

2.5 Cross-border Barrier

There are various types of cross-border barriers. These include insufficient infrastructure (e.g. lack of bridges and narrow road widths), unsupportive institutional arrangements (e.g. cumbersome and unclear customs procedures, high costs of import and export formalities), and others. While some of the barriers exist only at the cross-border points, the others are either along the transport routes or all over the country, the extent of impact of which also varies.

Table 2.5.1 Example of Cross-border Barriers

Category	Cross-border Barrier	Extent of Impact ¹⁾
Natural Conditions	Distance	L
Infrastructure	Lack of bridges, weight limit of the bridge	P
	Poor conditions of road infrastructure (missing link, poor surface conditions, narrow width)	L
	Lack of cargo terminal (for transshipment)	P
	Lack of driver station	L
Traffic Regulation	Speed limit and restriction on high-speed operation	L
	Weight limit and restriction on large-sized vehicles	L
Cross-border formalities	Time required for import/export formalities	P
	Cost for customs clearance (including unofficial cost)	P/A
	Mobile Checking Point	A
	Lack of harmonized documents for customs procedure	A
	Required procedures at customs headquarter in addition to that at cross-border points.	A
Multilateral or Bilateral Agreement	Quota of vehicles for cross-border transport	A
	Opening hours of customs and immigration offices	P
	Lack of harmonized documents for customs procedure	A
Domestic Laws and Institutions	Lack of guarantee system (for transit cargo)	A
	Lack of third-party liability insurance	A
Others	Limited route for international traffic	A

Source: Study Team.

1) P: barriers affecting the cross-border point, L: barriers affecting the route, A: barriers with a wider effect.

The detailed cross-border barriers in the major GMS regional economic corridors of Bangkok-Hanoi and Bangkok-Ho Chi Minh City are explained below.

1) Hanoi (Vietnam)–Bangkok (Thailand)

Hanoi-Bangkok is one of the major regional corridors in the subregion. Most cargos are transported by ship between Hai Phong Port, located 100km east of Hanoi, and Bangkok Port or Laem Chabang Port in the Eastern Seaboard of Thailand. Since Hai Phong Port is a river port and cannot accommodate large vessels, there are no direct shipping services between Bangkok and Hai Phong ports. Transshipment is required at Saigon Port or Singapore Port, thus resulting in a long lead time of transport about 2 weeks.

After the completion of the Second Mekong International Bridge in December 2006, the potential of land transport between Hanoi and Bangkok dramatically improved, leading international freight forwarders and insurance companies to conduct several trial runs to meet the logistics demand of Japanese shippers. Before, it was necessary to cross the Mekong River by ferry or to take a detour via Nong Khai-Vientiane crossing the First Mekong International Bridge taking at least four days. This is expected to decrease to 3 days via the Second Mekong International Bridge (see Table 2.5.2).

Table 2.5.2 Comparison of Land and Sea Transportation between Hanoi and Bangkok (as of October 2004)

	Section		Distance (km)	Time	Average Speed (km/h)	Cost for Transportation (US\$)
Land Transport	Bangkok–Khon Kaen	Thailand	419	5 hours	83.8	-
	Khon Kaen–Nhon Khai		180	3 hours	60	-
	Vientiane–Savanakhet	Lao PDR	450	6 hours	75	-
	Savanakhet–Densavanh		214	3 hours	71.3	-
	Lao Bao–Dong Ha	Vietnam	82	2 hours	41	-
	Dong Ha–Vinh		290	3 hours 50 mins	75.7	-
	Vinh–Hanoi		290	5 hours 30 mins	52	-
	Total		1,961	4 days	-	2,500
		(After January 2007)				
	Khon Kaen–Mukdahan	Thailand	260	3 hours 45 mins	69.3	-
	Total		1,591	3 days		2,110
Sea	Bangkok–Hai Phong Port		-	10-15 days	580	1,000

Source: JETRO, *JETRO Censor*, February 2007.

Note: Transport cost is for one 20 feet container, excluding import and export customs fee.

Table 2.5.3 shows the cross-border barriers in detail as observed on the Bangkok-Da Nang section of this corridor. As for the Hanoi-Da Nang section, which has a total distance of 1,061km along NH1, the trip takes 32 hours. There are many urbanized areas along NH1, wherein inter-city traffic is mixed with local traffic. In these areas, speed limits have been introduced, i.e. 45 km/h for passenger cars and 25 km/h for large trucks, to discourage high-speed operations. There are 12 toll gates between Dong Ha and Hanoi along NH1, for which trucks had to shell out a total of US\$ 55, as of December 2005.

Along the Bangkok-Hanoi corridor, significant cross-border barriers due to insufficient infrastructure were eliminated after the completion of the Second Mekong International Bridge and the road improvement projects funded by the ADB and Japan. However, critical issues are still observed in the institutional aspect such as time-consuming cross-border formalities, limited operating hours of cross-border gates, and unclear international transit arrangements in Lao PDR including customs procedures and guaranteeing systems.

As for transit cargo, advance application and approval in Vientiane are necessary to be exempted from customs duties and inspections. However, it is necessary to show at the border gates the original documents obtained in advance. This still takes a long time and creates a lot of trouble, aggravating the already difficult transport conditions. There is an alternative though, albeit a costlier one: Prior application in Vientiane is not required if a transit charge, which is about 3-10% of the invoice value, is paid at the border gates.

Table 2.5.3 Cross-border Barriers for Land Transportation between Da Nang and Bangkok

	Distance/ Infrastructure	Time	Cost	Other Barrier
Da Nang	109km NH1 Hai Van Tunnel (opened in 2005)	2 hours ¹⁾ (shortened by about 1 hour after completion of tunnel)	Hai Van Tunnel toll fee: VND 30,000 for passenger cars, VND 160,000 for trucks	
Hue	74km NH 1	1 hour ¹⁾		Speed limit in urban areas Weight limit on bridges
Dong Ha	82km NH9	Road Improvement by ADB → 2-3 hours ¹⁾		Speed limit
Lao Bao	Cross-border point	Custom procedure (Vietnam → Lao) ²⁾ Export: 1-2 hours Import: 4-5 hours (Lao → Vietnam) ³⁾ Export: 1 hours Import: 3-4 hours Immigration procedure: 30mins each	Immigration fee: ³⁾ 15,000 kip/ vehicle	Operating hours of customs gate: 9:00-17:00 (except for lunch break)
Dansavanh	283km	12 hours (as of 2000) (road improvement by ADB and JICA) → 3.5-4.0 hours ¹⁾	Transit cargo ^{3) 4)} [insurance] Trucks: 148,000 Kip, Passenger cars: 48,000 kip [transit fee] Trucks: 40,000Kip, Passenger cars: 20,000 kip	Transit cargo: Advance application is required in Vientiane (carried out by Lao agency) ⁵⁾ Operable at 80 km/h. Vietnamese and Thai vehicles can be operated.
Savanakhet	Cross-border point Second Mekong Bridge (2050m) Completed in Dec. 2006, opened for vehicles in Jan. 2007	Ferry crossing: 30-40 mins → Bridge crossing, 2-3 mins ¹⁾ Customs procedure (Thailand → Lao PDR) Export: 3.5 hours ³⁾ Import: 1.5 hours ³⁾	Re-exit fee: ³⁾ 15,000 kip/vehicle	Transshipment area with poor handling facility
Mukudahan	680 km	11 hours ¹⁾		

Bangkok

Source: Various sources (results of trial runs conducted by logistics companies).

Note: Transport time includes actual driving and processing time and excludes waiting time, rest for drivers, etc.

1) As of 2007

2) As of 2007. Type of cargo was not specified. (Sumitomo Mitsui Insurance, *Result of Trial Transportation*, 2007).

3) As of 2006. For 40-foot container (Logitem, *Result of Trial Transportation*, 2006).

4) It is also reported that an additional cost is required, i.e. tips for Lao customs officers of about US\$14 (140,000 Kip) (for 2 passenger-cars with 5 persons), besides the official costs.

5) It is required to show the original international transit document obtained in advance at border gate.

2) Bangkok (Thailand) -Ho Chi Minh City / Saigon Port (Vietnam)

Along another east-west corridor, Bangkok to Ho Chi Minh most of the logistics demand between these two cities is transported by ships, leaving very little share for land transport. Several barriers are observed in Cambodia, such as poor infrastructure and many institutional barriers foremost of which are the absence of transit arrangement and the lack

of mutual admittance of vehicles, thereby requiring transshipment at borders. As a result, land transport costs become more than double that of sea transport. Another constraint is observed in backhauls, where cargo volumes are much higher from Bangkok or Ho Chi Minh to Phnom Penh than those from Phnom Penh to Bangkok or Ho Chi Minh, which further increases land transport costs.

Table 2.5.4 shows the times and costs of land and sea transport between Bangkok and Ho Chi Minh as of 2004. Although transport time should have been improved after road improvements in Cambodia since 2004¹², transport unit cost (US\$/km) in the country is higher than that in Thailand by 40% in 2004. The unit cost of transport generally decreases for longer sections, but Cambodia's situation shows that transport costs there are extremely high. Unlike the route between Bangkok and Hanoi where the land transport route is shorter than sea transport, significant improvements both in time and cost are necessary to promote land transport between Bangkok and Ho Chi Minh, since sea transport only takes 2-3 days.

Table 2.5.4 Comparison of Land and Sea Transpiration between Bangkok and Ho Chi Minh (as of December 2004)

	Section	Distance (km)	Time	Transportation Cost	
				(US\$)	(US\$/km)
Land	Bangkok-Aranyaprathet (Thailand)	250	5 hours	290	1.16
	Poipet-Phnom Penh-Bavet (Cambodia)	588	15 hours	950	1.62
	Moc Bai-Ho Chi Minh (Vietnam)	75	2 hours	150	2.00
	Total	913	At least 2 days	1,390	1.52
Sea	Bangkok-Saigon Port	-	2-3days	580	-

Note: Land transport cost is for one 10-ton truck and that for sea transport is for one 20-foot container, both of which do not include fees for import and export customs and port handling.

Source: JETRO, *JETRO Censor*, February, 2006

Cross-border barriers observed along the Bangkok-Ho Chi Minh corridor are described by section in Table 2.5.5. There are many infrastructure issues particularly in Cambodia. High-speed operations are difficult due to poor road conditions. Since ferry crossing is required in Neak Loeng between Phnom Penh and Bavet/Moc Bai, most of the cargo is transported via a detour passing Trepeang Plong which does not require ferry crossing. While the total distance along the detour from Phnom Penh through Trepeang Plong to Ho Chi Minh is 80km longer than the original route through Bavet/Moc Bai, the total transport time from Phnom Penh to the Vietnam border is 3 hours, which is almost same as that of the original route due to the existence of a bridge crossing the Mekong River and good road conditions. However, cross-border facilities in Trepeang Plong have not improved compared with those in Bavet, since the former is not considered as a regional cross-border port under the GMS framework.

Institutional cross-border barriers observed in Cambodia can be described as follows:

- (i) Import and Export License Issuance at Customs Central Office in Phnom Penh: Getting an import and export license in advance at the customs central office in Phnom Penh is required, since international transit arrangement is not provided.

¹² It was reported that transport time (for passenger car) was 7 hours from Poipet to Phnom Penh and 4 hours from Phnom Penh to Bavet as of 2006. (JTCA, *Comprehensive Logistics Development Study*, 2006)

- (ii) Transportation by Cambodian Truck: Transshipment to Cambodian trucks at the border is required.
- (iii) Cash Transaction: Cash transaction is required since bank-to-bank transaction is not widely available.
- (iv) Resistance due to Vested Interests: Unclear institutional arrangement on import and export formalities has created a discrepancy between customs and business such as forwarders and transporters paying unofficial (read: illegal) charges at mobile checkpoints along the route.
- (v) Lack of Uniform Documents: Although the introduction of the UN layout of using both English and Cambodian language is required, customs documents are not uniform.
- (vi) Lack of a Guarantee System: A guarantee system for international cargo is not prepared.
- (vii) Lack of Insurance: Third-party insurance for international transport is not available.

Table 2.5.5 Cross-border Barriers for Land Transportation between Bangkok and Ho Chi Minh

	Distance/ Infrastructure	Time	Cost	Other Barrier
Bangkok	250km	5 hours ¹⁾	290 US\$ ¹⁾	
Aranya Phrathet	Cross-border point	Transshipment area (open air and without cargo handling equipment)		<ul style="list-style-type: none"> • Stricter controls after political change in Thailand. • Transshipment is required. Need to arrange cranes for cargo handling. It takes about 2 hours. • Transit cargo is not allowed, requiring import procedures.
Poipet	410km	7 hours	950 US\$ ¹⁾	<ul style="list-style-type: none"> • Poor road conditions, preventing high-speed operations. • Some one-way bridge
Phnom Penh	170km	4 hours		<ul style="list-style-type: none"> • Poor road conditions, preventing high-speed operations.
	Mekong River	Ferry crossing (15mins) • operated by 15 • operating hours 9:00-18:00		
Bavet	Cross-border point	At present 300 mins (will reduce to 120 mins at the first stage of IICBTA, and to 30 mins at the second stage)		<ul style="list-style-type: none"> • Transshipment is required. Need to arrange cranes for cargo handling. It takes 2 hours. • Export procedures are required.
Moc Bai	75km	2 hours	150 US\$ ¹⁾	<ul style="list-style-type: none"> • Good road conditions after road improvement by ADB
HCMC				

Source: Various sources (results of trial runs conducted by logistics companies).

1) As of 2004 (Sankyu Inc.).

2.6 Cross-border Transport Agreements

1) CBTA Background

Since the GMS regional economic cooperation framework was formulated in 1992 through an initiative of the ADB, a variety of programs and projects have been conducted toward regional integration and regional economic development, with particular emphasis on CBTI development.

Although CBTI development was expected to facilitate the cross-border transport of people and goods and to strengthen physical and economic connections among the countries, it has been gradually realized that physical infrastructure alone cannot achieve the desired effect. In other words, if cross-border barriers at the institutional level, such as customs procedures, transit arrangements, and immigration formalities, are not eliminated, it will be difficult to facilitate cross-border transport and strengthen regional linkages.

GMS countries previously had bilateral agreements on the institutional aspects related to cross-border transport. However, there were several issues to be resolved, such as limited focus on some issues including international transit transport, and contradictions as well as duplications among bilateral agreements. In order to tackle these problems, it was necessary to formulate multilateral agreements that will cover the whole Greater Mekong Subregion and the cross-border transport of people and goods.

In this context, a multilateral agreement on cross-border transport of people and goods was formulated, namely the GMS Cross-border Transport Agreement (CBTA). In addition to the series of discussions among GMS countries on the ADB's initiative, consistency with existing international agreements on cross-border transport had to be guaranteed through consultations with UNESCAP and the ASEAN Secretariat. Lessons learned from cross-border land transport in Europe were provided by the UN Economic Commission for Europe (UNECE).

2) CBTA Outline

The GMS CBTA¹³ is a compact and comprehensive multilateral instrument that covers all the relevant aspects of cross-border transport facilitation, namely TCIQ or transport, customs, immigration, and quarantine. It includes: (i) a single-stop / single-window inspection, (ii) cross-border movement of persons, (iii) transit traffic regimes including exemptions from physical customs inspection, bond deposit, escort, and phytosanitary and veterinary inspections, (iv) requirements that road vehicles will have to meet to be eligible for cross-border traffic, (v) exchange of commercial traffic rights, and (vi) infrastructure, including road and bridge design standards, road signs and signals. The overall outline of the GMS CBTA is described in the main agreement and detailed regulations are prescribed in its attachments, namely the annexes for technical aspects and the protocols for time- and location- specific variables. These annexes and protocols form an integral part of the Agreement and are equally binding. There are 17 annexes and 3 protocols as a whole (see Table 2.6.1). After the 6 GMS countries signed all annexes and protocols in March 2007, preparations for ratification in each country started.

¹³ Its official title is "The Agreement between and among the Government of the Kingdom of Cambodia, the People's Republic of China, the Lao People's Democratic, the Union of Myanmar, the Kingdom of Thailand, and the Socialist Republic of Viet Nam for the Facilitation of Cross-Border Transport of Goods and People."

Table 2.6.1 Annexes and Protocols of the GMS CBTA

Attachment	Title
Annex 1	Carriage of Dangerous Goods
Annex 2	Registration of Vehicles in International Traffic
Annex 3	Carriage of Perishable Goods
Annex 4	Facilitation of Frontier Crossing Formalities
Annex 5	Cross-border Movement of People
Annex 6	Transit and Inland Clearance Customs Regime
Annex 7	Road Traffic Regulation and Signage
Annex 8	Temporary Importation of Motor Vehicles
Annex 9	Criteria for Licensing of Transport Operators for Cross-border Transport Operations
Annex 10	Conditions of Transport
Annex 11	Road and Bridge Design and Construction Standards and Specifications
Annex 12	Border Crossing and Transit Facilities and Services
Annex 13a	Multimodal Carrier Liability Regime
Annex 13b	Criteria for Licensing of Multimodal Transport Operators for Cross-border Transport Operations
Annex 14	Container Customs Regime
Annex 15	Commodity Classifications System
Annex 16	Criteria for Driving Licenses
Protocol 1	Designation of Corridors, Routes, and Points of Entry and Exit (Border Crossings)
Protocol 2	Charges Concerning Transit Traffic
Protocol 3	Frequency and Capacity of Service and Issuance of Quotas and Permits

Source: ADB, *GMS Cross-border Transport Agreement (ADB)*, 1999.

The description of the CBTA is described below.

(1) Part 1: General Provisions

(Article1) Purpose and Objectives: The objectives of the CBTA are: (i) to facilitate the cross-border transport of goods and people between and among the GMS countries; (ii) to simplify and harmonize legislation, regulations, procedures, and requirements relating to the cross-border transport of goods and people; and (iii) to promote multimodal transport.

(Article2) Scope of Application: CBTA applies to cross-border (into, out from, or across one of the GMS countries) transport by road (including river crossing by ferry, where there is no bridge) of entire goods or people. Unless expressly stated otherwise, the CBTA does not deal directly with trade and immigration matters. Consequently, it does not affect the right of the GMS countries to make entries into their respective territories subject to their laws and regulations on import/export/transit of goods and entry/exit/transit of people.

(Article3) Definitions of Terms Used in the Agreement: Meanings of the terms used in the CBTA are defined.

(2) Part II: Facilitation of Border Crossing Formalities (in accordance with Annex 4:

Facilitation of Frontier Crossing Formalities) ¹⁴⁾

(Article 4) Single Window Inspection (SWI): The different inspections and controls of people (passport/visa, driving license, foreign exchange, customs, health/epidemiological), vehicles (registration, roadworthiness, insurance), and goods (customs, quality, phytosanitary /plant protection, veterinary) will be carried out jointly and simultaneously by the respective competent authorities involved (particular modalities will be prescribed in the memorandum of understanding (MOU) for each cross-border point).

Single Stop Inspection (SSI): The two adjacent national authorities will carry out their inspections jointly and simultaneously at the Common Control Area (CCA), which normally requires two inspections for export and import ¹⁵⁾ (particular modalities will be prescribed in the MOU per cross-border point).

Coordination of Hours of Operation: The hours of operation of adjacent frontier crossing control authorities will be coordinated by the contracting parties.

Advance Exchange of Information and Clearance: The contracting parties will work together to allow for advance exchange of information and clearance of goods and people.

(3) Part III: Cross-border Transport of People

(Article 5) Visas: For people engaged in transport operations, multiple-entry visas, transit and exit visas for prolonged periods will be granted. For people not engaged in transport operations, the conditions and modalities of visa issuance is elaborated in Annex 5 of the CBTA.

(Article 6) Transport of People: The performance of the cross-border transport of people are stipulated in Annex 5 “Cross-border Movement of People” for immigration (visa issuance, health inspection, duty-free allowance) of personal effects, transport conditions (transport pricing of scheduled and non-scheduled services, accompanied luggage allowance and unaccompanied luggage) and passenger road carrier liability regime, and in Protocol 1 “Designation of Corridors, Routes, and Points of Entry and Exit (Border Crossings)”.

(4) Part IV: Cross-border Transport of Goods

(Article 7) Transit Cargo: Transit cargos will be exempted from: (i) routine customs physical inspection at the border, (ii) customs escort in the national territory, and (iii) deposit of bond as a guarantee for customs duties (see Annex 6 Transit and Inland Clearance Customs Regime).

(Article 8) Transit Traffic: One country must grant freedom of transit through their territory for transit traffic to or from other countries. Transit traffic will be exempt from any customs duties and taxes. Charges relating to transit traffic will be gradually levied as determined in Protocol 2 “Charges Concerning Transit Traffic”¹⁶⁾ at the first step

¹⁴ Detail arrangement of SSI and SWI are described later.

¹⁵ Implementation modalities are suggested in Annex 4, including joint inspection by two adjacent national officials, split arrangement of functions, delegation of authority and so on.

¹⁶ Permissible charges include tolls, charges for excess weight, administrative expenses, and the use of other facilities or services, taxes on fuel purchased and road maintenance charges.

and must only be cost related at the second step.

(Article 9) Phytosanitary and Veterinary Inspection: Compliance with international agreements related to the regulations of the World Health Organization, the Food and Agriculture Organization, and the Office International des Epizooties must be considered in inspecting goods crossing borders.

(Article 10) Special Regime for the Transport Particular Categories of Goods: The CBTA will not apply to the transport of dangerous goods as defined in Annex 1. The transport of perishable goods as defined in Annex 3 will be granted a priority regime for border crossing clearance formalities.

(5) Part V: Requirement for the Admittance of Road Vehicles

(Article 11) Admittance of Road Vehicles in Other Contract Parties: Subject to the conditions set out in this part, vehicles registered by one country, whether left-hand or right-hand drive (operated either commercially for reward or for own account or privately) must be admitted to other countries.

(Article 12) Registration: Vehicles in cross-border traffic must be registered in their respective home countries and bear identification marks, carry a registration certificate, and display their registration number. Detailed rules of registration are set out in Annex 2 of the CBTA.

(Article 13) Technical Requirements: Vehicles and containers traveling beyond borders must satisfy the equipment safety and emission standards in force in their respective home countries. With respect to weights, axle loads and dimensions, vehicles must comply with the technical standards of the host country.

(Article 14) Recognition of Technical Inspection Certificates: The home country will be charged with the supervision of the roadworthiness of the vehicles registered in its territory and the issuance of a technical inspection certificate, which will be recognized by other countries.

(Article 15) Road Traffic Regulations and Signage: Road traffic regulations and signage along the routes designated in Protocol 1 will be gradually adopted to the rules and standards set out in Annex 7.

(Article 16) Compulsory Third-Party Motor Vehicle Liability Insurance: Motor vehicles traveling beyond borders must comply with the compulsory third-party liability insurance required in the host country.

(Article 17) Driving Permits: Driving licenses will be issued in accordance with Annex 16, which will be mutually recognized.¹⁷⁾

(Article 18) Temporary Importation of Motor Vehicles: Temporary admission of motor vehicles (and the fuel contained in its supply tanks, its lubricants, maintenance supplies, and spare parts in reasonable quantities) registered in one country, must be granted without payment of import duties and import taxes, without depositing a guarantee bond, and be free of import prohibitions and restrictions, subject to re-exportation and subject to the other conditions laid down in Annex 8.

¹⁷ This article was amended in 2004.

(6) Part IV: Exchange of Commercial Traffic Rights

(Article 19) Traffic Rights: Traffic rights will be gradually exercised in two steps. In the first step, transport operators subject to the conditions set out in this part may undertake: (a) transit through other countries, (b) inbound into another country, and (c) outbound from another country. In the second step, transport operators may undertake transport operations into, from or across other countries according to free market forces. Cabotage will, only be permitted on the basis of a special authorization from the host country.

(Article 20) Designation of Routes and Points of Entry and Exit: Protocol 1 defines permissible routes, as well as points of entry and exit for cross-border transport of goods and people.

(Article 21) Licensing of the Transport Operator (Access to the Profession): Transport operators will be licensed for cross-border transport operations by their home country according to the criteria set out in Annex 9, which will be recognized by other countries. Operating license cannot be sold or transferred by any legal entity.

(Article 22) Market Access: Any transport operator licensed in its home country will be entitled to undertake cross-border transport operations and be granted permission to establish representative offices for the purpose of facilitating traffic operations in other countries.

(Article 23) Free Market for Transport Services: Transport operation will be gradually authorized in two steps. In the first step, vehicles to be operated and transport frequency will be designated in Protocol 3. The National Transport Facilitation Committee (NTFC) will issue the agreed number of permits each year. In the second step, the frequency and capacity of the transport operations will not be subject to any restriction.

(Article 24) Pricing and Conditions of Transport: The conditions of transport will conform to the rules set out in Annex 10. Pricing for cross-border transport will be free and determined by market forces but subject to antitrust restrictions and supervision of the Joint Committee so as to avoid excessively high or low pricing.

(7) Part VII: Infrastructure

(Article 25) Road and Bridge Design Standards: Construction or reconstruction of the roads (including bridges) shown in Protocol 1 will be carried out within the framework of national public works programs or with international financing. Construction or reconstruction of the agreed roads (including bridges) will be carried out in accordance with the minimum characteristics set out in Annex 11, to the extent permitted by available financial resources. Each country must ensure that the agreed roads are safe, secure, and in good conditions and carry out the necessary repairs.

(Article 26) Road Signs and Signals: Each country undertakes to gradually bring the traffic signs and signals in their territory in line with the standards set in Annex 7.

(Article 27) Border Crossing Facilities: The required infrastructure at the border crossing points must be built and staffed so as to ensure speedy and efficient completion of frontier crossing formalities as specified in Annex 12.

(8) Part XIII: Institutional Framework

(Article 28) National Transport Facilitation Committees: Each country will establish a permanent National Transport Facilitation Committee (NTFC) chaired by a Minister or Vice Minister or its equivalent. It will bring together representatives of all parties concerned with the implementation of the CBTA.

