar-95	1-Nov-00	The project was confined to rehabilitation and replenishment of an existing facility, so no relocation was necessary.	PPER reported that environmental impacts of the project have been minimal.

ADB = Asian Development Bank, EA = executing agency, EIA = environmental impact assessment, GMS = Greater Mekong Subregion, HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome, Lao PDR = Lao People's Democratic Republic, PCR = project completion report, PPER = project performance evaluation report, PPR = project performance report, PRC = People's Republic of China, RP = resettlement plan.
Source: ADB project management database.