(Article 29) Joint Committee: Representatives of the respective NTFCs will form together the Joint Committee, which will monitor and assess the functioning of the CBTA, serve as a platform for discussion and a forum for amicable settlement of disputes, address advice to the member countries, and formulate proposals to amend the CBTA.

(9) Part IX: Miscellaneous Provisions

(Article 30) Observance and Enforcement of National Laws and Regulations: People, transport operators, and vehicles must comply with the laws and regulations in force in the territory of the host country. The enforcement of the local laws and regulations will be the sole competence of the authorities of the host country. The host country may temporarily or permanently deny access to its territory to a person, a driver, a transport operator or a vehicle that has infringed upon the provisions of the CBTA or its national laws and regulations.

(Article 31) Transparency of Legislation, Regulation and Status of Infrastructure: Each country undertakes to make available in English a comprehensive brochure on the national laws, regulations, procedures, and technical information relating to the cross-border transport of goods and people as stipulated in the CBTA.

(Article 32) Nondiscriminatory Treatment: Each country undertakes to provide equal and not less favorable treatment to the vehicles, goods, and people of other countries than to those of any third country in cross-border transport.

(Article 33) Assistance in the Case of Traffic Accidents: In case of road traffic accidents involving people, transport operators, vehicles, or goods from another country, the host country will provide all possible assistance and notify the competent authorities of the home country as soon as possible.

(Article 34) Multimodal Transport: Multimodal transport operations must be promoted by: (a) applying the uniform multimodal transport liability regime set out in Annex 13a, (b) laying down minimum qualifications for multimodal transport operators set out in Annex 13b, and (c) adopting the special container customs regime set out in Annex 14.

(Article 35) Documentation and Procedures: Each country recognizes that documentation and procedures represent important time and cost elements affecting the efficiency of transit operations and agree to keep these costs and delays to a minimum by: (i) limiting the number of documents and reducing procedures and formalities required for cross-border traffic, (ii) providing English translation of all documents used for cross-border traffic, (iii) aligning documents with the United Nations layout for trade documents, (iv) harmonizing, to the extent possible, commodity codes and descriptions with those commonly used in cross-border trade, as set out in Annex 15, (v) reviewing periodically the need for and usefulness of all

documents and procedures required for cross-border traffic, (vi) eliminating any documents and formal requirements that are superfluous or do not serve any particular purpose, (vii) undertaking to conform all measurements with SI units (the international system of modern metric units), by 2005, and (viii) giving advance notice to other member countries of any additional requirements or modifications in the prescribed documentation and procedures to be introduced regarding cross-border traffic.

3) **Detailed Regulations of the CBTA**

The CBTA covers TCIQ comprehensively. The following regulations are worthy of special mention:

(1) **Facilitation of Border Crossing Formalities**

The CBTA in Annex 4 prescribes necessary modalities to facilitate border crossing formalities through simple, efficient, and speedy treatment. It includes consultation, cooperation, coordination, and harmonization for operating hours, types of available inspection services (customs, quarantine, quality control/inspection, health, immigration, etc.), and types of goods to be inspected. What is the most notable are the Single Window Inspection (SWI) and the Single Stop Inspection (SSI), which require a lot of effort to implement.

Single Window Inspection (SWI): The different inspections and controls of people (passport/visa, driving license, foreign exchange, customs, health/ epidemiological), vehicles (registration, roadworthiness, insurance), and goods (customs, quality, phytosanitary /plant protection, veterinary) will be carried out jointly and simultaneously by the respective competent authorities involved. One authority can delegate their competence to another authority present at the border to perform it on their behalf.

Single Stop Inspection (SSI): The two adjacent national authorities will carry out their inspections jointly and simultaneously at the Common Control Area (CCA), which normally requires two inspections for export and import. Eventually the SSI will be introduced for customs, quarantine, and immigration, while customs inspection is only covered in Annex 4. SSI modalities are suggested to vary by each cross-border point depending on the availability of facilities and the relationship between the two concerned countries.

(a) Joint Inspection: The two adjacent national authorities will carry out their inspection and control jointly and simultaneously.

(b) Split Arrangement: The authorities from one country must specialize in a particular function, while those from the other country must specialize in another, e.g. according to traffic direction (outbound/inbound) or type of carriage (passenger/cargo).

(c) Performance in Foreign Territory: The officers from one country are allowed to perform their duties in the territory of the other country.

(d) Delegation of Authority/ Mutual Recognition of Inspection: One country delegates its inspection and control competence to the customs officers of the adjacent country to perform it on its behalf. Two countries may mutually recognize the inspections performed by each other.

(e) Combination: Combinations of the above-mentioned modalities are practicable.

The SWI is also applicable at international gateways such as ports and airports. Actually, it has been introduced earlier at ports and airports in many countries, where users only have to go to one single window to accomplish for several procedures. On the other hand, the SSI can only be applied at land border gates, where two countries are adjacent to each other. Since it may be difficult to introduce these two modalities at once, a step-by-step implementation is applied. The two concerned countries must discuss and sign a bilateral MOU for each border crossing gate, specifying the implementation schedule, depending on available facilities and human resources.

(2) International Transit Cargo

The framework for international transit cargo may be the biggest challenge of the CBTA. Transit traffic is defined in the CBTA as the “transport of goods across the territory of one country when the passage through this territory is only a portion of a complete journey starting and ending beyond the frontiers of the country across whose territory the traffic passes.” It includes “international transit,” the segment of the transport operation between two international border crossing points, where the cargo respectively enters and exits the territory of a country, and “inland transit,” the segment of the transport operation between the inland clearance point and the international border crossing point where the cargo exits the territory of a country (and vice versa). Conventional framework required all cargo to be inspected and be charged customs duties at any border gate. After the CBTA implementation, transit cargo can be exempted from regular physical inspection, bond deposit, and customs escort. It is expected to reduce time for border crossing formalities for land transport among more than three countries, and thus develop new logistics routes and facilitate regional interaction.

International transit cargo is covered in Part IV of the CBTA, “Cross-border Transport of Goods.” Annex 6 of “Transit and Inland Customs Clearance Regime” prescribes detailed regulations regarding international transit, including exemption from physical inspection, bond deposit, and customs escort, the means of transport (technical standards of vehicles, sealing), transit and inland customs clearance documents (contents, time limits, etc.), incidents en route, guarantee, and so on. Other annexes related to international transit include Annex 8 (Temporary Importation of Motor Vehicles), Annex 14 (Container Customs Regime), and Protocol 3 (Frequency and Capacity of Service and Issuance of Quotas and Permits).

International transit arrangement requires establishing new institutions, particularly for guarantee for liability. In case the document is not duly or timely discharged, the transport operator must pay duties and taxes normally due. In order to avoid such risks, the liability of international transit goods must be guaranteed by the authorized guaranteeing organizations/ institutions. In the case of the European Union, the associations in each country (such as truck association) are authorized as guaranteeing organizations to issue international transit documents. These organizations are financed with membership fees. However, such organizations in the GMS countries have insufficient human and financial resources to guarantee the liability of transit cargo. Candidate agencies for the guaranteeing body in the GMS countries are shown in Table 2.6.1. As of 2007, international transit arrangement is practicable in Lao PDR, which requires advance procedure in Vientiane. Cargo can

pass through the border without any prior procedure, only if “transit fees” are paid at the border, which usually cost 3-5% of the invoice value. It is caused by the lack of a guaranteeing body.

Table 2.6.1 Candidate Authorities for Guaranteeing Body for International Transit

Country	Candidate Authority	Remarks
Thailand	BOI (Board of Investment)	Prescribed in bilateral consultation
Cambodia	Chamber of Commerce	Prescribed in bilateral consultation
Lao PDR	LIFFA (Lao International Freight Forwarder Association)	Based on the hearing
Myanmar	MIFFA (Myanmar International Freight Forwarder Association)	Based on the hearing
Vietnam	To be decided	

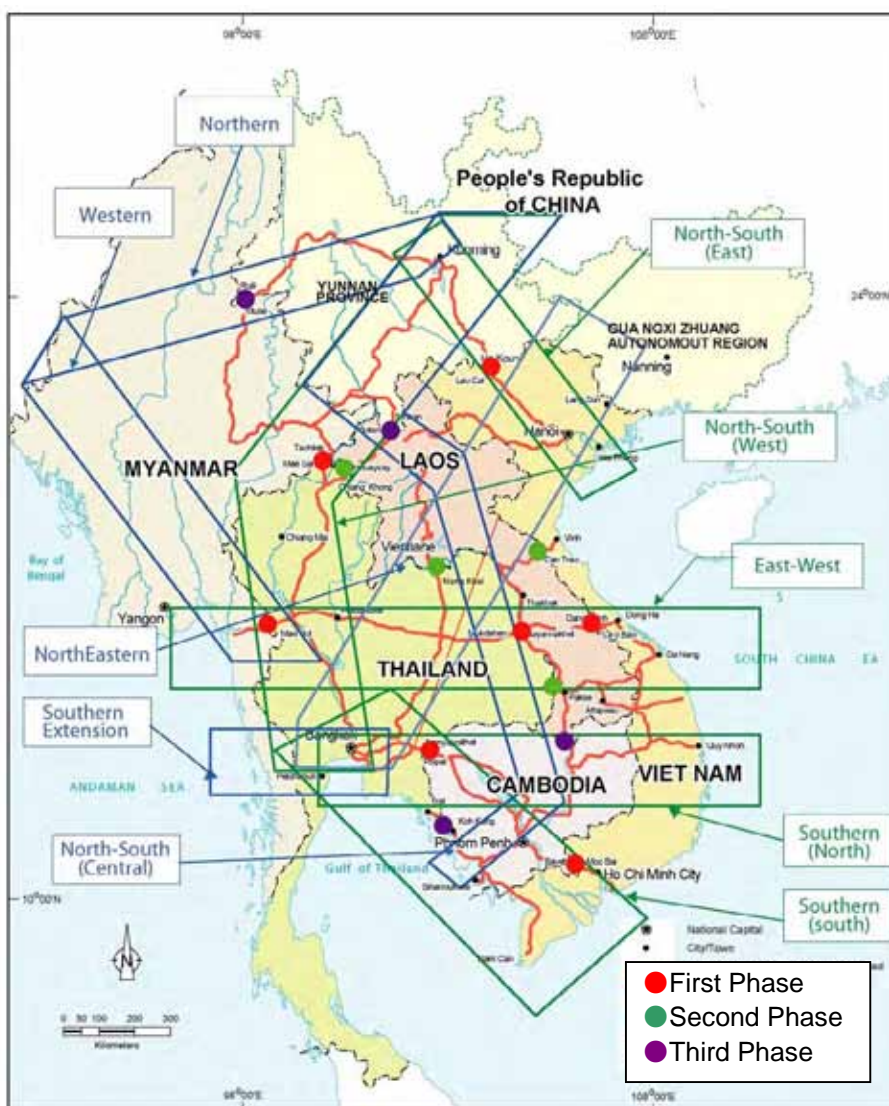
Source: JTCA, *Comprehensive Logistics Development Study*, 2005.

Furthermore, there are still some concerns that increasing traffic volume may only cause negative impact in transit countries and may threaten domestic industries in Lao PDR and Cambodia, where most transit cargo will pass. Resistance of customs officers to the reduction in customs revenue and some unofficial tips remains. With such concerns, it took long to agree on the international transit arrangement. While the basic framework has been agreed upon as shown in the CBTA annexes, complete implementation of international transit cargo may take longer.

4) **IICBTA (Initial Implementation of CBTA)**

The initial implementation of the CBTA was agreed in 2004 to preempt the ratification of the annexes and protocols on a pilot basis at key cross-border points. It aims to accelerate the implementation of the CBTA by allowing the early identification of key issues and the early realization of benefits from improved transport facilitation. In the first phase, 7 key border crossing points were selected among 16 points designated in Protocol 1, which is expected to expand to the second and third phases (see Figure 2.6.1).

Figure 2.6.1 Cross-border Points for Initial Implementation of CBTA



Source: ADB, *GMS-Cross Border Transport Agreement Protocol 1*, 2004

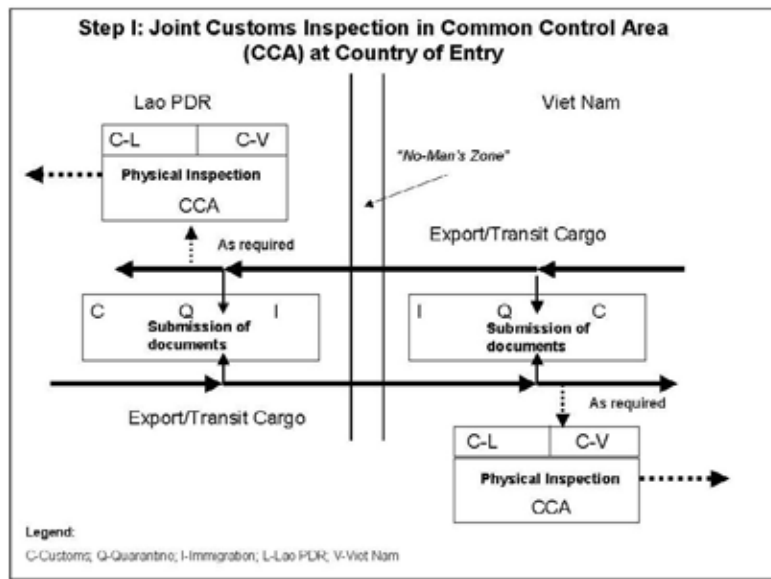
Time-bound MOUs have been prepared to operationalize the IICBTA, focusing on the self-executing CBTA articles for each pilot border crossing point. Detailed staged implementation modalities and their schedules are described particularly for SSI and SWI. Different implementation modalities are applied considering local conditions and the relationship of the countries concerned. For example, a 4-stage implementation is introduced at Lao Bao (Vietnam)-Dansavanh (Lao PDR) cross-border point, while a 2-stage implementation modality is applied at Mukdahan (Thailand)-Savannakhet. Detailed implementation schedules at the cross-border point of Lao Bao (Vietnam)-Dansavanh (Lao PDR), with the most advanced progress of IICBTA, are specified in its MOU as follows:

Step 1: Processing and clearance of documents will be conducted in an expeditious and near-simultaneous manner in the countries of exit and entry, as provided for in the existing general procedures. SSI will be introduced for customs, i.e. physical customs inspection¹⁸⁾ will be performed only in the country of entry and no longer in the country of exit. Physical

¹⁸⁾ In case physical inspection is found necessary by at least one Party to the MOU.

inspections for quarantine and immigration will be performed as before.

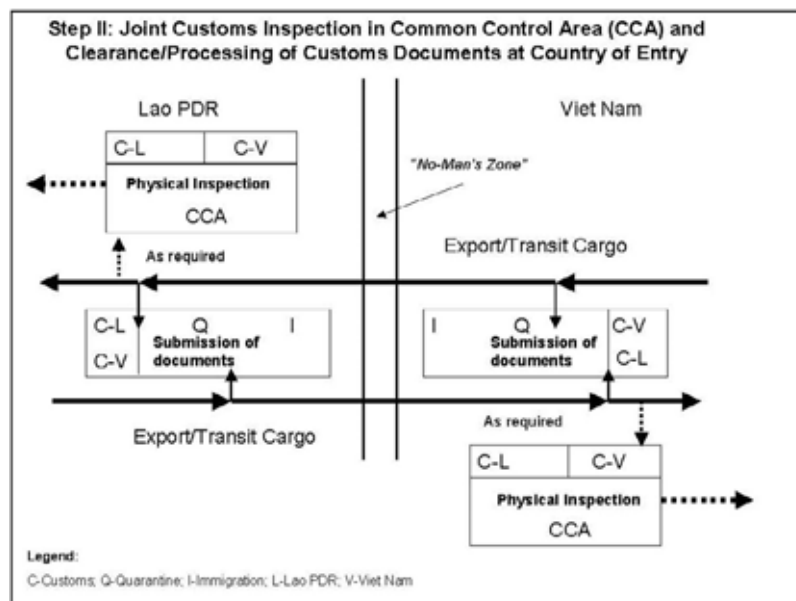
Figure 2.6.2 Implementation Methods of IICBTA at Lao Bao- Dansavanh CBP (Step I)



Source: ADB, *MOU on the IICBTA at Dansavanh, Lao PDR and Lao Bao, Vietnam, 2005*

Step 2¹⁹: Step 2 will build on Step 1. The SSI will be expanded to cover customs document processing as well as its physical inspection, i.e. submission, processing, and clearance of customs documents will be conducted in the country of entry's border checkpoint jointly by the customs authorities of the two countries and no longer in the country of exit's border checkpoint. Processing and clearance of documents and physical inspections for quarantine and immigration will be performed in the country of exit and entry as before.

Figure 2.6.3 Implementation Methods of IICBTA at Lao Bao- Dansavanh CBP (Step II)

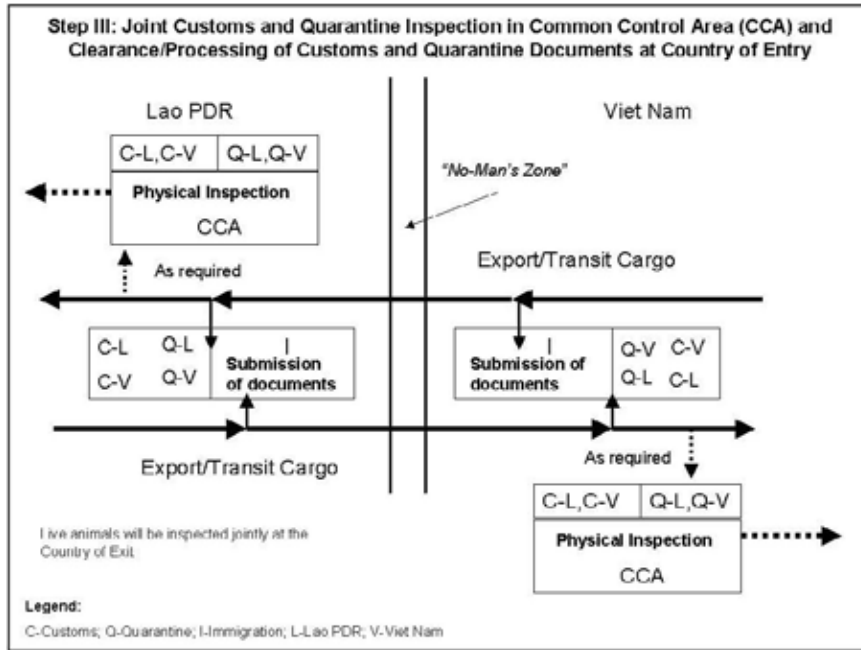


Source: ADB, *MOU on the IICBTA at Dansavanh, Lao PDR and Lao Bao, Vietnam, 2005*

¹⁹ It has been decided to implement Step 2 and Step 3 at the same time. If only Step 2 commences, there may be some cases wherein vehicles need to go back to the country of exit for quarantine inspection after undergoing physical inspection in the country of entry, based on an interview with ADB officers.

Step 3: Step 3 will build on Step 2. The SSI will be introduced for quarantine, in addition to customs. Submission, processing, and clearance of quarantine documents, and as well as inspection will take place in the country of entry's border checkpoint and no longer in the country of exit's border checkpoint, except in the case of live animals where physical quarantine inspection is undertaken in the country of exit. At this stage, only exit immigration formalities will be performed in the country of exit's border checkpoint.

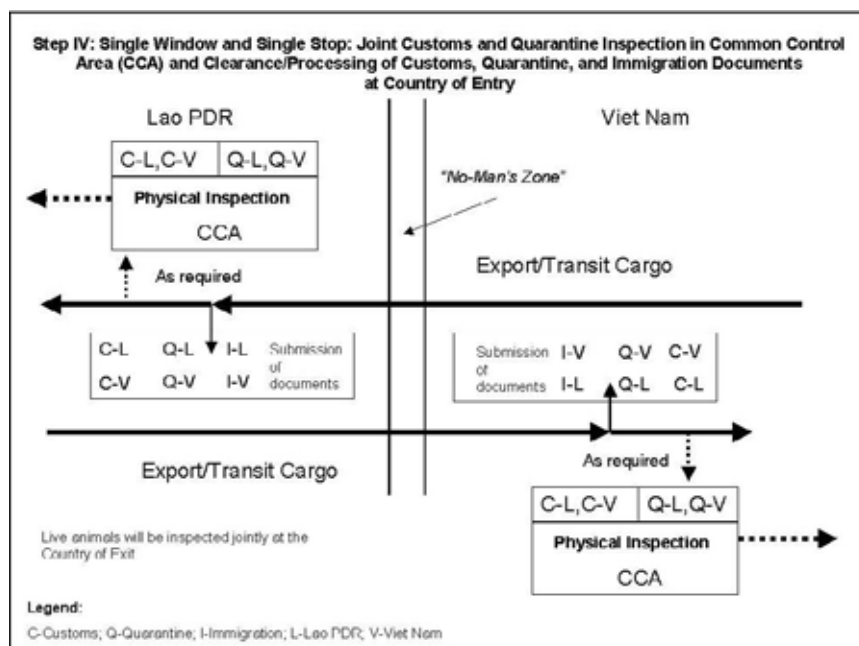
Figure 2.6.4 Implementation Methods of IICBTA at Lao Bao-Dansavanh CBP (Step III)



Source: ADB, *MOU on the IICBTA at Dansavanh, Lao PDR and Lao Bao, Vietnam, 2005*

Step 4: Step 4 will build on Step 3. All border crossing clearance formalities will be performed in the country of entry and no longer in the country of exit, except in the case of live animals.

Figure 2.6.5 Implementation Methods of IICBTA at Lao Bao- Dansavanh CBP (Step IV)



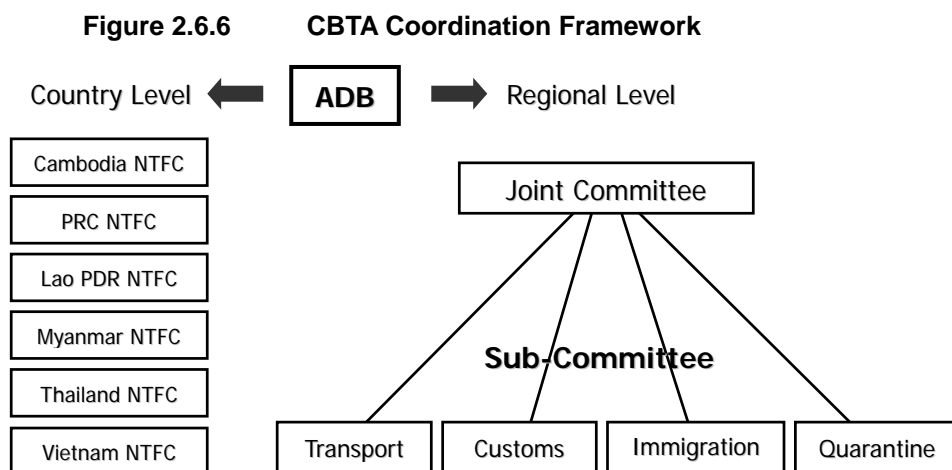
Source: ADB, *MOU on the IICBTA at Dansavanh, Lao PDR and Lao Bao, Vietnam, 2005*

5) Implementation Status of CBTA²⁰⁾

(1) **Overall CBTA Framework**

Signed in 1999, the CBTA was originally intended as a trilateral agreement among Lao PDR, Thailand, and Vietnam. Then in 2001, 2002, and 2003, Cambodia, China, and Myanmar acceded to the CBTA, respectively, formally making it a multinational agreement among the 6 GMS countries. By 2003, the CBTA was ratified in all 6 countries.

Discussions on the CBTA are held both at the regional and the country levels. Country discussions are done within the NTFC. Regional meetings include the Ministerial Joint Committee and the subcommittees for transport, customs, immigration, and quarantine, where detailed issues of each sector are discussed. At all levels of meeting, the ADB plays a leading role and is now trying to identify the constraints and issues for CBTA implementation in each country through close coordination with the respective NTFCs.



Source: ADB

(2) **Ratification of Annexes and Protocols**

Since 2003, continuous efforts had been made to formulate annexes and protocols, which had been signed in a phased manner from 2004 to 2005. After signing on the last 3 annexes and 1 protocol at the Second GMS-CBTA Joint Committee held on 20 March 2007, the signature on all annexes and protocols were completed.

The last three documents signed include Annex 6 (Transit and Inland Clearance Customs Regime), Annex 14 (Container Customs Regime), and Protocol 3 (Frequency and Capacity of Service and Issuance of Quotas and Permits), all of which are related to international transit. It took a long time to agree on international transit arrangements due to the lack of institutional background, such as a guarantee system for international transit cargo and the establishment of a guaranteeing authority, as well as to the strong concern, mainly of Lao PDR and Cambodia, on the negative impact caused by transit cargos, and the resistance put up by groups with vested interests in maintaining the status quo.

²⁰ The status of CBTA implementation was based on the discussion with the ADB in January 2007 and on the handout distributed during the Eleventh GMS Subregional Transport Forum in May 2007.

While all the annexes and protocols were signed in March 2007, the status of domestic procedures for ratification is quite different in each country. As of May 2007, Vietnam, Lao PDR, and Cambodia have processed those ratifications. In Vietnam, 16 annexes and protocols agreed upon before 2005 have already been ratified. In Lao PDR, 6 annexes and 2 protocols initially signed in 2003 have been ratified. In Cambodia, 12 annexes and protocols were ratified in 2006 and the remaining 8 documents have been submitted to the government, awaiting for ratification. On the other hand, no document has been ratified in Thailand, Myanmar, and China, although China started ratification procedures after all the annexes and protocols were signed.

It is necessary to promote ratification and to maintain consistency with national laws and regulations. The ADB is now requesting all member countries to complete ratification of all annexes and protocols by the Third GMS Summit to be held in March 2008.

(3) Progress of IICBTA at Cross-border Points

At the 7 border crossing points of the first phase, IICBTA has commenced since 2005. Lao Bao (Vietnam)-Densavanh (Lao PDR) along the east-west corridor is identified as a pilot case for IICBTA in the Greater Mekong Subregion, where active efforts are made by Vietnam, Lao PDR and the ADB. Single-stop and single-window inspections have also started and will move to Step 3, although both are delayed from the original schedules set out in the MOU.

However, IICBTA at other border crossing points has not proceeded well. While the cross-border point of Bavet (Cambodia)-Moc Bai (Vietnam) along the second east-west corridor is identified as a leading point, together with Lao Bao-Dansavanh CBP, Step 1 for single-stop and single-window inspections has not commenced. As for the cross-border point of Savannakhet (Lao PDR)-Mukdahan (Thailand), where the Second Mekong International Bridge is located, the MOU has been signed but the implementation has been delayed. Constraints include public servants on one country working in the territory of another and the location of the new border checkpoint. IICBTA at the Aranyaprathet (Thailand)-Poipet (Cambodia) CBP has not yet started due to the lack of land for the CCA. The MOU for the Lao Cai (Vietnam)-Hekou (China) has just been signed in 2007 and implementation should have started in September 2007. For the other 2 cross-border points, it is expected that their respective MOUs will be signed and IICBTA will commence within 2007.

Table 2.6.2 Implementation Status of IICBTA First Phase (SSI/SWI) at Cross-border Points (as of August 2007)

Cross-border Point	Status of MOU	Implementation Status
Lao Bao- Densavanh	Signed.	Implementation in 4 stages First Phase: implemented in June 2005. Second Phase: implemented together with the third phase. Third Phase: scheduled to commence in the end of 2007 or in the beginning of 2008 (delayed from the original schedule in December 2006, due to lack of space for facilities in Lao PDR) Fourth Phase: to be decided (originally scheduled to start in June 2007 in MOU)
Mukdahan-Savannakhet	Signed.	Implementation in 2 stages First Phase: Delayed (Implementation was scheduled to start in December 2006) Second Phase: to be decided
Bavet- Moc Bai	Signed.	Implementation in 4 stages. First Phase: Delayed (implementation was originally scheduled to start in January 2007) due to lack of land in Cambodia Second Phase: to be decided (originally scheduled to start in September 2007) Third Phase: to be decided. Fourth Phase: to be decided.
Aranyaprathet-Poipet	Signed.	To be decided (due to the lack of land for CCA and necessity to agree on the border line)
Hekou-Lao Cai	Signed.	Scheduled to commence in September 2007
Mae Sot- Myawaddy	Prepared but not yet signed.	To be decided. (request from Thailand to revise MOU)
Mae Sai-Tachilek	Prepared but not yet signed.	To be decided. (request from Thailand to revise MOU)

Source: Based on the discussion with the ADB in September 2007 and on the country reports prepared by the GMS countries for the GMS Regional Training Course in August 2007.

For the second phase of IICBTA in 2006, the original intention was to identify 4 more cross-border points. However, the MOUs have not yet been prepared. Meanwhile, the third phase of IICBTA scheduled to be implemented at 3 other cross-border points in the 2007-2008 period is expected to be delayed.

(4) Next Steps

The roadmap for CBTA implementation is summarized in Table 2.6.2 together with the past activities. In the GMS CBTA Joint Committee meeting in March 2007, the target year for the full implementation of the CBTA was set at 2009, but was later adjusted to 2010 during the GMS transport forum in May 2007. To modify the implementation schedules in response to the conditions in each country, it is necessary to continuously monitor the implementation status of the CBTA and the IICBTA.

Table 2.6.3 Roadmap for CBTA Implementation (as of August 2007)

Year	Action for CBTA Implementation
1999	The CBTA Framework Agreement was signed by three countries (Lao PDR, Thailand, and Vietnam).
2001	Cambodia signed the CBTA
2002	China signed the CBTA.
2003	Myanmar signed the CBTA.
2004	<p>April Signed were the following: Amendment of Article 17 with Annex 16 (Criteria for Driving Licenses); Annex 2 (Registration of Vehicles in International Traffic); Annex 4 (Facilitation of Frontier Crossing Formalities); Annex 7 (Road Traffic Regulation and Signage); Annex 11 (Road and Bridge Design and Construction Standards and Specifications); Annex 12 (Border Crossing and Transit Facilities and Services); Annex 13a (Multimodal Carrier Liability Regime); Annex 15 (Commodity Classifications System); and Protocol 1 (Designation of Corridors, Routes, and Points of Entry and Exit (Border Crossings).</p> <p>December: Signed were the following: Annex 1 (Carriage of Dangerous Goods); Annex 9 (Criteria for Licensing of Transport Operators for Cross-border Transport Operations); Annex 13b (Criteria for Licensing of Multimodal Transport Operators for Cross-border Transport Operations); and Annex 16 (Criteria for Driving Licenses).</p>
2005	<p>July Signed were Annex 3 (Carriage of Perishable Goods); Annex 5 (Cross-border Movement of People); Annex 10 (Conditions of Transport); and Protocol 2 (Charges Concerning Transit Traffic).</p>
2007	<p>March Signed were the following: Annex 6 (Transit and Inland Clearance Customs Regime); Annex 8 (Temporary Importation of Motor Vehicles); Annex 14 (Container Customs Regime); and Protocol 3 (Frequency and Capacity of Service and Issuance of Quotas and Permits).</p> <p>Formulation of the National Action Plan for the Completion of CBTA Implementation</p>
2008	<p>By the Third GMS Summit: All Annexes and protocols will have been ratified in all member countries.</p> <p>Implementation of IICBTA first phase at seven CBPs.</p>
2010	Complete implementation of CBTA (scheduled).

Sources: Based on the ADB website and the Eleventh Subregional Transport Forum in May 2007.

Note: The trilateral MOU was formulated for the Mukdahan-Savannakhet-Densavanh-Lao Bao corridor among Lao PDR, Thailand, and Vietnam in July 2007.

6) Human Resources Development for CBTA

The ADB has conducted several kinds of programs for human resources development to facilitate CBTA implementation, in parallel with the formulation of the CBTA framework. Past and ongoing activities of the ADB related to capacity building for the CBTA are as follows:

Best Practices of Other Countries and Introduction of CBTA Outline

- One- or two-day workshop.
- Introduction of the experiences of the UNECE, jointly hosted with UNESCAP.
- **Participants:** Central government officers.

Training on CBTA Contents

- One- or two-day workshop.
- **Participants:** Officers at (selected) cross-border points.

Training at Cross-border Points

- Formulation of operations manuals: Operations manuals at Lao Bao-Densavanh border gate are in English, Vietnamese, and Lao and came out in November 2006.
- Risk management for customs inspections.
- Promotion of coordination and discussion among two concerned countries.

Introduction of ICT Facilities at Border Checkpoints and Training of Officers

- Joint implementation with AusAID.
- **Coverage:** Major cross-border points (Lao Bao-Densavanh, Savanakheth-Mukdahan, Bavet-Moc Bai).
- **Contents:** Introduction of information and communication technology (ICT) facilities and conduct of necessary training programs.

Training of CBP Officers

- Joint implementation with the Singapore Training Center.
- **Participants:** Officers at (selected) cross-border points.
- **Venue:** Conducted in the capital of each country.

2.7 Regional Development integrated with CBTI Development

Impact of East-West Economic Corridor on Savannakhet Province

Cross-border barriers along the east-west corridor have significantly decreased since 2000. The corridor's primary impact is shorter travel time. Before, it took about 12 hours from Khanthabouly (Savannakhet) bordering Thailand to Densavanh bordering Vietnam. After widening and improving National Road (NR) No. 9 with financing from the ADB and Japan grant aid, travel time has been cut back to three hours. In addition, the local populace's accessibility to education and medical services has improved. It is reported that children in rural areas can now attend junior high schools, while previously they could only access elementary schools.

After the completion of the regional economic corridor, investment in Savannakhet province, particularly FDI, has also increased. This has in turn led to the creation of jobs and thus improve socio-economic development in border areas, decreasing the number of households living below the poverty level from 37,282 in 1998 to 24,400 in 2004.

Lao Bao Special Economic Zone Development

Quang Tri province along the east-west corridor was a war zone during the Vietnam War. During the war from 1954 to 1975, the people of Quang Tri suffered a heavy loss of life and property. Even long after the war, it had been left behind by Vietnam's economic development. Since the 1990s and after the east-west economic corridor was identified in the GMS development framework, the development potential of NR9 rapidly increased.

In this context, the Lao Bao Special Economic and Commercial Area (LSECA) was established in 1998 as the first special economic zone in Vietnam. Preferential treatment was provided for LSECA locators, including the exemption from VAT, export/import tax, and special consumption tax. Corporate tax was also waived for the first 4 years upon location, discounted by half for the next 9 years, and by 10% for the following years. Half of the personal income tax of laborers was also waived and the lease on land was exempted for the first 11 years (Investment Environment in Vietnam, JOI, 2005). A total amount of US\$ 25 million was invested for economic infrastructure such as electricity, water supply and telecommunication. This industrial estate with an area of 15,800ha has been developed at the border.

As a result, 45 projects with a total amount of VND 1,900 billion or US\$ 120 million was invested in the area for 8 years before 2006²¹). Among these projects, 23 have started their operations and 6 are under construction. Those already operating include tire plants and rubber factories with Thai capital. There is a proposal to develop logistics facilities to meet increasing cargo demand including transit ones, which is listed in the GMS Development Matrix made by the ADB.

Savan-Seno Special Economic Zone Development

Savannakhet city in Savannakhet province, located at the eastern end of Lao PDR along the east-west corridor, is the third-biggest city in Lao PDR. Savannakhet province has the largest share of rice production in the country and has rich natural resources such as

²¹ In Huong Hoa district where Lao Bao locates, output-base production value has increased by 25% from 2000 to 2001 (Socio-Economic Statistical Data of Rural Districts, Statistical Publishing House, 2002)

minerals, which is becoming its largest base for export.

Lao's first special economic zone is planned along NR9 in Savannakhet province and will be completed by 2011. It will be under the responsibility of the Savan-Seno Economic Zone Authority established in 2003. The completion of the east-west corridor provided northeastern Thailand with a direct access to Danang Port in Vietnam. The development of the economic zone aims to bring the economic benefits of developing the regional economic corridor and addresses concerns about increased transit traffic with no benefit for Lao PDR.

The Savan-Seno Special Economic Zone, which was proposed in a JICA study²²⁾, is composed of two industrial estates, namely Site A with an area of 305ha adjacent to the Second Mekong international Bridge and Site B with an area of 20ha located in Seno 28km east of Savannakhet at the junction of NR9 and NR13, the north-south axis in Lao PDR.

Both industrial estates will function as export processing zones, free trade zones, and free service and logistics centers. Preferential treatment, the best in Lao PDR, is provided to investors, including exemption from corporate tax for the first 5 to 10 years in proportion to the export ratio (in case of manufacturing companies), exemption from import tax and consumption tax, as well as a personal income tax discount of 5%. Land lease period is allowed for a maximum of 75 years, with it's a free lease for the first 12 years if the total lease period is over 30 years (based on the Results of Site Visit of Logitem, JOI, 2005, and IDJ 2006).

At present, land acquisition is ongoing and no project has started yet. However, the completion of the east-west corridor has already had some impact in Savannakhet province, including a rapid increase in foreign direct investment in the last few years. It is reported in the ADB that the total FDI increased to US\$ 207 million in the 2001-2005 period from US\$ 17.9 million in the 1995-2000 period.

Moc Bai Special Economic Zone Development

Moc Bai district, bordering Cambodia, is located on the second east-west corridor of the GMS development framework. With a high development potential and convenient location, i.e. 70km from Ho Chi Minh City, early progress has been observed in infrastructure development, including the ADB-financed widening of NR22 linking Moc Bai and Ho Chi Minh.

The Moc Bai Border Economic Zone was established in 1998 and completed in 2004. With a total area of 21,280ha, it has three border gates, the main one in Moc Bai and the other two in Phuoc Chi and Long Thuan. Preferential treatment to attract private investments includes a 50% reduction in land rentals, low tax rates on expatriating profits, and simple licensing procedures. As a result, the zone has attracted 27 domestic investors with 38 projects at a total capital of over VND 5.4 trillion (or US\$ 350 million) over the last two years.

One of the zone's most ambitious investment projects is the Hiep Thanh Trading Complex, with an area of 48ha and a total capital of VND 376 billion or US\$ 23.5 million. It comprises

²² Four candidate sites for industrial estates were proposed in JICA-conducted study, of which site A and B were selected.

a housing complex and shopping mall. A new road will soon be built to connect it directly to Cambodia. The zone also has a duty-free supermarket opened in 2005 and a mini supermarket, attracting 3,000-4,000 shoppers daily from both countries. It is reported that these commercial and industrial developments have had a large impact on the area such as the expansion of employment. For example, most of the 310 workers now employed in the duty-free supermarket worked previously as porters.

On the other hand, the Moc Bai Border Economic Zone has so far failed to attract foreign investments due to poor infrastructure, such as transport access. The provincial government therefore intends to develop basic infrastructure, such as roads, water, and electricity. The priority will be given to upgrading a 25-kilometer dilapidated power grid, improving water supply up to a daily capacity of 4,000 m³, and installing 28km of water pipeline.

2.8 Key Development Projects in the Greater Mekong Subregion

In the Greater Mekong Subregion, the key development projects with donor assistance are summarized by sector in tables 2.8.1 and 2.8.2, based on the ADB GMS Development Matrix and the project lists of other international agencies.

The trends in development assistance among the major donor agencies are summarized as follows:

- (1) JICA: 1) Transport 24%, 2) Agriculture 23%, 3) Water Supply and Sewerage 18%.
- (2) JBIC: 1) Transport 33%, 2) Energy and Mining 31%, 3) Health 11%.
- (3) ADB: 1) Education 18%, 2) Environment 17%, 3) Transport 16%.
- (4) WB: 1) Agriculture 20%, 2) Energy and Mining 19%, 3) Transport 17%.
- (5) Others: 1) Tourism 29%, 2) Environment 16%, 3) Agriculture 12%.

The transport sector is ranked within the top three of all key donor agencies, showing that priority has been placed on the sector. Focus is also given on education, environment, and tourism by the ADB and the World Bank.

Table 2.8.1 Number of Projects of Key Donor Agencies by Sector ¹⁾

Donor	Sector											Total			
	Agriculture, Fishing, and Forestry	Economic Policy and Finance	Education	Energy and Mining	Environment	Health, Nutrition, Population, and Other Social Services	Industry and Trade	Information and Communications	Multisector	Public Administration, Law, and Justice	Tourism		Transportation	Urban Development	Water, Sanitation, and Flood Protection
JICA	82		36		2	29		10		30	4	86	16	64	359
JBIC	29	33		135		49		23				145		19	433
ADB	39	20	49	23	45		38	8			6	43			271
WB	73	18	23	68	2	23	14	11	3	42		61	6	13	357
Others ²⁾	48	38	18	46	62			23			116	43			394
Proposed ³⁾	39	28	52	29	37		83	45			25	217			555
Total	310	137	178	301	148	101	135	120	3	72	151	595	22	96	2369

Source: ADB, *GMS Development Matrix*, 2006, website of JICA, JBIC and WB

Note 1) Coverage of data is as follows: JICA from 1975, JBIC from 1969, ADB and others from 1995, WB from 1950, to present.

2) Including projects of ASEAN, bilateral, UNESCAP, MRC, and other multilateral donors, which are listed in the ADB GMS Development Matrix.

3) Project proposed in the ADB GMS Development Matrix.

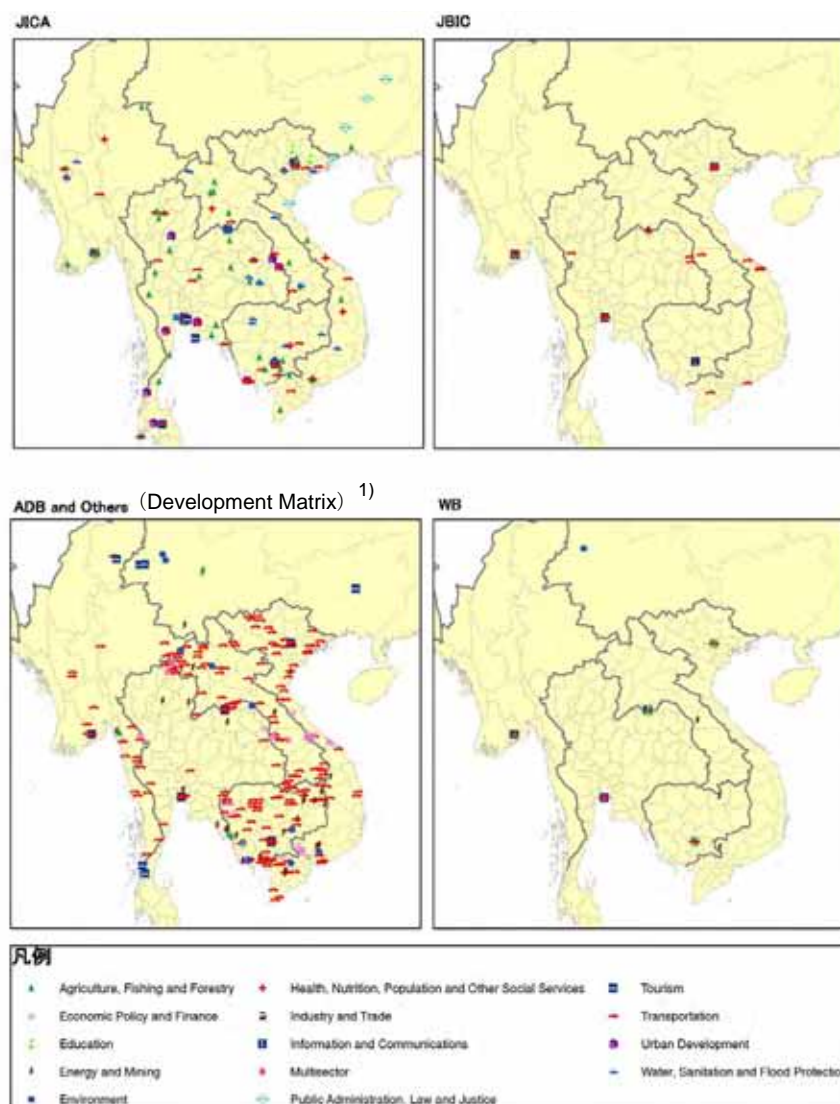
Figure 2.8.1 shows the project locations of key donor-assisted projects by sector. It shows that JICA- and JBIC-assisted projects are equally distributed in CLMV countries and Thailand, while ADB-assisted projects are more focused on Cambodia, Lao PDR, and Vietnam.

Table 2.8.2 Project Share of of Key Donor Agencies by Sector

Donor	SECTOR											Total		
	Agriculture, Fishing, and Forestry	Economic Policy and Finance	Education	Energy and Mining	Environment	Health, Nutrition, Population, and Other Social Services	Industry and Trade	Information and Communications	Multisector	Public Administration, Law, and Justice	Tourism		Transportation	Urban Development
JICA	23%	10%		1%	8%		3%		8%	1%	24%	4%	18%	100%
JBIC	7%	8%		31%		11%		5%				33%	4%	100%
ADB	14%	7%	18%	8%	17%		14%	3%			2%	16%		100%
WB	20%	5%	6%	19%	1%	6%	4%	3%	1%	12%		17%	2%	100%
Others	12%	10%	5%	12%	16%			6%			29%	11%		100%
Proposed	7%	5%	9%	5%	7%		15%	8%			5%	39%		100%

Source: ADB, GMS Development Matrix, 2006, website of JICA, JBIC, WB

Figure 2.8.1 Location of Key Donor-assisted Projects in the GMS



1) Including projects financed by multiple donors and local governments.

3. Issues of CBTI Development for GMS Countries

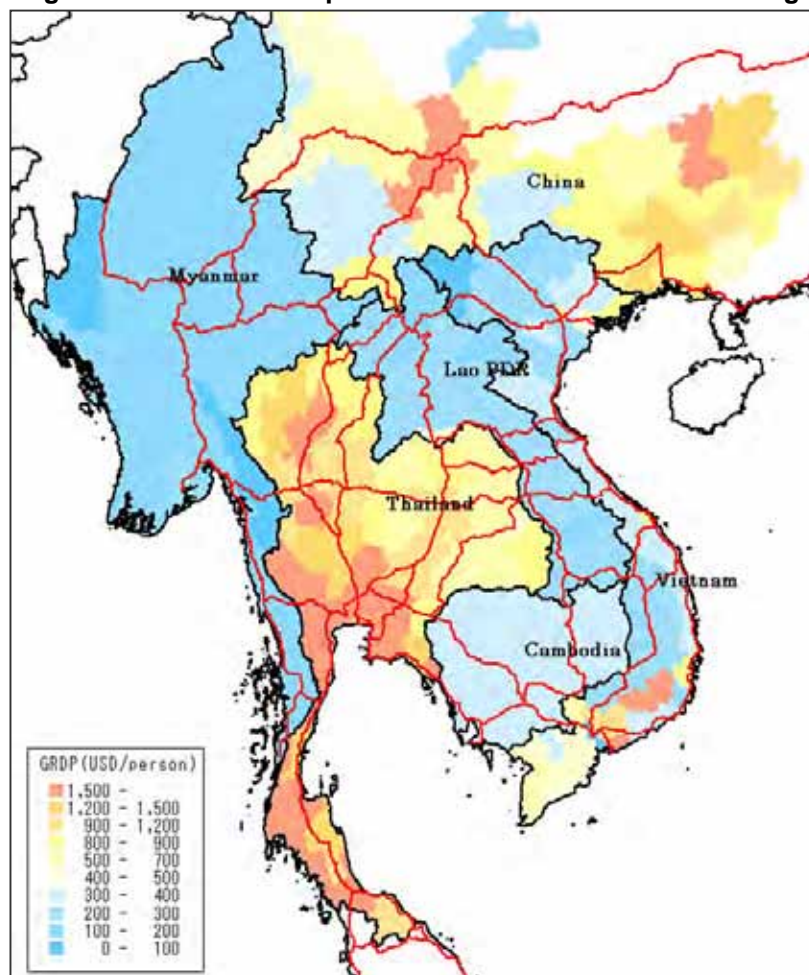
3.1 Narrowing International, Regional, and Ethnic Disparities

1) International and Regional Disparities

Figure 3.1.1 shows the distribution of the per-capita GRDP in the GMS countries. GDP levels are distinctly high in Thailand, and more or less equivalent levels are found in the Yunnan Province and the Guangxi Zhuang Autonomous Region in China. Vietnam's urbanized regions, which include Hanoi and Ho Chi Minh, show relatively high income levels in sharp contrast to the frontier regions.

The issue of primary importance in the GMS is reflected in Lao PDR and Cambodia, who are surrounded by Thailand, China, and Vietnam on one side, as well as Myanmar in the west. These three countries are classified as among the lowest income countries (the frontier regions of Vietnam must be added as well). The economic gap has widened perceptibly in recent years between these poorest countries and the rest of the GMS countries. It is therefore absolutely necessary to push their entire economies to alleviate widespread poverty and narrow the economic disparities in the GMS.

Figure 3.1.1 Per-capita GRDP in GMS Countries and Region



Source: Formulated by the Study Team based on existing data.

Notes: 1) Per-capita GRDPs are shown for Cambodia. GRDP for Lao PDR and Myanmar was estimated by the study team from its total GDP. GRDPs for China, Thailand, and Vietnam were estimated based on GPP (Gross Provincial Product).

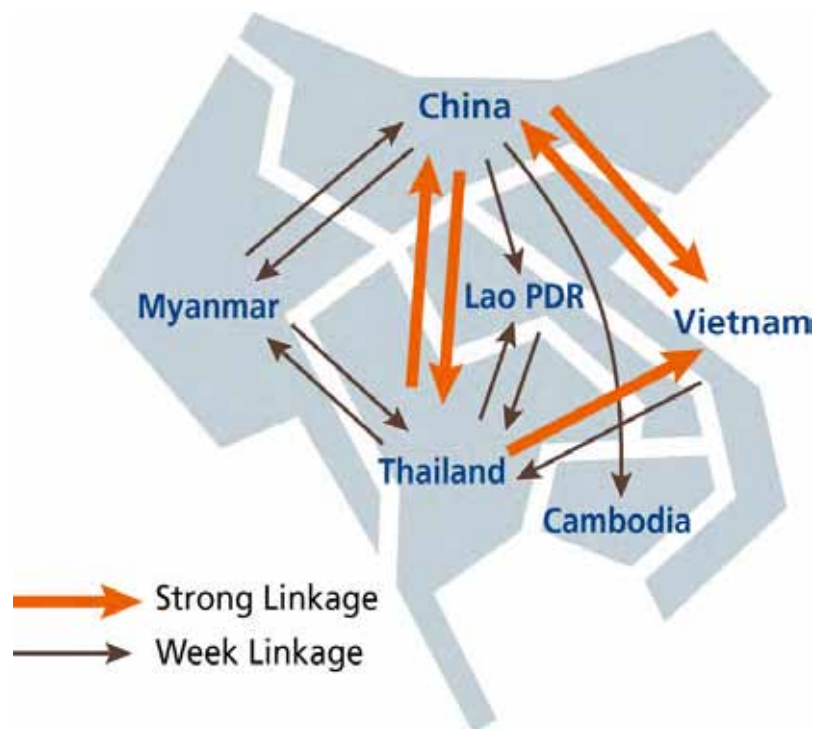
2) Cambodia: 2004, Vietnam: 2004, Thailand: 2003, Yunnan: 2003, and Guangxi Zhuang Autonomous Region: 2005.

3) Per-capita GRDP for Myanmar was calculated from 2004 GDP and 2005 population and GRDP.

4) Per-capita GRDP for Lao PDR was calculated from 2003 GDP and 2002 population.

The structure of trade in the GMS region as discussed in the preceding chapter is schematically presented in Figure 3.1.2. The basic structure is a triangle of active trade among China, Thailand, and Vietnam, with Lao PDR, Cambodia, and Myanmar barely hanging on to one or two of these more developed countries. The importance of CBTI development and CBTA implementation is to be found in the trade activation and expansion of the three low-income countries in the triangle and the uplifting of their entire economies. Indeed, a number of regional development projects, most notably special economic areas, have already been launched in GMS frontier regions. Private sector interests are increasingly focusing on the development of cross-border corridors for freight traffic along the axes of Thailand – Lao PDR – Vietnam, Thailand – Cambodia – Vietnam, and elsewhere. It is crucial to support and expedite these emerging efforts at narrowing regional disparities. As will be discussed in detail in Chapter 6, CBTI development and CBTA implementation are expected to sizably increase the potentials of GRDP growth in the respective GMS countries.

Figure 3.1.2 Schematic Trade Structure among GMS Countries



2) Ethnic Disparities

Cross-border transportation caters to the flows of trade and is deeply entangled in the power play of local interests. Lucrative gains from trade almost necessarily fall into the hands of the socially powerful and, in multi-ethnic societies, often into the hands of the ethnic group of largest representation. Table 3.1.1 shows the public sector ethnic distribution in the frontier region of Vietnam bordering Lao PDR (Lao Bao – Dansavanh). Quang Tri Province is the Vietnamese side of the cross-border corridor. At the provincial level, public sector employees overwhelmingly belong to the majority ethnic group of the Kinh. The representation of this group gradually decreases as the level of administrative units go down in frontier communes, but suddenly jumps up in the vicinity of the Lao Bao SEZ border crossing gate. This shows that the ethnic majority at the provincial level and at

border crossing gates is directly reflected in the enclave of trade-related gains and power.

Table 3.1.1 Ethnicity Distribution among Public Sector Employees along the Cross-border Corridor in Quang Tri Province, Vietnam

Level	Ethnic Minorities ¹⁾	Ethnic Majority ²⁾
Quang Tri Province	●	●●●●●●●●●●●●●●
Huong Hoa District	●●●	●●●●●●●●●●
Frontier Communes	●●●●●●●	●●●●
Lao Bao SEZ Border Crossing Gate	●●	●●●●●●●●●●

Source: Janmejay Singh, "Reviewing the Poverty Impact of Regional Economic Integration in the Greater Mekong Sub-region", ADB, 2006.

Note: 1) Pako, Van Kieu, Tay, Nung, and H'mong.
2) Kinh.

Similar ethnic disparities are found in the employment of labor. Ethnic minorities are often discriminated in the formal sector employment and are left to engage in informal economic activities. In this regard, it is important to rectify discriminatory employment regulations and customs and promote the transparency of the formal sector recruiting process. It might be necessary in certain cases to initiate the intervention of the national government or international organizations.

3.2 Changing Role of Road Transport in Long Distance Freight Traffic

Cross-border transport is often discussed in the context of roads. Regarding long distance traffic, however, it is necessary to consider the competition provided by water transport, most notably sea transport. Traditionally, Indochinese coastal shipping linking China, Vietnam, Thailand, and Myanmar has played a crucial role in regional freight traffic. In recent years, the gradual development of inland road networks in the GMS countries has reduced the extreme hazards of yesteryears that used to discourage cross-border land transport. Especially notable was the yen-credit-financed completion of the Second Mekong Bridge between Thailand and Lao PDR in December 2006. The bridge finally linked up the long-awaited east-west economic corridor that extends from Myanmar to Vietnam across the Indochinese Peninsula. Spurred by this breakthrough, an increasing number of interests have begun to converge toward the development of freight logistics network across the GMS countries. In response to the request of Japanese companies located in these countries, Japanese logistics companies recently conducted a survey on a number of cross-border road links, and their findings are summarized in the following paragraphs and tables 3.2.1~3.2.3.

Table 3.2.1 Comparison of Land and Sea Transport between Bangkok and Yangon

	Route	Distance (km)	Travel Time (hr)	Transport Condition	Estimated Transport Cost (US\$)
Land Transport	Bangkok – Mae Sot	490	12	excellent	290
	Myawadi – Kawkareik	75	4	very poor	440
	Kawkareik – Yangon	380	15	satisfactory	
	Total	945	3 days		730
Sea Transport	Bangkok – Bangkok Port	20 – 30	1 – 2	excellent	80
	Bangkok Port – Yangon Port	4,000	20 days	–	1,000
	Yangon Port – Yangon city	20 – 30	1 – 2	satisfactory	50
	Total	–	approx. 1 month		1,130

Source: Based on Sankyu Co, Ltd., “Significant Impact to Shorten the Travel Time”, *JETRO Sensor*, Feb. 2006. (in Japanese)

Note: Cost of land transport is for chartering a 10-wheel 10-ton truck. Cost of sea transport is for chartering a 20-foot container. Customs, port charges, and other related cost items are not included.

Table 3.2.2 Comparison of Land and Sea Transport between Bangkok and Hanoi

	Route	Distance (km)	Travel Time	Transport Condition	Estimated Transport Cost (US\$)
Land Transport	Bangkok – Mukudahan	680	15 hours	excellent	460
	Savannakhet – Densavanh	250	5 hours	excellent	250
	Lao Bao – Hanoi	660	14 hours	satisfactory	1,400
	Total	1,590	3 days		2,110
Sea Transport	Bangkok City – Bangkok Port	20 – 30	1 – 2 hours	excellent	100
	Bangkok Port – Hai Phong Port	–	8 – 12 days	–	800
	Hai Phong Port – Hanoi	120	3 – 4 hours	satisfactory	100
	Total	–	approx. 2 weeks		1,000

Source: Based on Sankyu Co, Ltd., “Logistics in Indochina after completion of the Second Mekong Bridge and East-west Economic Corridor”, *Economic and Investment Seminar in Lao PDR*, Oct. 2006 (in Japanese)

Note: Cost is for chartering a 20-foot container for both land and sea transport. Customs charges are not included.

Table 3.2.3 Inter-city Container Cargo Transport in Indochina

Route	Land Transport			Sea Transport		Remark
	Km	Day	Cost (US\$)	Day	Cost (US\$)	
Guangzhou – Hanoi	1,190	2	3,000	4 – 6	1,500	40ft container, including customs
HCMC – Hanoi	1,600	3 – 4	1,200	4 – 6	750	40ft container, domestic cargo
Bangkok – Hanoi	1,555	3 – 4	4,200	10 – 15	2,000	40ft container, including customs
Bangkok – HCMC	913	2	1,390	2 – 3	560	10t truck and 20ft container, excluding customs
Bangkok – Yangon	945	3	730	30	1,130	10t truck and 20ft container, excluding customs

Source: “East-West Economic Corridors developed by Japan”, *NNA*, Feb. 2007.

A. Bangkok-Yangon Route

Land transport takes only three days instead of approximately one month by coastal shipping and its cost can be lower than sea transport. However, road conditions are extremely poor, the institutional setup for cross-border traffic is uncertain, and the security risks are considerable in Myanmar. Accordingly, most cargo depends on sea transport on this route. However, if and when land transport infrastructure is upgraded in Myanmar together with a concomitant improvement in customs and other institutional arrangements, as well as security along the route, cross-border land transport would stimulate large potentials of inland growth.

B. Bangkok-Hanoi Route

Partly assured by the recent opening of the Second Mekong Bridge, land transport is expected to become more promising on this route, a view shared by many local companies including the Japanese. Cross-border land transport will reduce travel time to three or four days from approximately two weeks by coastal shipping. However, the cost of land transport is more than double that of sea transport. Coastal shipping is thus more advantageous in bulk transport. However, cross-border land transport excels in the convenience of door-to-door transport and speed of delivery. The state of road development along this route is on the whole satisfactory. Emergency transport between Bangkok and Hanoi has so far been provided by air, but it takes at least three days for door-to-door services because of the infrequency of air cargo service in addition to being very expensive. This means though that cross-border land transport will soon be able to compete with aviation. The remaining issues that have to be addressed are the need to simplify customs clearance because the route connects three countries (Thailand, Lao PDR, and Vietnam) and the likely cargo imbalance (cargo movement from Thailand to Vietnam will be much larger than that from Vietnam to Thailand).

C. Other Routes

The route connecting southern China (Guangzhou) to Hanoi is similar to the Bangkok-Hanoi route mentioned above. Road infrastructure is more or less satisfactory, and although the cost is much higher than coastal shipping, the demand is substantial enough to favor the shortening of travel time provided by cross-border land transport. Meanwhile, coastal shipping is still advantageous in the Bangkok-Ho Chi Minh route. If a bridge crossing the Mekong River is constructed in Neak Loeng and if the customs clearance system is improved in Cambodia, the route will eventually have the prospect similar to the Bangkok-Hanoi and the Guangzhou-Hanoi routes.

As indicated above, a new complementary relationship is about to emerge between sea and land (road) transport regarding long distance freight traffic. While long distance transport may favor a shift from road to sea (or other) transport, it may be expected of GMS countries to eventually shift from sea to land transport. At the same time, if the development of port-related infrastructure, the rationalization of maritime shipping, and the modernization of railways are realized in the future, it might be possible to expect a modal shift back to sea transport again.

All cross-border routes in the GMS countries are in need of institutional improvement in customs clearance and related matters. In addition, the promotion of appropriate competition and complementarity among transport modes is important to ensure a wider range of modal choice for users.

3.3 Reduction of Institutional Cross-border Resistance

The development of roads and bridges has been steady in the GMS countries, partly financed by the ADB, JBIC, and other external donors. In recent years, more advanced countries, like China and Thailand, have begun to fund similar developments in the rest of the GMS countries. It is clear that the physical (infrastructural) component of cross-border resistance has been steadily and surely being eroded. In contrast, there still remain many institutional constraints, beginning from customs procedures in the respective GMS countries. It is no exaggeration to say that the institutional component is now the primary source of cross-border resistance. While institutional component largely consists of CBTA stipulations, bilateral MOUs, and official statutes of each country that formally define and regulate the institutional arrangements between and among GMS countries, it also includes informal-occasionally, even illegal-arrangements that seriously constrain cross-border trade flows. The following is a brief description of the examples about constraints on the CBTA implementation and barriers due to the informal arrangements, which were reported during field interviews on cross-border freight traffic.

International Transit Cargo through Lao PDR

In Lao PDR, an institutional framework for international transit cargo has already been established, which is available for any authorized international transporters in principle. However, the following procedures are required to arrange international transit, which take more than twice the actual transport time and large amount of efforts.

- (i) In prior to transportation of cargos, it requires to submit an application and get permission for international transit at the central customs office in Vientiane. It usually takes 3 to 7 days.
- (ii) Transporters have to show the original documents of the permission when passing the cross-border point, i.e. they need to send it from Vientiane to the cross-border point. Since no courier service is available in Lao PDR, they have to arrange transportation by themselves.

Moreover, customs procedure at the central customs office in Vientiane can be carried out only by an authorized Lao freight forwarder, which are dominated by only 2 or 3 forwarders. Therefore, most of foreign transporters who carry out international transit transport rely on those Lao forwarders for customs formalities. On the other hand, there is another mechanism where such an advance procedure at Vientiane can be exempted if a transit charge is paid at the cross-border gate at a cost of 3 to 10 % of invoice value. However, it is only that import tax is collected in the form of "transit charge", which is contrary to CBTA framework.

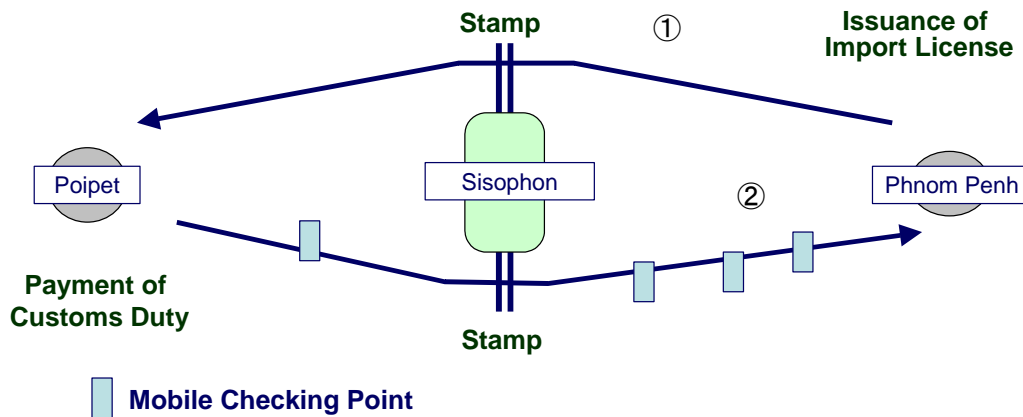
Even after an international transit framework has officially been established, Lao government requires a prior application and permission at the central office. It is mainly because there is a large risk for the Lao customs due to the lack of a guarantee system for international transit cargo. In order to promote smooth international transit, establishment of a guarantee system, including an authorized guaranteeing body is urgently required.

Case of Cambodia- Thailand Border

The import process through Poipet in Cambodia from Thailand begins by the acquisition of an import license from the central customs office in Phnom Penh. The license is then submitted to the branch customs office in Sisophon to get an official stamp subject to a fee.

The importer then shows up in Poipet with the stamped license and an empty truck, pays the customs duty, transships the Thai cargo to his truck, goes back to the branch office to get another stamp on the license for a fee, and finally transports the cargo to Phnom Penh. There are many “informal mobile checkpoints” on the route from Sisophon to Phnom Penh, and the importer has to pay a small fee at every mobile checkpoint he encounters. This is the reason why Thai cargo trucks do not venture into Cambodian territory.

Figure 3.3.1 Import Procedure at Cambodia-Thailand Border



Mobile checkpoints are clearly illegal and meant to provide pocket money for local officials. The practice is petty graft, but constitutes a serious institutional bottleneck when Thai vehicles are inhibited from operating inside Cambodia. Furthermore, the formal procedure of customs clearance is not completed at Poipet at the border. The requirement of obtaining import licenses in Phnom Penh is definitely contrary to the stipulation of the CBTA, which Cambodia formally signed, requiring customs clearance to be completed at the border.

The complete implementation of the CBTA stipulations is being bogged down by a complex knot of constraints. The protection of domestic importers and transport operators is the official policy stance, but this is belied by the rampant nepotism and graft. The customs procedure involves inspection and tends to breed arbitrariness of judgment in favor of acquaintances and personal connections. It is important to clear the customs procedure of such subjectivity. Moreover, there is the problem of divergence and contradiction between CBTA stipulations on one hand and the national statutes as well as ordinances or bilaterally signed agreements (e.g. road agreements) on the other. The implementation of many a CBTA stipulation falls behind schedule for this reason. In the case of Thailand, for instance, some stipulations are thought to infringe on the constitution and other domestic laws and regulations, and their implementation is at a standstill for the time being. Domestic legal enactments needed to implement CBTA stipulations are affected by the slow pace of legislation.

Table 3.3.1 summarizes the customs procedures in five GMS countries. Thailand and Vietnam have succeeded in simplifying the procedure to a significant extent. Lao PDR allows the completion of customs clearance at border gates except for transit cargo. In other countries, the procedures are more complicated. In Cambodia, the customs procedure cannot be completed at the border gates, whereas in Myanmar border clearance requires documented past trade performance through the respective border gates.

Table 3.3.1 Outline of Customs Procedures in Five GMS Countries

Country	Venue of Customs Clearance	Needed Time	Inspection	Entry of Foreign Vehicles	Remark
Thailand	Completed at the border	Few hours to 1 day	Designated cargo only	Laotian vehicles with prior registration are allowed to enter.	Clearance inspection limited to designated cargo since Aug. 2003.
Cambodia	Completed at Phnom Penh Customs Office (imports of US\$300 and above and all exports)	1.5 to 3 days	Entire cargo	Allowed up to cargo transshipment points at the border.	Import license obtained at the central customs office in Phnom Penh and submitted to the branch customs office at the border. Transit cargo not allowed to enter.
Lao PDR	Completed at the border (except for transit cargo)	0.5 to 1 day	Entire cargo	Thai vehicles with prior registration are allowed to enter. Vietnamese vehicles with prior permission on destination are allowed to enter.	Import application needed in Vientiane for import items with preferential customs duty granted to foreign investment. Import license required for all import items.
Myanmar	Completed at the border (requires past export records at said border gate)	2 to 3 days	Entire cargo	Allowed up to cargo transshipment points at the border.	Import license required on all import items
Vietnam	Completed at the border	1 to 2 days	Entire cargo	Allowed up to cargo transshipment points at the border.	Import items for bonded factories are cleared at the customs office in charge of the respective factories.

Source: Based on Sankyu Co. Ltd.'s "Toward Institutional Improvement to Facilitate Customs Formalities", *JETRO Censor*, Feb. 2006. , with some updating.

Note* The time needed for clearance can be reduced by prior registration in the five countries.

3.4 Mitigation of Negative Impacts Associated with Cross-border Freight Traffic

The expansion of cross-border freight traffic and the related regional growth, as triggered by the progress of CBTI development and CBTA implementation, are expected to bring an enormous impact on the economy of each GMS country. While the border areas are likely to reap sizable benefits from this economic activity, a rosy future entirely free of negative repercussions is not possible. Major negative impacts are as follows.

- (1) Widening of disparities (international, regional and ethnic).
- (2) Straw effects¹⁾ in areas and countries along the border crossing routes.
- (3) Spread of HIV, avian influenza, and other infectious diseases.
- (4) Human trafficking, smuggling of narcotics and arms, and spread of terrorism.
- (5) Deterioration of traffic safety (increase in traffic accidents).

The widening of disparities has already been discussed in Chapter 3.1. The other negative impacts are summarized in the following paragraphs.

Straw Effects in Areas and Countries along the Routes

This negative impact will most likely be found in Lao PDR and Cambodia both of which are wedged in between Thailand, Vietnam, and China. Being transit countries for cargo intended for the three more advanced GMS countries, Lao PDR and Cambodia, with less resources and low economic competitiveness, will suffer from worsening traffic safety levels and the deterioration of the natural environment as a result of growing flows of transit cargo. This and the increasing concern among the peoples of these two countries that only the powerful foreign companies will reap all the benefits of cross-border trade expansion are major reasons these countries are very slow in implementing CBTA stipulations on cross-border customs clearance and international transit arrangement.

It is difficult to quantify straw effects, but some manifestations have already been reported. It is said, for instance, that approximately 100,000 Laotians migrated from Savannakhet to Thailand in search of jobs. This implies that every Laotian household in Savannakhet has one member working in Thailand. Laotians employed in Thailand are estimated to reach some 200,000.²⁾ Their earnings certainly contribute to the economy of their native village but not to industrial development in Lao PDR. The problem is that they are mostly low-wage workers in the informal sector of Thailand.

It requires a wide-ranging policy framework to defuse or alleviate this straw effect. Integrated regional development that includes human resources development and skills training, as well as the development of logistics terminal and industrial estates, is needed in Lao PDR and Cambodia. It might be possible in the beginning to attract foreign investment by taking advantage of their low wages. Along with CBTI development and CBTA implementation, GMS governments and external donors are required not only to support the development of cross-border corridors and surrounding frontier regions but to launch a variety of programs that will effectively expedite the empowerment of the people, the absorption of the informal to the formal sector, and so on. These programs must be accompanied by appropriate regulations and interventions, but it is important above all to maintain transparency and equity in such programs, regulations, and interventions.

¹ Straw effect is that regional economy has deteriorated albeit trading has become facile.

² Both figures are taken from an ADB publication, *Reviewing the Poverty Impact of Regional Economic Integration in the GMS*, Manila, 2006.

Spread of HIV, Avian Influenza, and Other Infectious Diseases

It is well known that the spread of HIV and AIDS has closely followed the progress of economic integration in the GMS. It was reported, for instance, that the number of HIV-positive persons and AIDS patients sharply rose in Savannakhet while the Second Mekong Bridge was under construction. Construction laborers were mostly single males or married men unaccompanied by their families, and the transmission of HIV and AIDS was rapid through contact with prostitutes.³⁾ It was also reported that the persons identified as HIV-positive in Lao PDR numbered 1,470 in 2004 and that half of them had had the experience of working in Thailand.⁴⁾ The victims were poor people of negligible educational background.

Alleviation of this negative impact requires a wide range of supportive activities such as educational programs, publicity, and regular monitoring as well as medical treatment of patients. At the construction site of the Second Mekong Bridge (financed by the yen credit of JBIC), the International Planned Parenthood Federation (IPPF) and its Thai chapter, Planned Parenthood Association of Thailand (PPAT), undertook various activities to this effect. The IPPF/PPAT efforts were partly financed by the AIDS Trust Fund of Japan and this was the first attempt that was carried out in conjunction with a yen-credit project. The survey conducted during the construction found that 92% of the laborers came to understand AIDS after the IPPF program (the percentage was 62% among local inhabitants).⁵⁾

Human Trafficking, Drug and Arms Smuggling, and Terrorism

Human trafficking is also deeply rooted in the problem of poverty. According to the report on Laotian villages, those who wanted to work outside their own countries were often victimized. A third of them were given lies about their earnings or forced to work in a job different from the initial promise (e.g. prostitution in the case of women).¹⁾

Smuggling of narcotics is also related to poverty. Couriers are mostly those who cannot find legitimate jobs for one reason or another. Border regions are closely associated with illegal narcotic dealing and use. It was reported, for instance, that a quarter of the local population in frontier villages of Cambodia are habitual users.¹⁾

Cross-border illegal dealing of arms and movement of terrorists are a serious political menace from the viewpoint of any government, because they threaten national law and order. Although not officially announced, Southeast Asian governments have begun to share terrorist-related information after the Bali incidents in 2002 and 2005. The terrorist menace is not considered very serious among the GMS countries except for Thailand with its peninsular Islamic minorities.

The issue of illegal trade in narcotics, arms, and human beings calls for a wide range of measures that are similar to combatting straw effects and the spread of HIV/AIDS mentioned above. Sustained efforts will be necessary to create and provide legitimate employment opportunities, educational and training programs for empowerment, monitoring of and intervention into the informal sector, and so forth.

³ Based on Manoshi Mitra, "Reviewing the Poverty Impact of Regional Economic Integration in the Greater Mekong Sub-region", Second Regional Policy Formulation Meeting on "Social and Environmental Impacts of Economic Corridors", Mekong Institute, 2006

⁴ *Mainichi Shimbun*, Mar. 1, 2007.

⁵ *Mainichi Shimbun*, Feb. 26, Feb. 27 and Mar. 1, 2007.

Deterioration of Traffic Safety (Increase in Traffic Accidents)

This problem is not limited to the border areas but concerns all transport corridors that service cross-border freight traffic. Indeed, the safety problem is worse in urban areas where normal traffic is already heavy even before the advent of heavy-duty trucks that cross the borders. Moreover, the inter-country differences in transport regulations, such as right-side or left-side passage and many other traffic control rules, vehicle standards, road and bridge standards, and so on, have opened up a new dimension to traffic safety management in the GMS region.

Table 3.4.1 shows the traffic accidents in five GMS countries. Deaths caused by traffic accidents are relatively frequent in Thailand and Vietnam. Mainly because of the lower rate of automobile ownerships in the other three countries, traffic accidents are considerably fewer and limited to a small number of cities.

Table 3.4.1 Traffic Accidents in GMS Countries, 2003

Country	Population (000)	Police Statistics		Estimate		Estimated Death per 1000 Pop.
		Death	Injury	Death	Injury	
Lao PDR	5,661	415	6,231	581	18,690	0.102
Cambodia	13,531	824	6,329	1,017	20,340	0.075
Myanmar	49,463	1,308	9,299	1,308	45,780	0.026
Thailand	63,145	13,116	69,313	13,116	1,529,034	0.207
Vietnam	81,314	11,319	20,400	13,186	30,999	0.162

Source: ASEAN,

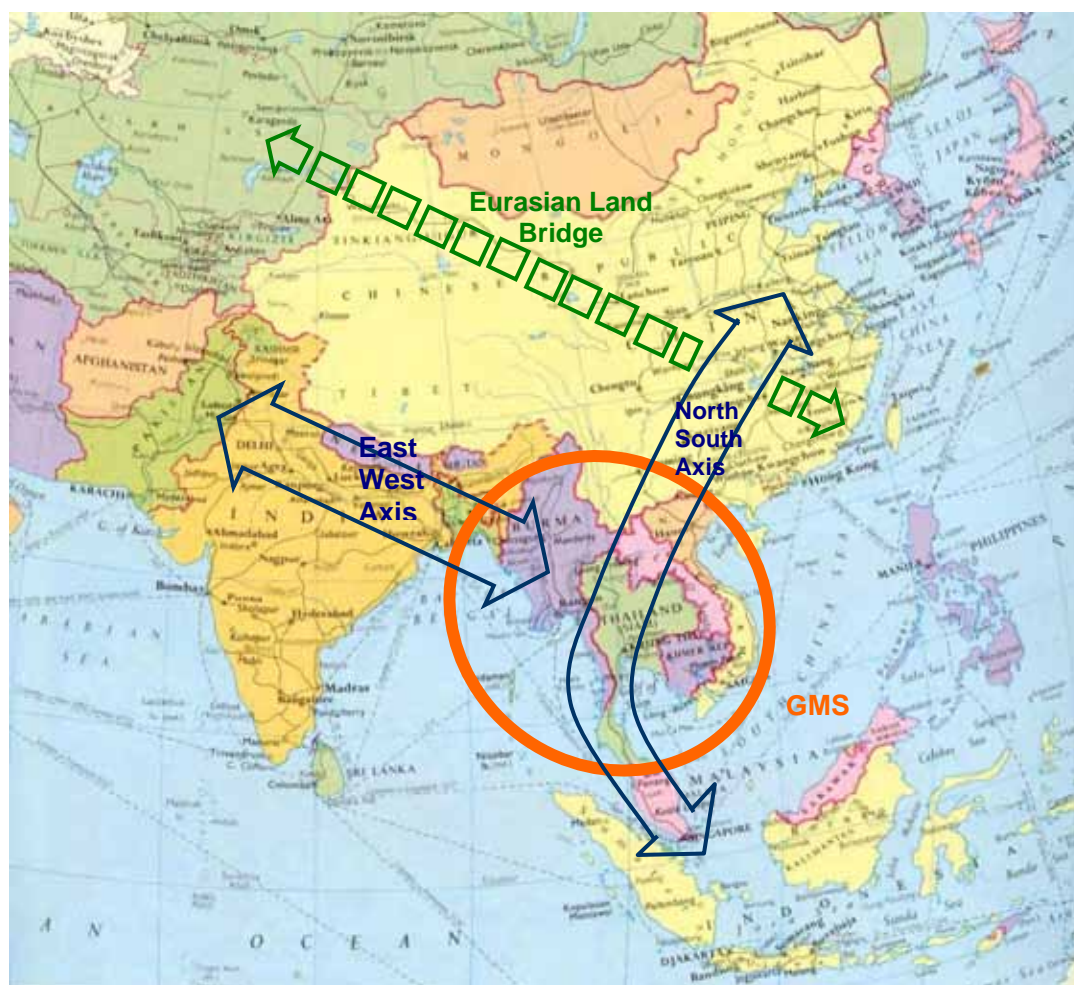
The situation will drastically change with the increase in cross-border freight traffic. Heavy-duty vehicles (e.g. 40-foot container trucks) are likely to cause serious and fatal accidents along the corridors, as well as damage road surfaces and roadside structures in mountainous and urban areas. The situation will be aggravated when vehicles from other countries are involved in accidents. It will thus be necessary to prepare clear guidelines on traffic safety and to develop an effective cross-border insurance system.

3.5 Toward a “Seamless Asia”

1) Concept of a “Seamless Asia”

Along with the innovations in transport means and globalization / regionalization, there is growing support for the concept of a “Seamless Asia”. The dramatic rise of China and India in recent years has apparently provided the impetus for such a concept. A similar idea has become a hot topic for discussion in Japan as well, mainly from the viewpoint of fostering international competitiveness.⁶⁾ Various proponents of the “Seamless Asia” concept do not specifically deal with the issue of cross-border transport infrastructure yet, but their arguments can be expressed in terms of land transport on the map in Figure 3.5.1.

Figure 3.5.1 Conceptual Axes of Land Transport in Asia



Note: Prepared by the Study Team.

The north-south axis is by far the most talked about corridor in specific terms. and indeed many concrete steps are being taken to promote infrastructural development and logistics improvement, which this Study also focuses on. From the center of the north-south axis begins the east-west axis, which crosses Myanmar, India and further west toward Bangladesh. This axis is as yet hardly worthy of being called the “regional corridor.” The countries and regions along the way are divided and isolated from one another primarily by a variety of political and social rivalries. The concept of the Eurasian Land Bridge is proposed and pursued by China with emphasis on railway. It will originate from Lianyung

⁶⁾ Asian Gateway Strategy Conference, *Asian Gateway Concept: Interim Report on Discussions*, Tokyo, 2007. (In Japanese)

Port of Jiangsu Province and passes Xi'an, Urumchi and Central Asia, ultimately reaching the Netherlands in Europe.

2) Problems of Transport Networks

The cross-border transport concept in the Greater Mekong Subregion covers part of both the north-south and the east-west axis. The problems of transport networks are summarized for each mode.

Roads: The Himalayas separates China from India, with no direct road link between the two. India can be reached through Pakistan via the Kharakhorum Highway, but Khunjurab Pass is 4,800m above sea level and most of the highway is closed during winter. Another possibility of access from the Chinese side is to pass the GMS countries and reach India via Myanmar and Bangladesh. However, the routes between Thailand and Myanmar, between Myanmar and India, between Myanmar and Bangladesh, and between Bangladesh and India are either undeveloped or ill-maintained. Coupled with the problems in law and order as well as social instability, this access is severely limited. In sum, network bottlenecks abound in the east-west axis.

Railways: Compared with roads, the density of railway lines is very low, with too many missing links to form a network. Moreover, the rail gauge varies. The Chinese gauge is mostly 1,435mm, with dual gauges of the same and 1,000mm near the border to Vietnam. The Indian gauge is 1,676mm. The 1,000mm gauge prevails in Bangladesh, Thailand, Vietnam, and Malaysia. The Trans-Asian Railway Plan envisions an integrated Eurasian network, but its progress has been more or less limited to the north-south axis. The countries in the east-west axis (Myanmar, Bangladesh, and India) have not even signed a formal international agreement.⁷⁾ The missing railway links on the east-west axis are between India and Myanmar and between Myanmar and Thailand (ideas about their construction have been floating around for sometime). The missing links from China to Singapore are between Cambodia and Vietnam and between Cambodia and Thailand. The railway construction for these links is now partly in the pipeline.⁸⁾

Maritime Shipping: Maritime shipping still plays the most important role in international logistics in Asia. However, there are few ports that have sufficient depths and are adequately equipped with port facilities. Existing ports in northern and central Vietnam, in Cambodia, and Myanmar are off the trunk shipping routes and rely on feeder transport from hub ports. The shipping routes⁹⁾ along the coasts of the Malay and the Indochinese peninsulas are losing their competitive edge, mainly because they require longer time to reach destinations than cross-border land transport.

Aviation: Air transport is the mainstay of passenger travel in GMS countries. Many airports are in operation, with Singapore and Bangkok as leading regional hubs. The number of airline passengers has been increasing rapidly, especially after the adoption of the open-sky policy that encouraged the operation of low-cost carriers (LCCs). At the same time, accidents of varying magnitude are on the rise, chiefly due to the use of antiquated flight control equipment. Freight transport is minimal partly because of the limited regular service and partly because of the required customs, immigration, and quarantine procedures. Within the GMS region, delivery takes at least two days from origin to destination, thus lacking the competitive edge over the other modes. Air freight is

⁷ 17 countries signed the UN-ESCAP-sponsored international agreement in Oct. 2006.

⁸ Regarding the routes inside Cambodia, the feasibility study was already completed with assistance of China and ADB.

⁹ The Yangon – Bangkok and the Bangkok – Hanoi routes, among others.

occasioned only on emergencies.

3) GMS Cross-border Transport: Its Significance and Advantages

Cross-border transport infrastructure in the Greater Mekong Subregion is expected to play a strategically important role in the realization of “Seamless Asia,” since the subregion is situated at the intersecting point of the north-south and the east-west axes (see Figure 3.5.1). Indeed, CBTI development and CBTA implementation in the subregion will substantially reduce travel distances between China and India, thereby facilitating a much closer and more expanded exchange of people, services, and products not only between these two countries but also among those along the cross-border transport corridor.

The benefits that can be realized through a “Seamless Asia” are explained below.

(1) Route Development to Reduce Transport Time

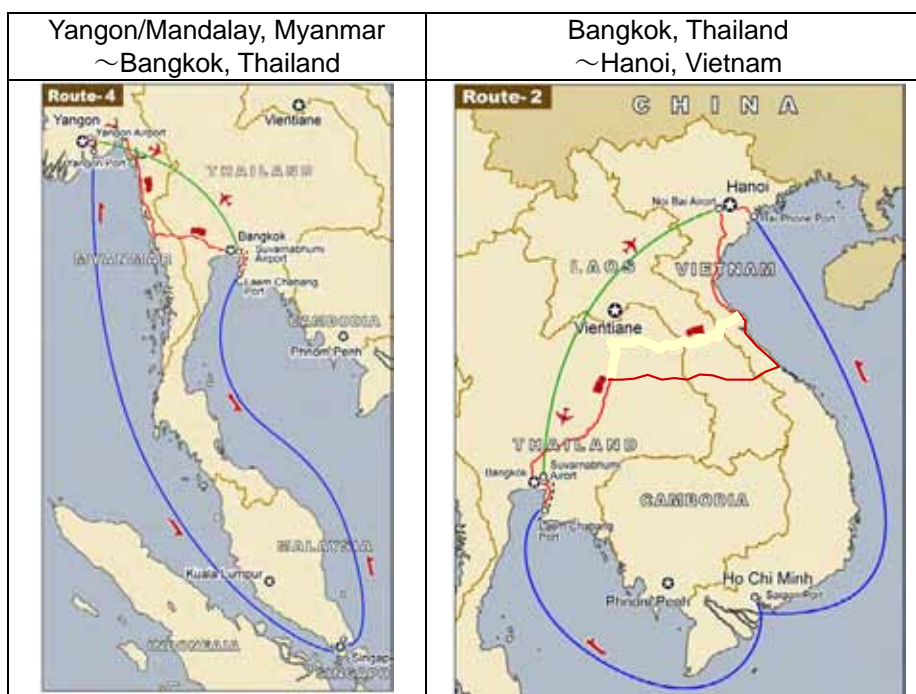
(i) From Yangon / Mandalay, Myanmar, to Bangkok, Thailand

Coastal shipping around the Malay Peninsula takes approximately 1 month (20 days from port to port with a distance of some 4000km). Cross-border land transport takes 3 days (actual travel distance of 945km and actual travel time of more or less 30 hours). Transport time can be reduced to a tenth of that of coastal shipping’s (see Figure 3.5.2).

(ii) From Bangkok, Thailand, to Hanoi, Vietnam

Coastal shipping with transshipment at Saigon Port takes about 10 days. Land transport takes 3 days, crossing the newly opened Second Mekong Bridge (actual travel distance of 1,580km and actual travel time of more or less 36 hours). Transport time can be reduced to less than a third of that of coastal shipping.

Figure 3.5.2 Land Routes Likely to have Shorter Transport Times



Source: JETRO, ASEAN Logistics Network Map, Tokyo, 2006.

(2) CBTI/CBTA Implementation to Enhance Transport Reliability and Convenience

In Japan, railways carried the bulk of freight until the 1960s. Along with the steady

development of highways, and partly aided by the frequent strikes of railway workers, freight distribution was mostly taken over by road transport. The development of roads allowed more appropriate modal choices in logistics. In fact, all freight was not shifted to road transport. The buildup of trunk highways increased the efficiency of transport between major nodes of logistics and the reliability of transport enabled the optimization of industrial supply management, as exemplified by the just-in-time system. The establishment of logistics parks and factories around major highway intersections further increased freight transport by road.

International freight transport in the Greater Mekong Subregion has long been dependent on coastal shipping. The ongoing progress of CBTI development and CBTA implementation will thus enable a substantial reduction of transport time on important corridors and provide the convenience of door-to-door transport. The accessibility to alternative routes will also allow more appropriate modal choices by transport operators, and this will surely constitute the beginning of an entirely new approach to transport optimization in the Greater Mekong Subregion. Early CBTI development and CBTA implementation are vital in this process of transformation.

(3) Opening up Regional Development Potentials in the Greater Mekong Subregion

International logistics is already on the rise between China's Yunnan Province and Vietnam's Hanoi in the north and between Bangkok of Thailand and Ho Chi Minh of Vietnam in the south. Such north-south trade flows can be more strongly connected with a strategic regional development in Lao PDR, Cambodia, central Vietnam, and Myanmar along the east-west axis.

Road transport mainly along the ongoing development of the Asian Highway is very likely to bring a decisive impact to the Greater Mekong Subregion, namely reduction of travel time on land, convenience of door-to-door transport, possibility of alternative routing, efficient distribution of consumer goods, restructuring of industrial production based on international division of work among the GMS countries, sizable expansion of ocean-going export via international ports in the neighboring countries, and so on.

Container transport by trailers, which excel in the convenience of door-to-door delivery, is likely to grow in leaps and bounds, if the reliability of road transport rises in the process of integrated development toward "Seamless Asia." General cargo transported by conventional trucks can raise its efficiency by gradually upgrading the service level in response to the demand increase, namely introducing charter services between major nodes of supply and demand, replacing them by liner services and then switching to consolidation.

Long distance freight transport that crosses more than one international border and takes a few days to reach destination involves the business risk of fewer backhaul cargo. The health risk of long distance drivers is another hazard. It is desirable to relay the drivers in midpoints. It is more realistic and sound for international logistics business to set up a pair of nodes across the border with 500 to 1,000km between them, and engage in cross-border transport between the two nodes.

It will be necessary to identify such strategic nodes in places where major cross-border corridor routes intersect and to plan and implement regional development in their nearest hinterlands with growth potentials, partly for stimulating the local demand for freight transport.

3.6 Toward Comprehensive Improvement of Logistics: Strengthening International Competitiveness in Logistics

1) Present Policy Efforts on Logistics

Globalization of the world economy in general and the growing cross-border trade in particular are making people recognize the importance of logistics, especially the urgent need of improving its efficiency and service level. The improvement of logistics has been a topic well discussed at ASEAN working group meetings and elsewhere. Coupled with the technical cooperation from Japan and international organizations, the public and the private sectors of GMS countries are becoming increasingly aware of the issue of logistics and what it entails in envisioning their future economic prospects.

Increased awareness notwithstanding, a comprehensive policy framework is yet to emerge, partly because logistics encompasses diverse interests of the public and the private sectors. In the public sector, at least the ministries of transport and commerce, with their myriad subsidiary agencies, and customs houses (usually of the ministry of finance) are directly concerned with the issue. The private sector comprises freight forwarders, trucking companies, shipping companies, importers, and exporters, and their respective associations. In order to deliberate on the international agreements formalized at the GMS or the ASEAN level, each country has already set up its National Transport Facilitation Committee (NTFC). However, institutional development and the progress of policy formulation vary from one GMS country to another, and there is this almost chronic problem of inadequate inter-agency coordination in each country.

In Cambodia, for example, the Ministry of Commerce is the chief player regarding the logistics issue, whereas the Ministry of Transport strictly concerns itself with transport. In Myanmar, where the economy is under tight government control, the Ministry of Commerce plays the dominant role. In Lao PDR, the NTFC was placed under the Ministry of Transport which plays a leading role in formulating policy instruments. In Cambodia, moreover, the simplification of customs and other border crossing procedures are at a standstill due to the persistent resistance to it on the part of customs officials and others.

2) Formulation of Comprehensive Master Plan for Logistics Improvement

It is likewise becoming increasingly important to upgrade the efficiency, accuracy, and speed of logistics to enhance the international competitiveness of GMS countries in the face of globalization and diversification of market needs. Along with the recent progress of cross-border infrastructure development, land transport is emerging as a viable alternative to coastal shipping. It is now possible to devise and provide a new system of logistics service which is more suited to the rapidly evolving demand structure.

The formulation of a comprehensive master plan is now crucial to attain the needed efficiency, accuracy, and speed of logistics and thereby raise the international competitive edge of the Greater Mekong Subregion. In addition to developing cross-border transport infrastructure, such as roads, ports and railways, it is essential to take a united action in putting into effect such institutional improvements as the simplification and speedup of border procedures as well as a freer mutual inter-country entry and operation of cargo trucks and trailers. Just as essential is the upgrading of the quality and qualification of logistics service providers. The master plan formulation is important not only because it will provide the basis of a common understanding and commitment but also to occasion the chance of effectively harmonizing different opinions and interests toward an agreement. The prospective master plan should cover the following topics and issues:

- (1) Present status of and issues in freight transport (modal share, infrastructure).
- (2) Present status of and issues in international and domestic logistics business.
- (3) Industrial structure and demand for freight transport (trends of trade structure in the Greater Mekong Subregion, the ASEAN, and the world),
- (4) Development planning and implementation of logistics facilities and services (ports, roads, railways, and airports and their respective service levels, including multimodal transport).
- (5) Institutional development (simplification of customs clearance and other border crossing procedures, introduction of ICTs).
- (6) Human resource development for logistics business (licensing qualification, training, promotion of business associations).

A policy and planning framework intended for logistics among the GMS countries is practically nonexistent. There is no body or forum which devotes itself to the deliberation on logistics issues. Even if a National Transport Facilitation Committee was established under the leadership of one ministry or another, the committee lacks the power to coordinate with or influence the other ministries. The first step is for all the related ministries and agencies to discuss and share a common understanding of urgent issues facing logistics. Considering the diversity of players related to logistics, it is desirable to set up a forum at a level higher than the ministerial level.¹⁰⁾

¹⁰ In Thailand, a logistics body was set up directly under the Prime Minister for this purpose.

4. Future Directions for JICA Cooperation

4.1 Required International Cooperation for CBTI Development

1) Aid Implications of the CBTI Issues

Chapter 3 discussed the issues concerning cross-border transport infrastructure in the Greater Mekong Subregion. The respective countries themselves must strive to overcome a variety of bottlenecks already mentioned, but certain areas of CBTI development will have to depend on the financial and/or technical cooperation from external donors. Figure 4.1.1 summarizes the major issues discussed in the previous chapter and which parts need external cooperation.

Figure 4.1.1 Required International Cooperation for CBTI/CBTA Issues

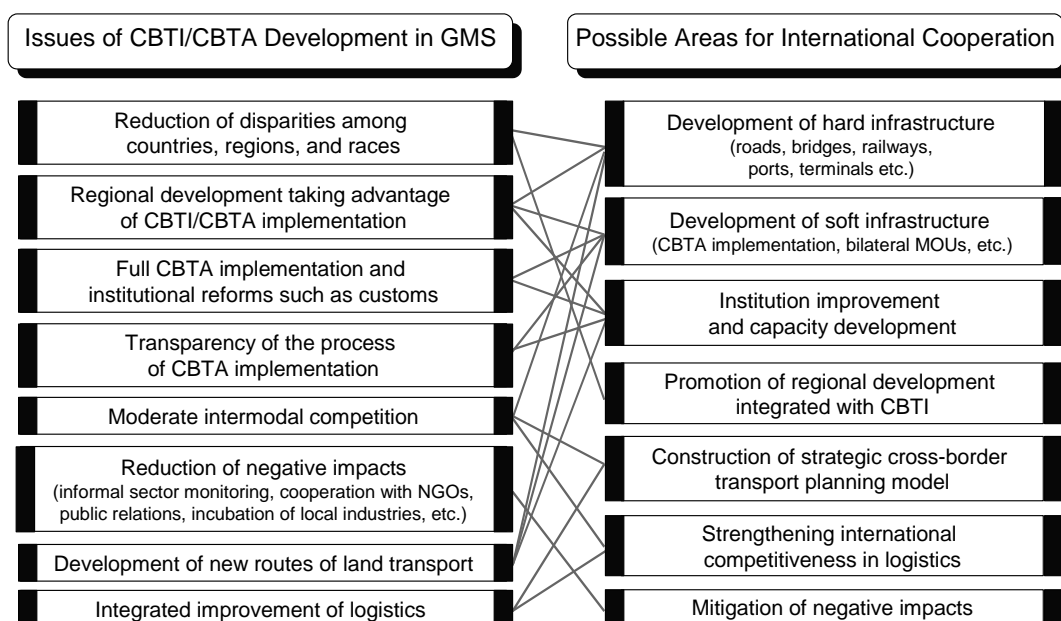
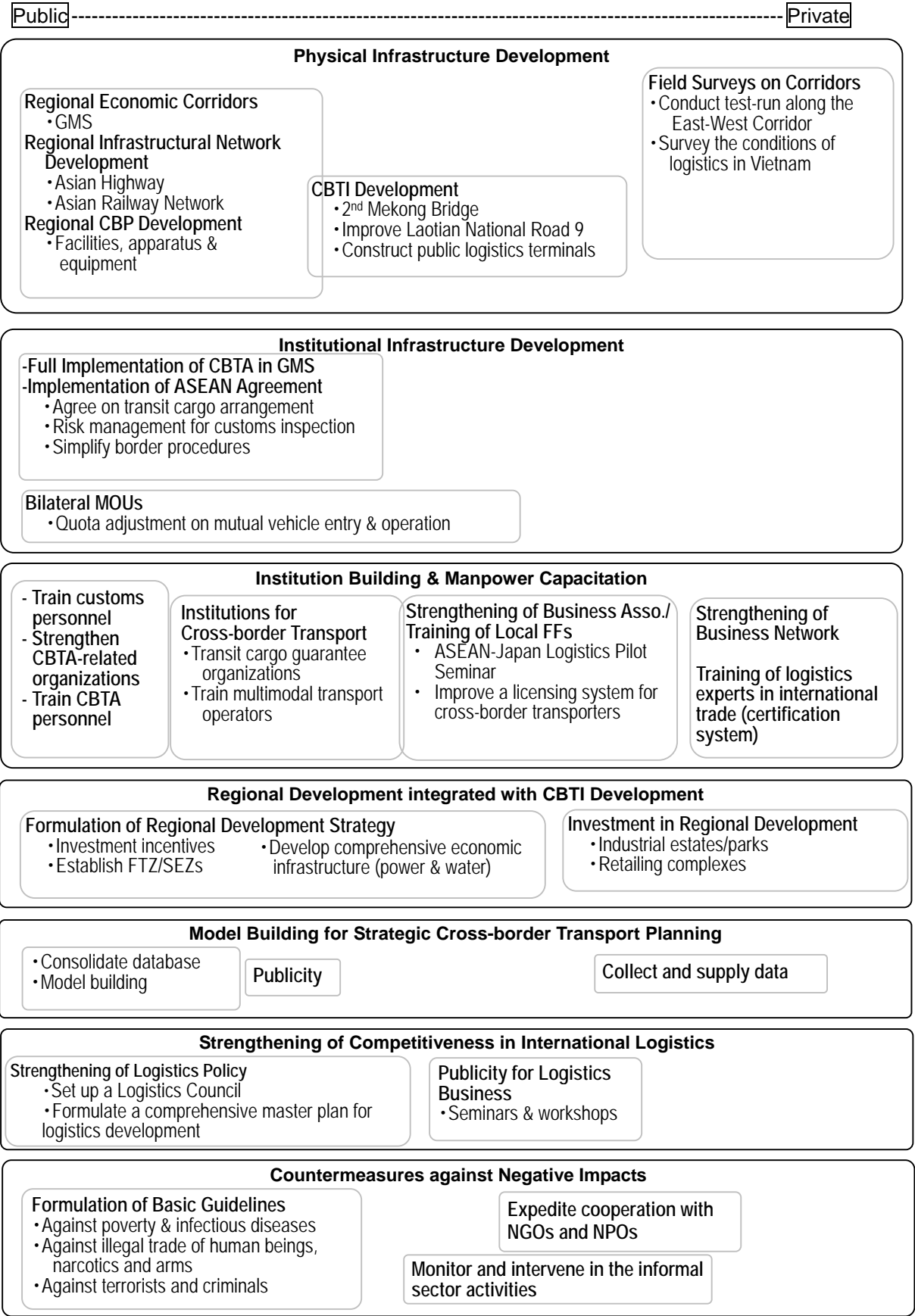


Figure 4.1.2 illustrates public- and private-sector requirements for international cooperation in the Greater Mekong Subregion. The demarcation between the public and the private sector is naturally a gray area and varies according to the level of economic development of GMS countries. It will probably be necessary, for example, in Lao PDR and Cambodia to introduce government interventions to cushion the rapid change in private sector activities. More specifically, the governments of the two countries should take a leading role in establishing and managing transit cargo, guaranteeing organizations and institute training programs to empower local transporters. They will have to steer private sector activities in other spheres related to cross-border logistics. Another important role for governments is to monitor and intervene, if needed, in the informal sector with the aim of reducing poverty.

Figure 4.1.2 International Cooperation Requirements of Public and Private Sectors



2) **Development of Physical Infrastructure**

International donors have been financing physical cross-border transport infrastructure in line with the ADB-supported framework of developing regional economic corridors. External financing has been concentrated on the east-west corridor for which the recent completion of the Second Mekong Bridge provided the final link. Except for the western section located in Myanmar, the entire corridor has road structures that are higher than the acceptable standards. Other major corridors still have many sections where the road widths, pavements, and other structural conditions are too inadequate to handle international logistics traffic. This calls for continued financial and technical support by external donors. In addition to road structures, there is a significant need for associated development, such as the construction of public logistics terminals, development of industrial parks along corridors especially in border areas, investment in economic infrastructure like power and water vital for industrial development, railway development and modernization, and so on. Although the required investment is smaller in scale, it is equally crucial to provide border gates with appropriate facilities and equipment necessary for customs inspection, including the introduction of ICTs, at certain border crossing points.

Furthermore, the ADB in 2007 has identified six more economic corridors to the regional development framework. These corridors are almost entirely ill-developed with hardly any pavement of international standards. Much will have to be done for these corridors to function effectively, beginning with the widening and improvement of road structures, the construction of numerous bridges, and many more.

The development does not end with the completion of the physical infrastructure. In order to activate the flows of freight and passengers along the corridors, it is necessary to closely monitor the utilization and maintenance of road facilities and to develop a possible approach to stimulate logistics services.

3) **Development of Institutional Infrastructure**

As repeatedly mentioned in this report, the institutional and the physical infrastructures are partners in facilitating future cross-border freight and passenger traffic. The development of physical infrastructure must go hand in hand with the full implementation of the CBTA as envisioned by the ADB. The development of the institutional infrastructure covers a wide range of actions, such as the simplification of customs, immigration, and quarantine procedures, standardization of forms and documents, speedup and increased efficiency of inspection, permission of mutual cross-border entry and operation of vehicles, agreement on transit cargo, and standardization of infrastructural grades and vehicle types. GMS countries are all in dire need of such institutional infrastructure in varying degrees. This is another area where the technical cooperation of international donors is necessary. In addition, international donors will have an important coordinating role to play in forging multinational agreements and commitment.

The agenda and the overall framework of institutional development for cross-border transport have already been defined as CBTA stipulations. Under an ADB initiative, GMS countries agreed on the annexes and protocols of the agreement. What is now needed is a series of legal enactments toward full CBTA implementation in each country, including the preparation and the conclusion of bilateral agreements, such as MOUs for IICBTA, and the deliberation and agreement on the quota for mutual cross-border vehicle entry and operation.

4) **Institution Building and Capacity Development**

As mentioned above, GMS countries agreed to the CBTA annexes and protocols in 2007 and are now starting various steps toward their full implementation by 2010. The progress of such efforts varies widely among GMS countries, beginning with the ratification of the annexes and protocols of the CBTA itself. Many stipulated goals of institutional and organizational development are yet incomplete, e.g. consistency of domestic laws and regulations with the CBTA, while the shortage of qualified manpower is increasingly felt in the process of CBTA implementation. To tackle these issues, a comprehensive approach is required which covers the preparation and promulgation of CBTA-relevant legal framework and the conduct of related human resource development with the provision of necessary equipment, along with ongoing physical infrastructure development.

Capacity development for CBTA implementation should cover the personnel of relevant ministries down to the customs, immigration, and quarantine officials at border crossing points and all private operators. More specifically, education or training is necessary for those who can understand the far-reaching importance of CBTA implementation and are in a position high enough in the administrative pyramid to sway the mindset of lower-level government officials who have vested interests of one kind or another (customs officials, police officers, immigration and quarantine personnel) and are thus strongly resistant to any change. Training and discipline are necessary, of course, for the officials directly in charge of border crossing procedures. International donor-assisted training program is meant to train those officials who are positioned in the administrative structure to train the relevant personnel and impart to them the new discipline and commitment. It will also be important to combine such training of personnel with adequate provision of equipment which can be put to effective use at border crossing points or elsewhere when trainees report back to work. In other words, an integrated human resources development and equipment provision is required.

The private sector operators who directly avail themselves of the cross-border transport infrastructure are also in need of capacity development to better manage business, thereby sharing due economic benefits of accelerating regional integration. In addition, business associations and networking to pool and exchange relevant information will be necessary for them to take active part in the increasing flows of international logistics and to gain a competitive edge in the increasing business chances.

In sum, full CBTA implementation does not merely call for short-term training courses but a long-term commitment to technical cooperation combined with the opportune provision of needed equipment. The institutional infrastructure development areas needing such sustained commitment on the part of international donor agencies are manifold.

5) **Integrated Promotion of Regional Development and CBTI Development**

The economic impacts of cross-border transport infrastructure development can be maximized in association with regional or area development. The conventional approach to infrastructure or regional development planning is to seek priority areas from among the various domestic industries and resources within a country. However, due to economic globalization in general and the growing cross-border traffic stimulated by CBTI development in particular, it is more relevant now than ever to seek priority areas for integrated development and formulate strategies for them, taking into consideration the prospects of changing the industrial structure in the entire Greater Mekong Subregion and the comparative advantages among the countries.

Furthermore, regional or area development in close association with CBTI development will serve to induce local demand along the cross-border routes in addition to the transport demand which shifted from other modes (e.g. coastal shipping). This will increase the cost-effectiveness of the investment in cross-border transport infrastructure. Especially with regard to Lao PDR and Cambodia where the major economic corridors go through, the progress of regional development along the regional economic corridors will enable them to reap the benefits from CBTI development. Otherwise, they will find it hard-as they apparently do already-to see the economic merit of corridors that carry mostly transit cargo.

The significance of CBTI-related regional development must be argued from another angle. Most of the border areas have long been beyond the reach of national development efforts of each GMS country. Regional development focusing on cross-border routes is another approach to reduce and alleviate the problems of international and regional disparity among and poverty in GMS countries.

The regional development strategy integrated with CBTI development centers on special economic zones (SEZs) in the border areas, inland container depots (ICDs) and public logistics terminals partly functioning as bonded warehouses, and regional development projects focusing on natural or tourist resources near the cross-border routes. Industrial parks and commercial complexes in the border areas could be facilitated on the basis of providing access to the cross-border supply of power and water.

6) **Model Building for Strategic Cross-border Transport Planning**

Although a variety of approaches and future visions have been proposed and proselytized by the ADB and other international organizations regarding CBTI development, their arguments are largely based on informed judgment or negotiations and lack the quantitative analysis and evaluation to estimate the possible economic effects of CBTI investment. In order to facilitate and forge a multi-country agreement on CBTI strategy and the corresponding project prioritization, it is necessary to develop a computerized model for evaluating proposed strategies.

The primary constraint to such model building is the paucity of data. The inadequacy of statistical information is almost universal in the developing world, and what little is available often lacks common standards necessary for comparison and aggregation among countries. Such limitations are especially pronounced in the data on logistics.

A large number of studies and surveys have been conducted so far on regional development, transport planning, or transport infrastructure development in the Greater Mekong Subregion, wherein JICA is one of the major contributors. The proposed model building for strategic CBTI development planning will play an important role in consolidating the database from the findings of these studies and in integrating the methodology for transport surveys and their analyses. Such model-building efforts on CBTI development are being promoted under the sponsorship of Japan's Ministry of Land, Infrastructure and Transport (MLIT) and/or of some relevant academic society in Japan, and these attempts themselves could serve as occasions for the transfer of technology to the relevant personnel in GMS countries.

7) **Strengthening of International Competitiveness in Logistics**

As has been repeatedly mentioned, economic globalization and the intensification of cross-border economic activities require the improved efficiency and quality of service in

logistics. Logistics encompasses many sectors and actors such as the public sector in charge of transport, customs and immigration, economic and fiscal policies, and many others, as well as the private sector comprising forwarders, transporters, consigners, insurers and so forth. Ongoing improvement efforts among them are specific to their respective areas of jurisdiction or specialized interests, lacking the comprehensive approach to the entire logistics issues.

The governments of GMS countries have become increasingly aware of the need for a comprehensive logistics policy for the subregion. However, some of them do not have a domestic inter-ministerial coordinating body for policy deliberation, which is necessary to formulate a comprehensive logistics policy. The strengthening of competitiveness in international logistics is crucial to activate and uplift the economies of low-income GMS countries and narrow down the growing disparities within the Greater Mekong Subregion. There are many areas that call for international cooperation from external donors. The ASEAN has already initiated the compilation of a regional roadmap in aid of an integrated logistics services among the member countries, while Japan's MLIT and the Ministry of Economy, Trade and Industry have been providing technical support to the ASEAN logistics sector under the aegis of the ASEAN-Japan Partnership agreement. New technical cooperation efforts can be initiated in coordination with such existing initiatives.

8) Programs to Counteract Negative Impacts

As mentioned in Chapter 3, the growth of cross-border freight and passenger traffic and the progress of regional development in the border areas will bring not only large economic benefits to the GMS but also unwelcome negative impacts. Countermeasures against these negative consequences often lag far behind those policy instruments that put priority on economic growth. This tendency is especially likely to arise in low-income countries. Moreover, there is a question of which agency of which country should be in charge of such countermeasures when a given negative impact should spread across the borders.

Multilateral aid organizations and NGOs have a great deal to offer in this sphere by organizing preventive awareness campaigns as well as providing specific remedies and quick interventions.

4.2 Possible Areas for JICA Cooperation

The preceding paragraphs discussed and summarized those issues of CBTI development that need some form of international cooperation from the external donors. This section discusses the possibility for JICA cooperation and the desirability of JICA involvement in these issues.

1) Selection and Concentration

It is essential for JICA, for the effective use of its accumulated pool of resources and assets, to act on the principle of selective concentration in performing its mandated schemes of technical cooperation. The basic ground for such selective concentration can be summarized as follows:

Japan's Basic Policy of Cooperation for ASEAN Countries: As discussed in Chapter 2, Japan publicly stresses its commitment to the ASEAN countries in its policy for international cooperation. One of the basic issues emphasized in this commitment is the "narrowing of disparities between GMS countries." This could mean that Japan's cooperation would center on Lao PDR, Cambodia, and Myanmar which have been increasingly lagging behind the other GMS countries.

Past and Ongoing Activities of International Donors: The ADB and other international donors have been actively supporting the development of physical and institutional infrastructure in the GMS. Their programs have not yet extended explicitly to the areas of "model building for strategic CBTI development planning" and "strengthening of competitiveness in international logistics," but have been active in the areas mentioned as "institution building and capacity development," "regional development integrated with CBTI," and "programs to counteract negative impacts."

Policy for JICA Involvement: JICA is mandated to carry out a variety of schemes mostly in bilateral terms. Especially after its organizational integration with JBIC scheduled in 2008, their schemes will be more easily supportable by yen-loan financing, while, so far, JICA has been mandated to implement only small infrastructure project grants. The possible areas for CBTI/CBTA-related cooperation are matched up with the categories of JICA schemes in Table 4.2.1. Basically, JICA could cooperate in any area listed in the table, but its involvement is judged less needed in the institutional infrastructure development where significant progress has already been made under ADB leadership.

Table 4.2.1 Areas for International Cooperation and Available JICA Schemes

Area for Cooperation	JICA Scheme	Remark
Physical Infrastructure Development	*	Now only small project grants, but can be expanded in scale and scope of coverage after the integration with JBIC
Institutional Infrastructure Development	Technical cooperation projects / overseas assignments of Japanese experts	Progressing under ADB leadership (CBTA)
Institution Building and Capacity Development	Technical cooperation projects / overseas assignments of Japanese experts	Human resource development for private-sector performed under ASEAN-Japan Partnership arrangement
Promotion of Regional Development integrated with CBTI Development	Development studies/ Technical cooperation projects	
Model Building for Strategic Cross-border Transport Planning	Technical cooperation projects / research projects	Involves time-consuming data collection and preparation
Strengthening of Competitiveness in International Logistics	Development studies / Technical cooperation projects	
Countermeasures against Negative Impacts	(Technical Cooperation)	Mainly joint programs with NGOs

2) Guideline for JICA Cooperation

Based on the discussion in the preceding paragraphs, JICA cooperation is proposed to concentrate on the following two areas:

1. Institution Building and Capacity Development in the Greater Mekong Subregion

As mentioned earlier, the full implementation of ADB-led CBTA stipulations entails diverse actions on institutional development on the part of the GMS countries such as the formulation or amendment of domestic laws and regulations, appropriate training and capacity development of government officials from top to bottom, and various human resource developments in the private sector. Most of these manifold actions still have to be done. It is true that many programs for institution building and capacity development have been launched under the aegis of the ADB and other international organizations and also under the ASEAN-Japan Partnership arrangement, namely a variety of workshops for CBTA-related personnel and training courses for border officials. However, the bulk of these actions are short-term programs of the workshop type. A limited number of longer-term training courses have been offered only for personnel at some specific border gates and are far from being sufficient. The need for such longer-term training programs will surely grow as IICBTA implementation expands in the future.

The domestic legal enactments are crucial to the full CBTA implementation in the GMS. However, the progress up to now varies widely from one country to another, delaying the CBTA implementation and thus depriving the GMS as a whole of the earlier benefits expected to accrue. It must be noted that the domestic legal enactments are not something which could readily be expedited by any number of short-term workshops alone. They require longer and sustained commitment on the part of both GMS countries and external sponsors.

JICA technical cooperation has a long history in GMS countries, and its varied experiences in interpersonal intellectual exchanges have been accumulated in these countries. Long-term overseas assignments of Japanese experts for the training of government personnel, technical cooperation projects with construction and provision of facilities and equipment, and so forth have steadily expanded in scope and have improved in performance to serve the diversifying needs for institutional and capacity development. JICA is committed by its mandate to the area of institution building and capacity development and it should be able and ready to play a larger role in the GMS.

2. Two Selected Routes as Targets of JICA Assistance

The development of cross-border transport infrastructure in the GMS will proceed steadily in the foreseeable future with continued support of the ADB and other external donors, thereby realizing a much tighter economic integration along with the eventual CBTA implementation. The overall standards of cross-border infrastructure in the region, however, are still inadequate and it is necessary to concentrate investment in certain corridors of major importance to raise the efficiency of regional integration. The development of regional economic corridors has been steadily going on under the ADB leadership. The identified economic corridors, however, are not necessarily justified on the basis of quantitative analysis, where the expected impacts derived from CBTI development are not evaluated sufficiently.

Under such circumstances, JICA can make significant contributions by selectively concentrating its cooperation on two model economic corridors which are likely to play a crucial role in the region's economic development and integration. In addition to development activities, JICA should set up a monitoring system along the selected routes for the purpose of undertaking a more quantitative analysis and evaluation of their respective development processes.

In relation to Lao PDR and Cambodia, which are the ones likely to suffer most from the straw effects of cross-border transport infrastructure development, it is essential to implement regional development projects integrated with CBTI along the routes to raise the efficiency of CBTI investment in these countries. This calls for further commitments of JICA to institution building and capacity development partly including the CBTA implementation. This approach of selective development will serve, in no uncertain terms, the basic objective of narrowing regional disparities under Japan's national policy of international cooperation.

By weighing industrial structure and latent logistics demand, two model routes are selected from the GMS framework of regional economic corridors.¹⁾ These routes are: (i) Vietnam (Hanoi-Lao Bao)-Lao PDR (Dansavanh-Savannakhet)-Thailand (Mukdahan-Bangkok), and (ii) Vietnam (Ho Chi Minh-Moc Bai)-Cambodia (Bavet-Phnom Penh-Poipet)-Thailand (Aranyaprathet-Bangkok).

The areas for JICA involvement in institutional infrastructure development related to the ADB-sponsored CBTA will be diverse if need be, but should be limited in scale.

The following section will discuss in more detail the two target areas for JICA cooperation.

¹ Judgment is based on the JETRO field survey of 2006 on regional distribution network mapping and Study Team findings from the interviews in the GMS.

4.3 Institution Building and Capacity Development: 1st Area for JICA Cooperation

Table 4.3.1 summarizes the required actions on institution building and capacity development in accordance with the framework of the ADB-sponsored CBTA implementation. The possible technical cooperation programs for JICA are explained in subsequent pages.

Table 4.3.1 Institution Building and Capacity Development Needed for Complete Implementation of CBTA and Possible JICA Participation¹⁾

Area for Cooperation	Content of Cooperation	Recipient				Ongoing Action
		Central Gov't	Local Gov't ²⁾	Border Gates	Private Sector	
(1) Complete Implementation of CBTA						
CBTA Promotion	• Study of ongoing progress in CBTA implementation and identification of problems	⊙ ³⁾ 1				ADB ⁴⁾
	• Promotion of CBTA awareness	⊙ 2	⊙	⊙	⊙	
(2) Transport						
Promotion of Cross-border Transport operators	• Establishment of licensing & permit systems for cross-border transporters and capacity development of licensing personnel	⊙ 3	⊙		⊙	
	• Establishment of licensing systems for multimodal transport operators with mutual recognition among GMS countries	⊙ ³⁾				ASEAN Framework for multi-modal transport operators
	• Capacity development for domestic cross-border transporters, strengthening of their associations	⊙	4		⊙	ASEAN-Japan Partnership ⁵⁾
Promotion of Mutual Vehicle Entry & Operation	• Establishment and diffusion of domestic vehicle inspection systems	⊙	⊙ 5			
	• Establishment of liability insurance systems for cross-border transport	⊙			⊙	ADB
(3) Customs, Immigration and Quarantine						
Simplification of Border Procedures	• Preparation of MOUs for major border crossing points	⊙ ³⁾		○		ADB
	• Standardization of border crossing forms and documents	⊙ ³⁾		⊙		ADB
	• Training of personnel at cross-border points			6 ⊙		ADB and other donors ⁶⁾
	• Provision of equipment and manpower capacity building to ensure procedural accuracy, speed and transparency			⊙	⊙	ADB and other donors
Efficiency of Customs Clearance	• Risk management	⊙ 7	⊙			JICA technical cooperation project
	• Introduction of ICT technology	⊙ 8	⊙			ASEAN-Japan Partnership ⁵⁾
Promotion of Transit Cargo	• Agreement on transit cargo (exemption from customs inspections and customs duties)	⊙ ³⁾				ADB sponsored negotiations
	• Agreement on transit fees	⊙ ³⁾				Feasibility study by ADB
	• Establishment of transit cargo guaranteeing bodies	⊙				ADB
	• Institution building for bonded terminals and industrial parks	⊙ 9	⊙		○	Private sector initiatives

1) The areas for possible JICA participation are in red boxes.

2) Technical cooperation is for the personnel of a given government department or agency in charge.

3) These are programs which require coordination among more than two countries.

4) ADB-assisted compilation of the roadmap of each country, information sharing by ADB and other external donors.

5) The programs of strengthening the competitiveness in logistics under the ASEAN- Japan Partnership arrangement consist of the following four: viz. (i) ASEAN regional logistics network development, (ii) human resources development in logistics business and import/export customs clearance formalities, (iii) introduction of advanced technology for efficient logistics, and (iv) computerization of import/export customs procedures for ASEAN integration.

6) The programs already implemented or under preparation are as follows: (i) introduction of best practices overseas and the outline of CBTA implementation, (ii) lectures on CBTA stipulations, (iii) on-the-job training at border crossing points, and (iv) training of border gate personnel.

(1) Study of Ongoing Progress and Problems of CBTA Implementation

- **Background:** The basic institutional framework for developing cross-border traffic has been defined in the ADB-initiated CBTA stipulations. All member countries have already signed the Annex/Protocol of the agreement. The signatories are now at work on ratifying the agreement. Necessary steps toward full CBTA implementation consist of relevant domestic legal enactments pursuant to the ratification and the start of manpower training programs for the next stage of implementation.
- **Aim:** The progress of domestic enactments and CBTA ratification varies among GMS countries, as are the needs for manpower training and capacity development. This area for cooperation aims to accurately understand the current situations in these countries, identify the remaining problems and the possible means to deal with them, and specify areas for external assistance through workshops for government personnel involved in CBTA development in each country.
- **Policy for JICA Involvement:** Financed by the ADB, the roadmap is now being formulated to aid the CBTA implementation in each country. The roadmaps will help clarify what have been in progress or are constraining the progress. It will be necessary for JICA to coordinate and consult with the ADB and other international organizations and to share the up-to-date information on what needs to be done in the sphere of technical cooperation.

(2) Promotion of CBTA Awareness among Local Government Personnel

- **Background and Aim:** Many activities in the CBTA implementation rely heavily on provincial and local government personnel. CBTA-related inter-country deliberations have so far been limited to the central government officials, while virtually no attempt has been made to have the facts about CBTA known to provincial and local government officials. This program aims to make local government personnel, especially those who man the border facilities, aware of the needs and the benefits of CBTA implementation.
- **Contents:** The awareness promotion will cover areas of the CBTA implementation that directly concern the local government personnel as follows:
 1. Progress of regionalization in the GMS and the roles of CBTI and CBTA.
 2. Mutual entry and operation of freight and passenger vehicles.
 3. Introduction of CBTA-stipulated traffic regulations and signals along cross-border transport corridors.
 4. Licensing of cross-border transporters and mutual authentication of their licenses.
 5. Standardization of customs, immigration, and quarantine procedures.
 6. Agreed framework of transit cargo handling.
- **Participants:** Overall counterparts of the program will be appointed from among the personnel of the central government in charge of cross-border transport. Workshops will be held for government personnel in the provinces and municipalities located along cross-border corridors and those of border crossing points as stipulated in the GMS CBTA Protocol 1.

(3) **Establishment of Licensing and Permit Systems for Cross-border Transporters**

- **Background and Aim:** The CBTA stipulates that each country should issue licenses to domestic cross-border forwarders and that this authentication should be effective in other GMS countries. However, there are diverse licensing systems in the GMS countries with ill-defined licensing criteria and issuing processes, which are difficult to harmonize. It is necessary therefore to institute a credible licensing system with clear licensing criteria in each GMS country.
- **Contents:**
 1. **Licensing Systems for Domestic Cross-border Forwarders:** Aims to institute a credible licensing system with clear licensing criteria in each GMS country.
 2. **Institutional and Human Resources Development:** Aims to develop organizations that will evaluate the qualification of applicants and process the issuance of licenses.
- **Participating Organizations:** GMS central governments with jurisdiction over licensing of freight forwarder (e.g. Ministry of Transport) and the licensing organs (e.g. ministry bureaus or branches and local government departments).
- **Duration of Cooperation:** The project will take two to three years for institutional development, one year for local personnel training, and another year for follow-up monitoring, or a total duration of four to five years.

(4) **Capacity Development of Domestic Cross-border Forwarders and Strengthening their Associations**

- **Background and Aim:** In order to activate cross-border transport along with the progress of CBTI development, it is indispensable to upgrade the qualification of forwarders. Human resources development of cross-border forwarders is now under deliberation under the framework of the ASEAN-Japan Partnership arrangement for the strengthening of international competitiveness in logistics. JICA might be able to offer assistance toward this attempt at strengthening logistics service providers through a new regional qualifying program.
- **Contents:**
 1. **Licensing and Permit Systems for Domestic Forwarders:** Qualifications required for cross-border transport operation in the Greater Mekong Subregion.
 2. **Logistics Business Strategy:** Courses on logistics strategy, value-added logistics services, quality control methods, training of drivers, etc.
 3. **Business Associations:** Courses on the roles, functions, and activities of business associations (e.g. forwarders and trucking companies).
 4. **Lectures on CBTA:** Outline of CBTA implementation and the changing requirements of customs, immigration, and quarantine procedures.
- **Participating Organizations:** Private companies in the logistics business and their associations.
- **Duration of Cooperation:** A series of short-term workshops (two to three days) in

various cities in the GMS.

(5) Establishment of Domestic Vehicle Inspection Systems

- **Background and Aim:** CBTA implementation stipulates the agreement on mutual entry and operation of transport vehicles between GMS countries. However, the vehicle types and the vehicle inspection systems currently in operation in the region are far from being technologically adequate. These not only obstruct the practice of mutual entry and operation but also inhibit the early emergence of seamless cross-border transport. The institutionalization of more appropriate vehicle inspection systems will overcome this bottleneck.
- **Contents:**
 1. **Vehicle Inspection Systems:** CBTA implementation stipulates that border crossing vehicles be officially registered upon proper inspection in each country regarding their technological requirements. Once authenticated in one country, vehicles must be accepted in other GMS countries. In other words, the vehicle registration and inspection systems will play an important role in expediting regional integration of cross-border transport.
 2. **Construction of Pilot Facilities and Preparation of the Inspection Manual:** System development requires the construction of physical facilities that are fully equipped for vehicle inspection and are conveniently located in each country. The program will construct pilot vehicle inspection facilities and develop an inspection manual to ensure the efficient operation of the system.
 3. **Possibility of Private Sector Participation:** The program will probe the possibility of private sector participation in vehicle inspection and propose the appropriate institutional framework for promoting such participation.
 4. **Nationwide Vehicle Inspection:** The program will promote the integration of vehicle inspection with the vehicle registration system currently in force to ensure nationwide vehicle inspection.
- **Participating Organizations:** Central government ministries that administer vehicle registration and inspection (e.g. Ministry of Transport) and local organs that issue inspection certificates (e.g. bureaus of central ministries or local government departments).
- **Duration of Cooperation:** Cooperation will take two to three years for institutional development and parallel construction of pilot facilities, one year for local personnel training, and another year for follow-up monitoring, or a total duration of four to five years.

(6) Capacity Development and Provision of Equipment at Border Crossing Points

- **Background and Aim:** Full CBTA implementation is ultimately dependent upon the capability of personnel at various border crossing points. Some training programs have already been launched by the ADB, AusAID, and others, but they are mostly short-term, of the workshop type, and fall short of the needed capacity development of the entire border personnel in the region. Long-term programs to develop human resources are also needed for relevant departments in the central government ministries.

- **Contents:**

1. **Training Programs:** The overall framework of training programs is presumed to have been well defined by the efforts of the ADB and other international donors. JICA cooperation should consider the expansion of border personnel training to other locations pursuant to this framework. It is necessary to design training programs after ascertaining different local requirements at major border crossing points in the GMS. Training programs should be prepared in the order of priority assigned to these border crossing points.
2. **Training at Border Crossing Points:** Training programs will be conducted at the selected priority border crossing points.
3. **Provision of Equipment:** Along with border personnel training, adequate equipment (computers, communication apparatus, inspection tools, etc.) is needed to equip border facilities.
4. **Public Information Service to Users:** Information must be made available for users of border procedures. Specifically, information on the framework of SSI and SWI and the standardized forms required must be provided in pamphlets or other means.

- **Participating Organizations:** The focus of training will be determined in consultation with the central customs bureau of each GMS country. Training itself will be provided at major border crossing points. Public information service will be mainly aimed at cross-border forwarders, tourist companies, and commercial establishments in the border areas.

(7) **Customs Risk Management**

- in some GMS countries customs clearance imposes inspection on the entire cargo. This practice will soon become unrealistic as cross-border freight transport expands in the future. It is necessary to design efficient methods for customs inspection together with risk management, which is also effective in preventing smuggling and tariff evasion. JICA is currently developing a technical cooperation project on customs risk management for Vietnam and other countries, and this proposed technical cooperation program might be carried out in conjunction with that project.

(8) **Introduction of ICT Technology**

- **Background and Aim:** ICT technology is now indispensable for the speedup and accuracy of border procedures, for advanced exchange of information, or for the “single window” processing among relevant authorities. The introduction of EDIs (electronic data interchanges) has already begun experimentally for port customs in Thailand, Vietnam, and elsewhere, which is expected to expand to land border crossing points. Lao PDR, Cambodia, and other low-income countries must not be slow to take advantage of the electronic communication technology.
- **Policy for JICA Involvement:** Under the ASEAN-Japan Partnership arrangement, discussions have been going on to clarify the issues involved in the “single window” processing of customs data and other information needed in international logistics and to evaluate the merit of introducing RFID (radio frequency identification). JICA cooperation might address these issues.

(9) Institution Building to Facilitate Construction of Bonded Logistics Terminals and Industrial Estates

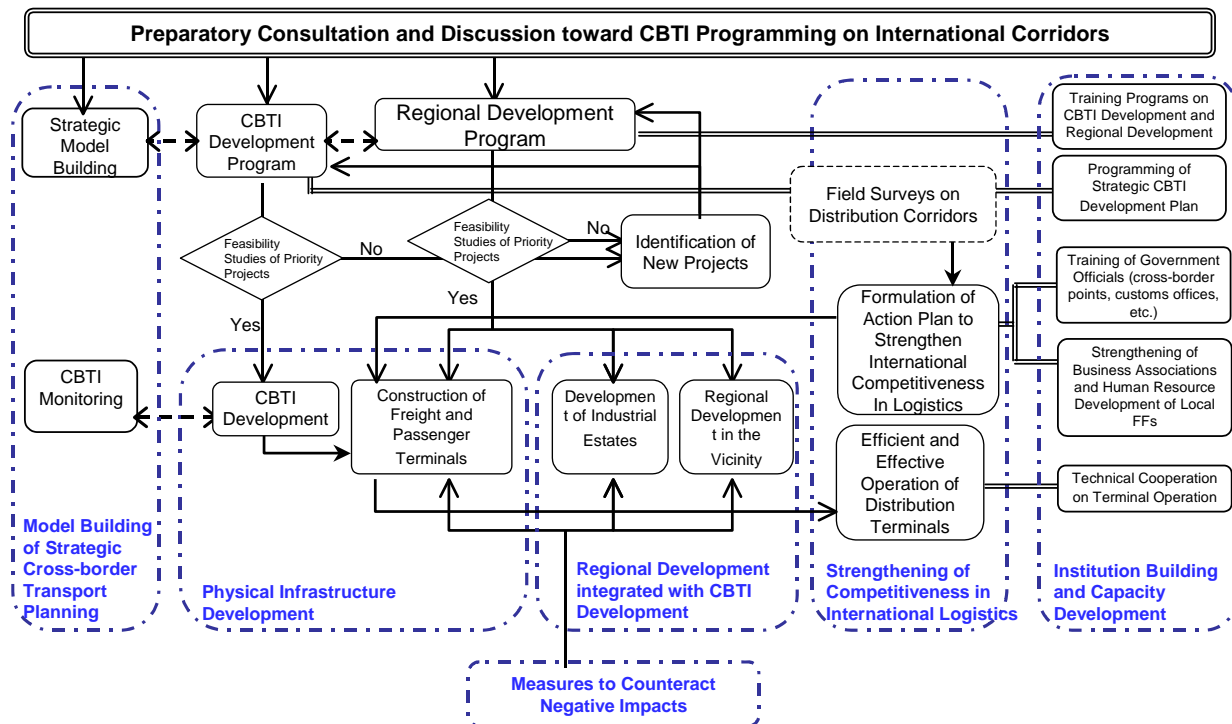
- **Background and Aim:** To simplify and speed up border procedures and facilitate the CBTA-proposed agreement on transit cargo handling, freight terminals and industrial estates with bonded warehousing function will play a major role in allowing transit cargo sealed at bonded terminal facilities to pass the borders without undergoing customs procedures. At present, however, most GMS countries are institutionally constrained from establishing such bonded facilities in the border areas. JICA cooperation will deal with the appropriate institutionalization necessary for the establishment and management of bonded facilities. Logistics terminals to be provided in the border areas could also serve as points of transshipment for mixed loading.

4.4 Regional Development Programs on Two Model Routes: 2nd Area for JICA Cooperation

The first year of cooperation will be spent on international workshops to discuss the issues involved in the CBTI in the GMS, including the two model routes selected for JICA cooperation. On the basis of the findings and conclusions arrived at in the workshops, the second year will witness a JICA development study on regional development and CBTI development planning on the selected model routes, accompanied by related training for local government personnel.

Training of related local personnel will include training related to regional development integrated with CBTI, formulation of CBTI development program, and so on. When a priority project identified in the CBTI development program reaches the stage of implementation at some later date, JICA cooperation will provide training programs on monitoring cross-border traffic growth and related socio-economic changes, which will contribute to the performance of impact assessments. When freight and passenger terminals in the border areas of Lao PDR and Cambodia are constructed, JICA training programs will be on the necessary logistics services at the terminals and the operation and maintenance of the terminal facilities. The duration of these training programs will need to be much longer than the workshops in the first year and the training during the development studies. Figure 4.4.1 shows the flows of actions necessary for a proposed regional development program for a given area.

Figure 4.4.1 Flow of Regional Development Program for Two Model Routes



1) **Preparatory Consultation and Discussion on CBTI Programming on International Corridors: International Workshops**

Aim: Consultations and discussions will identify major problems in cross-border transport infrastructure in the GMS and clarify the necessary actions to cope with them.

Participants: Policy makers (related to cross-border transport and customs) from CLMV countries and Thailand.

Topics for Consultation and Discussion:

1. **Progress of Regionalization:** Ongoing regionalization in the GMS countries will be reviewed to clarify the present situation of regional trade and other socio-economic interactions, and the prospects for the GMS will be ascertained by partly referring to notable examples in Europe and Latin America.
 2. **Present Cross-border Transport Infrastructure:** The present conditions and bottlenecks in cross-border infrastructure (i.e. mainly roads), border facilities, and logistics infrastructure in each GMS country will be presented. Regional issues will be abstracted from these presentations and discussed.
 3. **Progress of CBTA Implementation:** The progress of CBTA implementation in each GMS country will be presented viz. ratification of CBTA annexes and protocols, domestic legal enactments, availability of ADB and other external financing, etc. Discussions will extend to other international agreements on cross-border traffic other than the GMC and multi-country agreements among ASEAN countries, such as the ASEAN Framework Agreement on the Facilitation of Goods in Transit, the ASEAN Framework Agreement on Multimodal Transport, and other bilateral agreements. Discussions on the relative merits and shortfalls of these intercountry arrangements will help narrow down the areas suitable for JICA cooperation.
 4. **Current Situation of International Logistics Business:** The present condition of logistics business in each GMS country will be presented viz. capacity of domestic forwarders, presence of multimodal operators, degree of participation in international and cross-border logistics, etc. The needs for human resource development in the logistics sector will be clarified from these presentations.
 5. **Cross-border Transport Infrastructure and Regional Development:** The possible impacts of CBTI development on the regional economy will be spelled out in clear terms by referring to known good practices and lessons gleaned from past experiences. This can be fed to the regional development planning integrated with CBTI development.
 6. **Significance of Two Model Routes:** Discussions will center on the socio-economic significance of the two model routes for the areas in the vicinity and vis-à-vis the framework of GMS regional economy, including the present condition of infrastructure development (including projects under construction and in the planning stage) on these routes. This will help clarify what could and should be done in the future.
 7. **Issues for Regional Development:** The development requirements along the two routes will be discussed under three headings, namely regional and infrastructure development, institution building, and capacity development. Primary emphasis must be placed on regional development needs in Lao PDR and Cambodia.
- 2) **Development Studies on an Integrated Regional and CBTI Development**
- (1) **Background**

Development studies on CBTI-related regional development with focus on Lao PDR and Cambodia will basically use the methods of analysis and programming similar to those used in past JICA studies on regional development elsewhere. The difference lies in the climate of GMS integration and economic partnership in which the two model routes are to function. In other words, regional development projects somewhere along the two routes could help growth centers to emerge in the process of regionalization

and help strengthen the countries' competitiveness in international logistics.

In Lao PDR, for example, the completion of the Second Mekong Bridge removed the last major bottleneck in the east-west corridor, while the construction of the north-south corridor is making progress with Chinese assistance. With due intercountry agreement on transit cargo handling, the cross-border transport barriers in Lao PDR could be substantially lowered, raising in turn the country's competitiveness. Under the circumstances, it is especially important to formulate a regional development program that will bring quick results. In Cambodia, the construction of another bridge crossing the Mekong is scheduled to start in Neak Loeung before long, justifying the same argument for CBTI-related regional development.

(2) Importance of Regional Development Programs

The regional development programs in Lao PDR and Cambodia must aim to seize the impacts of CBTI development as a springboard for expanding domestic flows as opposed to transit cargo, as well as of export and import and for acquiring a competitive edge. The programs must be designed to provide the local population opportunities to share the benefits of CBTI development along the two routes. In order to maximize the positive impacts of CBTI development while minimizing the expected negative impacts, it is essential that all stakeholders share an understanding of what is being planned and what is expected to be gained by the proposed development efforts, which in fact signifies the primary importance of any development program. The regional development programs, in other words, should present a readily understandable menu of development, including the creation of employment opportunities and the specific improvements in living standards.

(3) Contents of Development Studies

The proposed development studies in Lao PDR and Cambodia should cover the following seven subjects:

- 1. Review and Analysis of Present Socio-economic Trends in the Greater Mekong Subregion:** In view of the growing importance of economic integration and partnership among GMS countries, it is necessary to review and analyze the socio-economic indices in the GMS.
- 2. Review of National Development Plans in the GMS Countries:** Each GMS country has its own national development plan and regional development policy stance, which have the overriding importance in influencing the socio-economic prospects in the country and the regions therein. However, these prospects or the respective visions of individual countries are not entirely compatible with the socio-economic framework of the GMS as a whole. Therefore, it is necessary to review the respective national development plans and regional development policies from a regional viewpoint as can be gleaned from ongoing and future expansion of cross-border traffic.
- 3. Present Situation of Cross-border Freight and Passenger Traffic:** Because the two model routes selected for regional development are of road transport, it is necessary to understand the present volumes of freight and passenger flows in GMS countries and forecast the future volumes. It is necessary to determine the traffic volume per pair of major city-origin and city-destination by noting four

important considerations, among others. First, cross-border traffic is as yet a small portion of the total freight and passenger traffic generated within each GMS country. Second, it is necessary to consider the choice of road over aviation, shipping, and inland waterway transport for cross-border traffic. Third, cross-border traffic flows reflect the route selection and the modal choice necessitated by various types of traffic barriers. Fourth, routings for international logistics are designated, such as Asian Highway or ASEAN Highway network.

- 4. Transport Network to Promote Regional Development:** The present and the future land transport links for international logistics will be identified in Lao PDR (or Cambodia) and the appropriate zoning of the country will be done to formulate the regional development strategy. Land transport is basically by road in land-locked Lao PDR. However, a transport network to frame the regional development strategy will take into consideration the possibility of railways and inland waterways.
- 5. Possible Growth Centers of International Logistics:** Lao PDR has long depended on the Vientiane-Thanaleng-Nong Khai-Bangkok route for export and import trade. When the CBTA takes effect in Vietnam, it will be possible for Lao PDR to route its export and import as transit cargo via the Second Mekong Bridge or to and from Vung Ang Port or Da Nang Port. It might even be possible to use the Kao Cheo-Kho Neua-Vinh route and the Savannakhet-Densavanh-Lao Bao-Don Ha route. Savannakhet and Vientiane have been designated as centers of international logistics in Lao PDR. The east-west corridor connecting Thailand and Vietnam and the north-south corridor connecting Yunnan in China and Bangkok are now beginning to attract increasing attention within the framework of developing regional corridors in the GMS. For the future socio-economic prospects of the GMS, it might be reasonable to select subroutes with additional centers of international logistics in Lao PDR to support these two major regional corridors.

Cambodia is different from Lao PDR because of its Sihanoukville Port. Coastal corridor development is now in progress to connect Thailand to Vietnam via Cambodia. It might thus be necessary to consider other centers of international logistics in addition to Phnom Penh and Sihanoukville.

- 6. Programming of Regional Development:** The programming of regional development in Lao PDR and Cambodia must begin by reviewing from the viewpoint of international logistics, conventional regional development program such as promotion of local industries, institutional development for investment promotion, infrastructure to support economic activities, decentralization, strengthening of regional integration, and human resource development. "Strengthening of regional integration" is translatable as strengthening of competitiveness. The framework of regional development programming is determined with emphasis on special economic zones, logistics parks, distribution terminals with bonded warehouse, and other economic infrastructure development.
- 7. Feasibility of Logistics Terminals:** A logistics terminal must be proposed as a financially viable business model to ensure the sustainability of its operation and management. The project development studies assume an implementation through the PPP scheme.

3) Institution Building and Capacity Development

(1) Training Programs Related to CBTI and Regional Development

Aim: Training aims to provide participants with an understanding of what is required in the growing regionalization among GMS countries and what needs to be done to promote regional development that is integrated with CBTI development, such as economic infrastructure, service industries, and institution building, to attract industrial investment.

Participating Organizations: Government personnel and private sector operators (central ministries of transport and commerce, local government departments, business associations, etc.), particularly those who participate in or cooperate with the ongoing development studies.

Contents of Training:

- 1. Preparation of Country Report:** A country report will be prepared by the participants, which should cover the ongoing progress of CBTI development, existing special economic zones, and institutional incentives for industries.
- 2. Regional Development Strategy amid Regionalization:** Lectures will explain the need for a regional development strategy that is formulated from the perspective of growing regionalization; the need, for example, to analyze the resources and industrial locations in a given area in comparison with other areas in a given country and in terms of intercountry advantages.
- 3. CBTI and Regional Development:** Lectures will spell out the expected impacts of CBTI development on regional economy, by referring to known good practices and lessons learned from experiences in the GMS and elsewhere. This is to acquaint the participants with the characteristics of a CBTI-related regional development approach.
- 4. Logistics Service Facilities as Growth Centers:** Lectures will explain what to establish as CBTI-related regional centers, namely infrastructural facilities (e.g. ICDs and industrial estates) and logistics service facilities for freight consolidation and multimodal transport.
- 5. Institutional Improvement to Attract Industrial Investment:** To be internationally competitive, growth centers need to attract foreign direct investment in addition to local industries based on resources in the hinterlands. Lectures will deal with institutional incentives to attract foreign industries and other types of institutional development needed in growth centers.

Duration of Training: About one month.

(2) Capacity Development Programs for the Operation of Passenger and Freight Terminals in Lao PDR and Cambodia

Aim: The establishment of a passenger and freight terminal (or terminals) in association with the development of an industrial estate (or industrial estates) in border areas is integral to CBTI-related regional development programs already proposed for Lao PDR and Cambodia. JICA technical cooperation in terminal operation is outlined below.

Participating Organizations: Organizations operating terminals and government

ministries supervising terminal operation.

Contents of Training:

- 1. Operation of Bonded Facilities:** Training will teach participants how to operate a bonded transshipment facility for international freight (crossing three or more borders) and a bonded warehouse for an industrial estate. It will also include the management of a branch customs office.
- 2. Operation of Terminal Facilities:** Training will educate the top management of the terminal(s) regarding efficient and effective operation and the terminal staff regarding logistics services (marketing, storage, packing, and information), with emphasis on the establishment of computerized information services.

Duration and Place of Training: Three to four years until terminal operation is proven sustainable.

4) **Model Building for Strategic Cross-border Transport Planning**

(1) **Training on CBTI Development Planning**

Aim: The training will impart theories and methods of traffic demand forecast and impact assessment applicable to CBTI development. It will also indicate the present data inadequacies in GMS countries constraining a quantitative analysis and evaluation on which to base transport planning.

Participating Organizations: Government officials of GMS countries that are and will be responsible for CBTI-related planning (e.g. GMS ministries of transport, relevant research and planning institutes under such ministries, etc.).

Contents of Training:

- 1. Present CBTI Development Planning:** Lectures will clarify the different requirements of CBTI planning compared with the conventional approaches to transport planning.
- 2. Model Building for CBTI-related Demand Forecast:** Lectures will explain the methodology of model building for CBTI-related demand forecast, including its difference from the usual practices, and clarify the limitations and problems that constrain the model building for the GMS regional transport planning, indicating what could be done.
- 3. Analysis and Evaluation of Impacts:** Lectures will compare the methods of impact analysis and evaluation as applied to CBTI development (case studies of project evaluation by GMS countries and external donors) and indicate the limitations of the available methods in evaluating cross-border impacts and what could be done to remedy the situation.
- 4. Necessary Data Development:** Available statistics and the databases prepared in GMS countries will be cross-examined to clarify the problems in order to cope with the eventual buildup of a GMS database needed for plan formulation and project evaluation.

Duration of Training: About one month.

(2) **Technical Cooperation Program on CBTI Monitoring**

Aim: Monitoring of the impacts of CBTI development has not been sufficient and the

available statistics are extremely limited and sporadic. This technical cooperation program aims to collect and prepare the database needed for quantitative analysis, including the forecast of CBTI-related traffic demand and the evaluation of development projects and programs. During the initial stage, when the availability of region-wide information is hardly expected, it is necessary to observe selected corridors where the impacts of CBTI development would be largest. (preferably sections along the above model routes). Monitoring of logistics flows along the corridor(s) and socio-economic changes in the vicinity will be carried out over several years. The data collected could be used as the baseline in assessing the impacts of CBTI development and the reduction of cross-border barriers.

Participating Organizations: Government officials of GMS countries that are responsible for CBTI-related planning (e.g. GMS ministries of transport, relevant research and planning institutes under such ministries, etc.).

Contents of Training: Since this program will assume a long period of monitoring and follow-up activities, the assignment of Japanese experts will have to last from five to ten years. In addition, the program should be open to wider participation, for example those who will attend the training on CBTI development planning mentioned immediately above.

1. **Selection of Baseline Data:** Available statistics in GMS countries will be cross-checked to create a regional baseline database to be used in building a strategic cross-border transport planning model.
2. **Route Selection for Monitoring:** The pilot route selection will consider three criteria: (i) Selection will be made from among the officially recognized regional corridors or their important routes; (ii) CBTI development should be underway or about to start; and (iii) CBTI-related regional development should be in progress or about to start.
3. **Monitoring Surveys:** The database will be compiled from available sources and the findings of regular field surveys on the model route(s). In order to extend the coverage of the database to include the entire country and eventually the entire GMS, it will be necessary to conduct surveys to identify the categories of information necessary for a wider database compilation.
4. **Continued Research:** Research will continue for long-term regional transport planning.

Duration of Cooperation: The technical cooperation program will last for two to three years and will be followed by the assignment of Japanese experts lasting from five to ten years.

5) **Strengthening of International Competitiveness in Logistics**

Formulation of an Action Plan: The performance of regional development programs closely tied to the two selected routes will depend heavily on the establishment of logistics facilities which will serve to strengthen a country's competitiveness in international logistics. In recent years, some local subsidiaries of Japanese and other foreign logistics companies have undertaken field surveys on the logistics flows or trial runs on the GMS regional economic corridors. The findings of these attempts help ascertain the present and real needs of logistics businesses in the GMS. Based on their findings and additional

information from other sources as well as consultations with local logistics service providers, it is possible to formulate an action plan to strengthen the international competitiveness in logistics of GMS countries.

The action plan will include the construction of freight terminals, training programs for customs personnel at border crossing points and elsewhere, strengthening of logistics business associations and networking, human resource development support to local forwarders, and so on.

6) **Measures to Counteract Negative Impacts**

JICA cooperation is proposed on the following areas with the implementation focusing on the vicinities of the two model routes, keeping in view the vicissitudes in the GMS as a whole:

Measures against Straw Effects: Lao PDR and Cambodia are likely to suffer most from this negative impact after the complete linkup of the economic corridors. JICA cooperation can be effected, for example, through regional development programs along the two routes as one of the priorities in the development strategy and integrated with the development requirements of logistics centers and other major projects.

Traffic Safety Measures: The expected expansion of cross-border traffic is likely to result in an increase in traffic accidents. A comprehensive approach to traffic safety will be necessary, including enforcement of traffic regulations, public campaigns on traffic rules, training and education of drivers, and so on.

Informal Sector Activities: The expected benefits of a growing cross-border freight and passenger transport are likely to bypass the majority of people who eke out their living in the informal sector. Informal activities need to be absorbed into the formal sector by instituting appropriate incentives for small business operators and rural industries and by providing the local population with various opportunities for job training.

Spread of Infectious Diseases: The intensified movement of goods and people across the borders will hasten the speed and the reach of virulent diseases, most notably HIV/AIDS and avian influenza. Public awareness campaigns and preventive health care will be most effectively performed by joint efforts between JICA and NGOs, as exemplified by the JBIC and NGO partnership during the construction of the Second Mekong Bridge.

5. Applicability to Other Regions

Cross-border transport and international trade in the Greater Mekong Subregion have just begun to pick up, but are yet nowhere near the levels observed in the European Union and elsewhere in the developed world. As will be described later, the socio-political stabilization of some GMS countries since the 1990s (e.g. cessations of civil wars) and the open market policies proclaimed in the socialist nations served in no uncertain measure to raise the pace of globalization / regionalization in the subregion. This inevitably accelerated the subregional division of labor and heightened the awareness of the need to activate international trade. Partly facilitated by the assistance from the ADB and other external donors, GMS governments launched their drive for CBTI / CBTA implementation. The private sector of the subregion welcomed these efforts and has been increasing their investments. In other words, the ongoing regionalization is partly endorsed by the government policies and partly put into action by the private investors. It is too early yet to evaluate the results of ongoing efforts in precise detail. However, the joint actions of the public and the private sectors toward closer regional integration through GMS CBTI / CBTA implementation undoubtedly have an important bearing on other developing regions and contain some useful lessons for the latter's regional economic development. This chapter analyzes the available information on the ongoing CBTI / CBTA implementation in the Greater Mekong Subregion from the viewpoint of forming a salient perspective on regional development geared to CBTI and CBTA implementation. The findings will be of some practical use for the other developing regions to take into consideration.

5.1 Salient Lessons from GMS Experiences

1) Backgrounds of GMS Promotion of Cross-border Transport

GMS countries have been actively taking various measures to promote cross-border transport. Their efforts encompass a wide range of achievements, including the construction of such basic infrastructure as bridges over the Mekong and border-crossing arterial roads, and building and equipping customs houses and CCAs at border crossing points. They agreed on new institutional arrangement by signing and ratifying the CBTA and bilateral Minutes of Understanding (MOUs), formulated CBTI / CBTA-related regional development programs, and initiated all sorts of institutional improvement and manpower training necessary to expedite the regionalization process, which picked up its pace in the latter half of the 1990s. This was brought about by the following convergence of events in the subregion.

The peace in the subregion was achieved with the cessation in 1991 of the civil war in Cambodia. Prior to this, the Vietnam War lasted long until 1975, while insurgences of minorities and confrontations with the communists persisted in Myanmar. GMS countries other than Thailand had socialist regimes of one kind or another in power, but their policy stances began to change since the mid-1980s. Vietnam introduced its *Doi Moi* (reform) policy in 1986, and Lao PDR announced its *Chintanakan Mai* (new thinking) policy in the same year. Myanmar disclaimed its Burmese Socialism in 1988, and Cambodia adopted its policy of open market economy in 1993. Concurrently, China began pursuing its socialist market economy path since 1992. These decisive actions in various parts of the subregion converged to create a milieu that was ready to accept the subregional economic development approach through market mediation.

Then Prime Minister Chatchai of Thailand made a public appeal to “convert Indochina from a battlefield to a market,” while the ADB took it upon itself the task of coordinating the interests of the GMS countries, thereby facilitating reconstruction and growth of the subregion as a whole. In no time, the meeting of economic ministers from six countries was held in 1992, leading to the subsequent formulation of the GMS economic cooperation program. Around this time, Japan expressed its strong commitment to cooperation for such efforts to take off.¹⁾ In subsequent years, four more countries joined ASEAN.²⁾ This enlarged membership made it increasingly possible to discuss the issue of a GMS economic development within the ASEAN framework. The ADB, Japan (JBIC / JICA), World Bank, and other donors stepped up their financial support to the infrastructure development and provided technical assistance on institutional development, actively facilitating the socio-economic development in the subregion. At the same time, the private sector in the subregion expanded its investments and accelerated its economic activities with the completion of the Second Mekong International Bridge and other arterial infrastructural facilities. Because international trade has a significantly larger share in the low income economies, like Lao PDR and Cambodia, regional development integrated with CBTI / CBTA implementation should be of special importance for them.

2) Basic Conditions as Evinced in GMS Experiences

As mentioned above, there appeared to have been a convergence of certain requisite conditions predating the advent of globalization and regionalization with the growing cross-border transport in the Greater Mekong Subregion. Other regions will have to be blessed with such basic conditions to follow the GMS course of regional development. If any one of the basic conditions should be absent in a given region, and unless such a situation is remedied soon, it would be near impossible to facilitate an integrated cross-border transport and regional development.

A. Peace must prevail in a region.

Since the end of World War II the Greater Mekong Subregion was almost continuously troubled by one conflict after another. Vietnam fought nearly a decade of war with France (1946 – 1954) and underwent 15 years of Vietnam War (1960 – 1975). Lao PDR was mired in incessant conflicts fought between the government army and the Pathet Lao. Cambodia suffered a series of civil wars variously involving Lon Nol, Sihanouk, Pol Pot, Hen Samlin, Son San, and others, in which Vietnam intervened at one time (1978). The cessation of the Cambodian civil war had to wait until 1991 when the Paris Peace Treaty was finally signed. Myanmar had to fight insurgent minorities and communists over the same period. Under such circumstances, it is hardly possible for most GMS countries to pursue a steady course of economic development. Thailand alone managed to remain more or less peaceful and benefited from economic growth, partly stimulated by the continued inflow of foreign direct investment (FDI). The process of globalization began to make strides in the latter half of the 1990s when overall peace came to prevail in the subregion.

B. Investors must be present in a region (or countries in the region must have natural, industrial, and human resources worth investing in) and they must be capable of

¹ In January 1993, the then Prime Minister Miyazawa visited the ASEAN countries and proposed the establishment of a Forum for Integrated Development of Indochina.

² Vietnam joined ASEAN in 1995, Lao PDR and Myanmar in 1997 and Cambodia in 1999.

increasing their investment apace with improvement in the investment milieu.

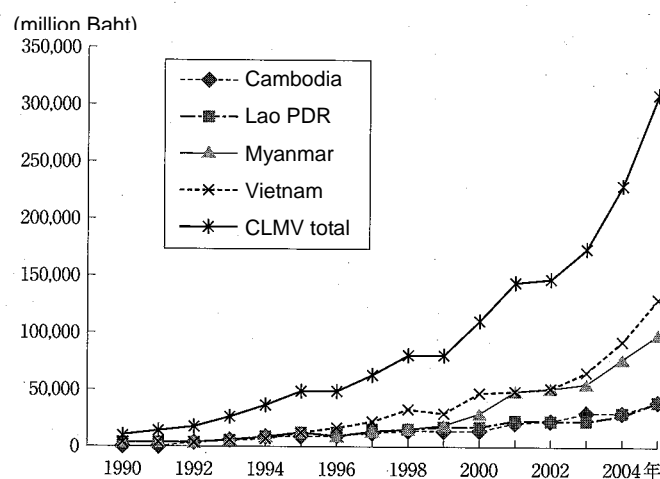
Table 5.1.1 shows the FDI trend in GMS countries (excluding China) during the period before and after peace was restored in the subregion. Except for Thailand where economic growth had been steady, FDI began to pick up in GMS countries immediately before or after the time of the Paris Peace Treaty.³⁾ Along with this trend, the trade between Thailand and other GMS countries (i.e. Cambodia, Lao PDR, Myanmar, and Vietnam) began to expand as shown in Figure 5.1.1.

Table 5.1.1 Trend of Foreign Direct Investment in GMS Countries: Before and After Restoration of Peace (1989 – 1999)

	(US\$ million)																
	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05
Cambodia	-	-	-	33	54	69	151	294	204	243	232	149	149	145	84	131	379
Lao PDR	4	6	7	8	30	59	95	160	86	45	52	34	24	25	20	17	28
Myanmar	8	161	238	172	105	126	277	313	391	318	256	258	210	152	252	214	300
Thailand	1,776	2,444	2,014	2,113	1,804	1,366	2,068	2,336	3,895	7,315	6,103	3,366	3,892	953	1,949	1,718	4,527
Vietnam	4	16	229	385	1,002	1,936	2,349	2,395	2,222	1,671	1,412	1,298	1,300	1,400	1,450	1,610	1,954

Source: ADB, *Development Indicators*.

Figure 5.1.1 Trade of Thailand with Cambodia, Lao PDR, Myanmar, and Vietnam (1990 – 2005)



Source: ISHIDA Masami and KUDO Toshihiro, *Economic Cooperation in Greater Mekong Subregion*, Institute of Developing Economies, 2007

It must be noted that the growth of FDI became apparent prior to the political decisions over regionalization by GMS governments mentioned above. In other words, private investments were quick to respond to the sure possibility of peace, driven by the pace of globalization in the world, and they did not wait for the public pronouncement of the GMS governments' commitment to regionalization.

The presence of Thailand, the country that had readily made use of FDI and performed well in economic development, undoubtedly served to expedite the process of globalization / regionalization and to consolidate the GMS commitment to CBTI / CBTA implementation. In addition to those foreign investors who had been successfully operating in Thailand, Thai investors began to provide capital for various

³ FDI growth after 2000 was not very substantial, or rather more or less stagnant. Note the impact of the Asian economic crisis in 1997.

business opportunities in the neighboring countries⁴). GMS countries other than Thailand have labor supply of reasonable quality at low cost and exploitable natural resources⁵). This ready mix of complementary resources available in the subregion facilitated the formulation and implementation of a variety of policies and programs on regionalization.

Another important point is that the initial FDI was quickly followed by new infrastructure development and necessary institutional arrangements like the CBTA, which in turn stimulated the flows of FDI into the subregion. In other words, the favorable investment environment evolved to sustain continuous economic growth.

- C. Countries in the region share the political will to cooperate and collaborate with one another toward regionalization (sharing of common development strategy).

After World War II, Vietnam, Lao PDR, Cambodia, and Myanmar chose their respective blends of socialism for nation building, but their management of nationalized enterprises and collective farming was before long mired in debilitating inefficiency and their economic performance suffered. The aftereffects of past economic debilitation still persist, but these countries began to rectify the situation by announcing their commitments to market mechanism: namely, *Doi Moi* of Vietnam (1986), *Chintanakan Mai* of Lao PDR (1986), repudiation of Burmese Socialism by Myanmar (1988), and market-oriented economic management in Cambodia (1993). China also proclaimed its socialist market economy path. It must be noted that these policy reorientations took place with the restoration of peace in the subregion. Given the assurance of regional peace, their aspirations to achieve sustainable economic growth necessarily stimulated globalization / regionalization. Their synchronic efforts of similar inclination made it possible to share a common direction for development strategy and culminated in the CBTI / CBTA implementation in the subregion as a whole.

- D. There must be an effective facilitator that acts as a provider of financial and technical assistance and as an arbitrator for the countries in the region (it could be an international organization, a leading country in the region, or both).

The Greater Mekong Subregion is blessed with the presence of the ADB, which effectively coordinated and facilitated the process of regional reconstruction and development. It also contained Thailand which could have played an important role in fostering regional cooperation and coordination. These conditions served to expedite the relatively smooth startup of globalization / regionalization and in the process made it possible to focus on CBTI / CBTA implementation fairly quickly. Many developing countries are poorly equipped to collect accurate information on their own and to express it to the outside world. They might find it difficult to communicate and deliberate effectively with neighboring countries. Divergent ethnic, political, religious, and historical backgrounds among them might require neutral arbitrators for communication and cooperation. If some arbitrating organization already exists in a

⁴ For example, Thai capital has been invested in power generation in Lao PDR and textile processing industries in Cambodia.

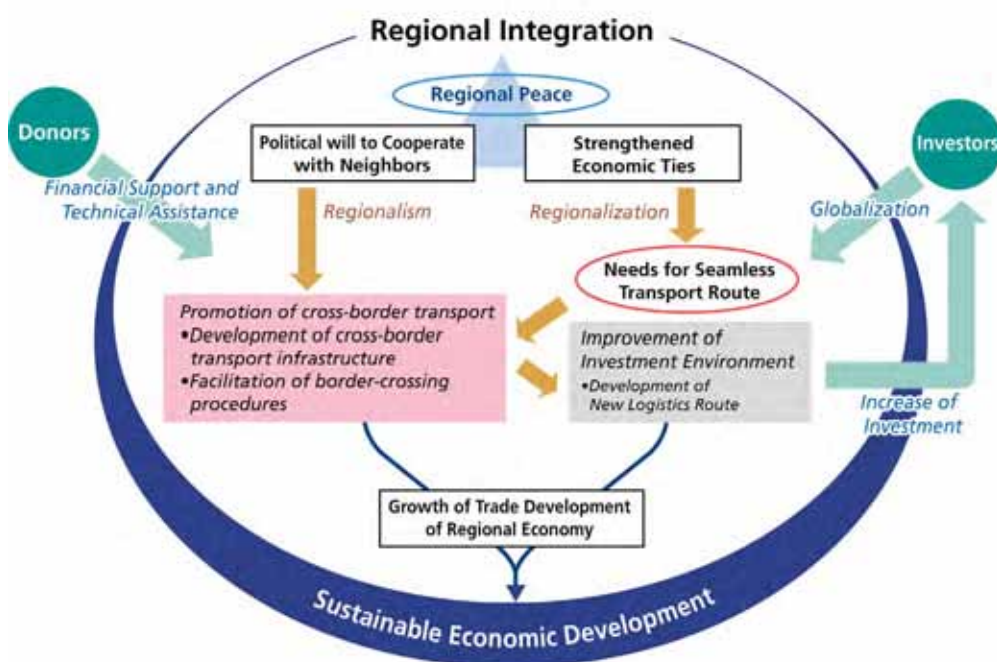
⁵ There are hydropower and mineral resources in Lao PDR, mineral resources (including petroleum and natural gas) in Cambodia, and agricultural and tourism resources in every country.

given region, it is possible to strengthen its functions toward supporting regionalization. If such an organization is moribund, or its mandate does not exactly coincide with a collection of countries getting together for regionalization, it would be necessary to set up an organizational framework for effective coordination before taking any specific step toward regionalization.

3) Interrelationships of Basic Conditions

The four basic conditions described in the preceding paragraphs are necessary for CBTI / CBTA implementation. In the Greater Mekong Subregion, the ongoing CBTI / CBTA implementation was not explicitly planned during the initial stage of regionalization. Actually, the development of cross-border transport infrastructure and the implementation of cross-border transport agreement only began in earnest after the process of globalization / regionalization took some hold in the subregion. Figure 5.1.2 shows the interrelationships between the four basic conditions. Most indispensable are “Restoration of Regional Peace” and “Presence of Investors (Presence worth Investing).” These conditions materialized first in the Greater Mekong Subregion. Next in importance is “the Political Will to Cooperate with Neighbors (Sharing of Common Development Strategy),” which signifies the public acceptance of globalization / regionalization. By this stage, private investors had already started their activities, and continued to expand them along with the progress of CBTI / CBTA implementation and the improvement of investment environment. The fourth condition, “Presence of a Provider of Financial and Technical Assistance,” was fulfilled foremost by the ADB and then by other donors, like Japan and the World Bank, as seen in the Greater Mekong Subregion. Such donors are needed as arbitrators and facilitators to provide effective linkage between the other three conditions. Their coordination and arbitration also play a decisive role in putting together CBTI / CBTA planning and implementation once the member countries proclaim their political commitment to regional cooperation.

Figure 5.1.2 Interplay of Four Basic Conditions for CBTI / CBTA Implementation



The GMS experience in CBTI / CBTA implementation can be applied to a region in Africa or elsewhere as follows.

1. It must be ascertained first whether the two requisite conditions, “Restoration of Peace” and “Presence of Investors,” are satisfactorily met in a given region. If these conditions are lacking, the focus of external donors must be placed on those measures to restore peace, improve primary education, and explore natural resources.
2. It must be ascertained next whether the countries of a given region have proclaimed their political will to cooperate in regionalization efforts. If they have not done so, it is necessary to find their reasons. When it is found that some deep-rooted enmity (such as long-standing ethnic or religious conflicts) prevents the fostering of such political will among the neighboring countries, there is little chance to succeed in assisting CBTI / CBTA implementation.

For example, a number of subregional organizations have been established in Africa: namely ECCAS⁶⁾ in Central Africa, ECOWAS⁷⁾ in Western Africa, SADC⁸⁾ in Southern Africa, COMESA⁹⁾ in Southeastern Africa, and so on. These subregional organizations are affiliated to the African Union¹⁰⁾ and have been promoting regionalization in cooperation with the African Development Bank and other donors. NEPAD¹¹⁾ was formed in 2001 mainly by African countries of relatively large economy. This organization aims at African regeneration based on African ownership. This political stance is well received, but the interests of small African countries are poorly represented in the organization. In order to assist in the projects and programs pertaining to CBTI / CBTA implementation in Africa, it is necessary for JICA and other donors to understand the activities and the intentions of the relevant subregional organization and NEPAD.

3. The fourth condition, “Presence of a Provider of Financial and Technical Assistance,” is adequately met in most of the developing regions of the world. However, the available regional framework which provides assistance and facilitates cooperation might not be functioning as it should be. Such deficiency might be derived from the relationship between such providers and recipient countries (discrepant notions of development priorities and goals, outstanding external debts, etc.), or it might be rooted in some domestic disturbance or serious inadequacy of a given country (law and order problems, socio-political destabilization, poor governance, etc.). In such cases, it is crucial to examine the factors that hinder the effective functioning of regional organizations and to assess the possibilities of rectifying the situations.

In the case of Africa, for example, it is important to understand the agenda of activities and the respective visions of the African Development Bank, EU countries, World Bank, and other donors that are operating in Africa.

⁶ The acronym stands for Economic Community of Central African States, established in 1983.

⁷ The acronym stands for Economic Community of West African States, established in 1975.

⁸ The acronym stands for Southern African Development Community, evolved in 1992 from SADCC (Southern African Development Coordination Conference) established in 1980.

⁹ The acronym stands for Common Market for Eastern and Southern Africa, established in 1994.

¹⁰ Organized in 2002 from the basis of the OAU (Organization of African Unity) established in May 1963.

¹¹ The acronym stands for New Partnership for Africa's Development.

5.2 Necessary Information for Application

1) General Information

Cross-border transport infrastructure development and the related regional programs require a wide range of information. Table 5.2.1 lists the types of necessary information.

Table 5.2.1 Necessary Information for CBTI Development and Related Projects

Aspect	Specific Information Needed
Natural Conditions	• Geography • Land Area • Climate
Cultural Conditions	• Ethnicity • Religion • Language • History
Socio-economic Conditions	• Population • Migration • Labor Force • GDP • Industrial Structure • Poverty • Economic Growth • Foreign Direct Investment • External Trade (trade items, quantity and value, trading countries, etc.) • Fiscal Conditions (revenue and expenditure)
Institutions	• Administrative Structure • Tariff System • Regional Organization and Activity • CBTA • Environmental Consideration • Transport-related Institutions
International Aid	• Japan • Multilateral Organizations • Sectors • Projects / Programs
Relations with Neighboring Countries	• Relative Economic Position • Bilateral Relationships • Political Relationships
Regional Development Planning	• National Development Plan • Donor Initiatives • Projects / Programs
Transport Infrastructure (notably, CBTI)	• Present Conditions (roads, ports, railways, terminals, ICDs, airports) • Present Traffic Volume / OD • Present Cross-border Traffic • Development plans
Others	• Present Logistics Businesses (shippers & forwarders) • Present Transport Vehicle Ownerships • Present Informal Sector • NGO Activities

The list is quite extensive, but the types of required information will naturally vary depending on the nature of a development project or program. The construction of an international border crossing road must consider competing alternative routes. Therefore, the availability of information on the present road conditions and traffic volumes and the relevant development plans will be critical. The program formulation to counteract the cross-border transmission of infectious diseases will require the present conditions of the informal sector and the ongoing campaigns and programs of NGOs.

Detailed data needed for a particular project could be collected by a field survey during the period of project preparation and designing. It is nonetheless necessary to have a rough grasp of wide-ranging general information from the initial stage of development planning. A rough understanding of wide-ranging information or its availability will point to where and how to start up a project identification as well as what to include in the project design.

2) Three Important Issues for the Analysis of Information

Even if the wide-ranging information mentioned above should be successfully obtained, it would hardly be likely to get useful pointers only from the information itself. The reality and the expected impacts of CBTI / CBTA implementation must be understood prior to taking specific actions. The following is a brief description of three major issues involved in CBTI / CBTA planning and implementation:

(1) Impacts of CBTI/CBTA Implementation

Figure 5.2.1 shows the graphic images of changing regional integration brought about

by the progress of CBTI / CBTA implementation in the Greater Mekong Subregion. Before the implementation began, GMS countries were like islands distanced from each other by strong border crossing barriers. By the time of complete implementation, however, GMS countries would have formed a tightly knit subregion, with their border crossing travel time drastically reduced.

Prior to applying the GMS approach to other regions, it is necessary to grasp the existing border crossing resistance between countries and to estimate how far the travel time could be shortened by reducing the cross-border barrier. The reduction of border crossing barrier and the shortening of travel time basically define the nature and the extent of the impacts accruing from CBTI / CBTA implementation.

(2) Transport Mode Selection

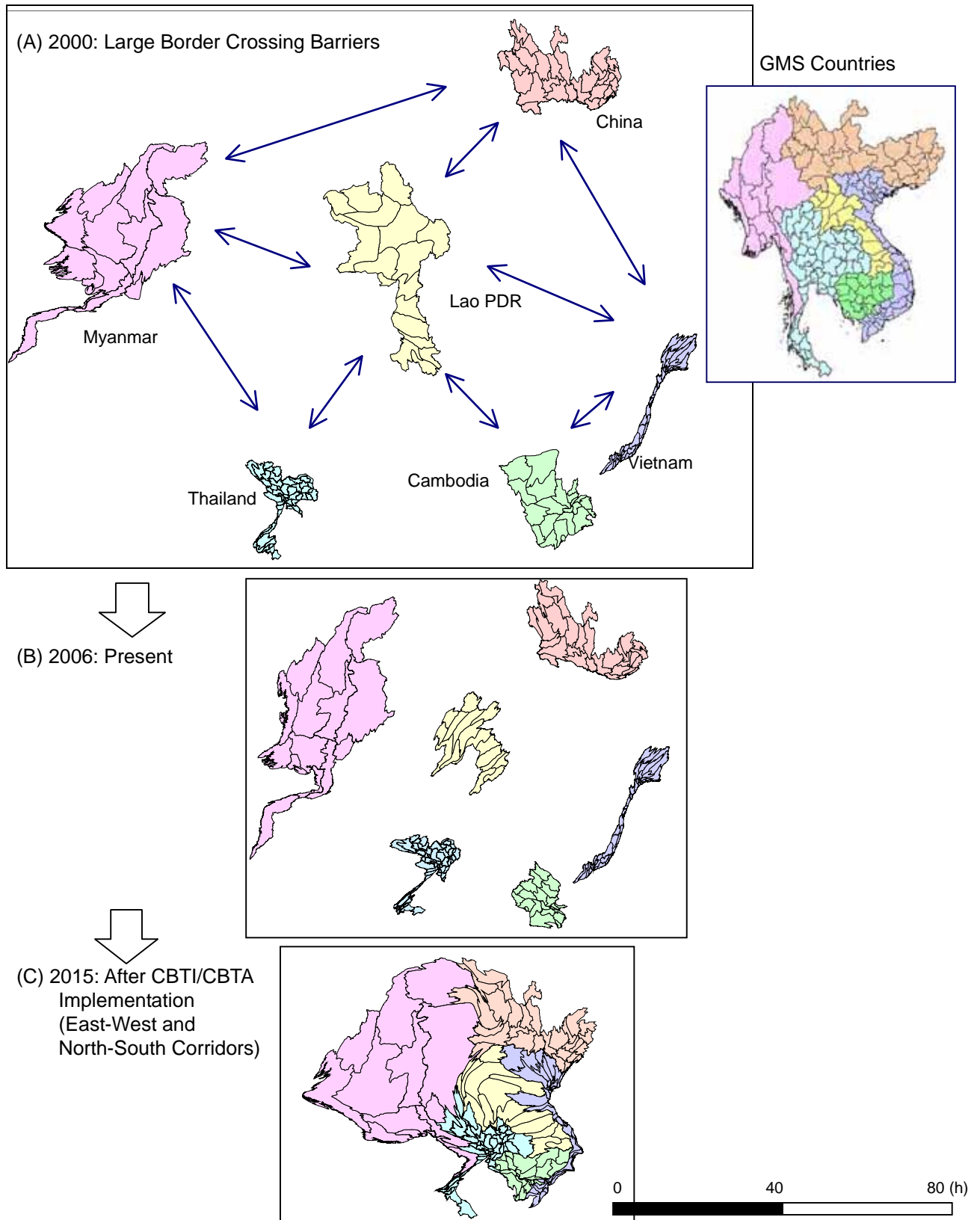
Figure 5.2.2 shows the modal share in the ASEAN countries of container cargo in relation to transporting distance. Trucks carry short-distance container cargo, and railways take over middle and long distance transport. Shipping has its comparative advantage in long distance transport. The relative modal advantages would remain stable even when the time value of transport doubles in the future. Roads (trucks) lose their advantage over shipping in the distance exceeding 750km at present and 1000km in the future, unless a road route possesses an overriding advantage (e.g. peninsular crossing road vs. coastal shipping).

Prior to applying the GMS approach to other regions regarding CBTI / CBTA implementation, it will be necessary to have a rough grasp of modal advantages on major OD pairs of cargo transport.

(3) Competition in Transport Infrastructure

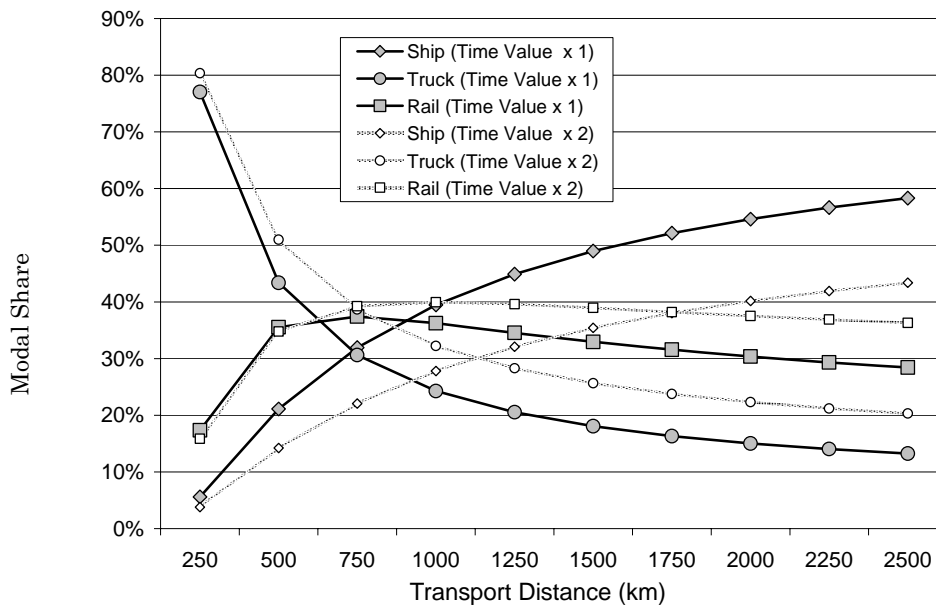
The planning of CBTI development must presuppose the competition not merely between different transport modes but between infrastructural facilities of the same mode. The scope of competition must not be limited to any given country but cover neighboring countries as well. A typical case in the Greater Mekong Subregion is the competition between ports that handle international trade. The export and import of Lao PDR have long depended on the ports in Thailand. Now that the Second Mekong International Bridge was completed and the initial implementation of the CBTA came into force between Lao Bao in Vietnam and Dansavanh in Lao PDR, it is now possible to choose a route of shorter transporting distance connecting to Vietnamese ports such as Danang. As seen in Figure 5.2.3, the cargo handling cost varies widely among the ports. The cost competitiveness of different ports is an important factor to consider in route selection. It will be necessary to understand the present situation and the prospects regarding the competition in transport infrastructure.

Figure 5.2.1 Time-Distance Maps Before and After CBTI/CBTA Implementation in the Greater Mekong Subregion



Source: Prepared by the Regional Planning and Information Laboratory, Tokyo University.

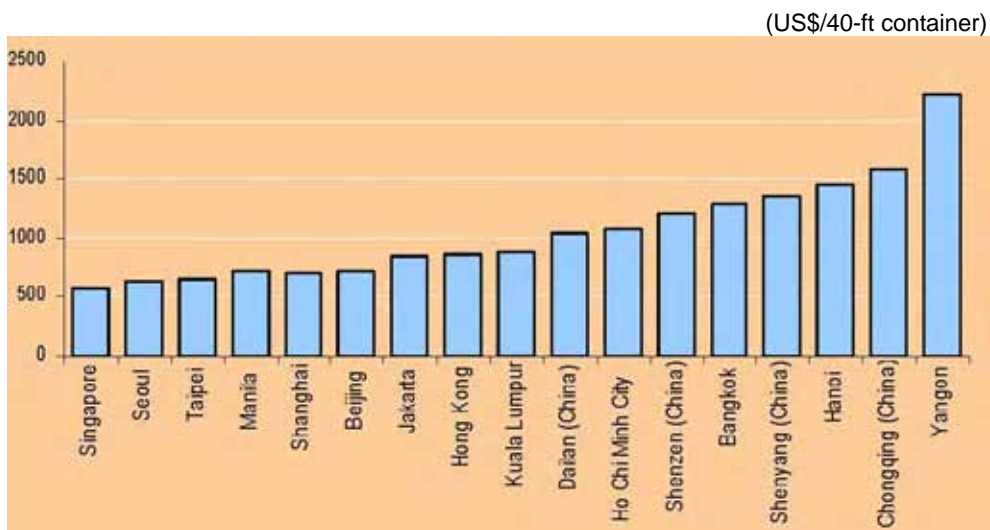
Figure 5.2.2 Modal Share by Range of Transport Distance



Source: ASEAN, *ASEAN Logistics Development Study*, 2007.

- Notes: 1) The graph indicates the modal share in the ideal situation.
 2) The time value of 1 indicates the present situation, and the time value of 2 indicates its doubling in the future.

Figure 5.2.3 Cost of Container Transport from Major Ports in Asia to Los Angeles, USA (2003)



Source: ADB, JBIC and WB, *Connecting East Asia: A New Framework for Infrastructure*, 2005.

Note: The cost consists of cargo handling charges at port and the shipping transport fare, but excludes tariffs.

(4) Viability of Economic Corridors

The process of CBTI / CBTA implementation in the Greater Mekong Subregion goes back to the initial stage of rehabilitating war-damaged roads to reinstate the former transport corridors between GMS countries. It has now reached the stage of developing economic corridors, involving the simplification of border procedures and aiming at more effective regional division of labor. To put it differently, the initial stage was intent on the rehabilitation of damaged physical facilities, whereas the present stage of development involves a decisive leap in the philosophy of regionalization by emphasizing the effective integration of physical and institutional infrastructure

development. For instance, the GMS Economic Cooperation Program in 1992 listed up nine major road projects, whereas the Meeting of GMS Economic Ministers in 2000 agreed to integrate them into five economic corridors. Subsequently in 2005, the Meeting proposed nine economic corridors, adding four more (cf. Figure 2.1.2 in Chapter 2).

What does this signify? If and when the countries in a given region are committed to a common political will to see through the process of regionalization and globalization to their shared advantage (and the neutral facilitator-arbitrator is present effectively to provide them with financial and technical aid), the road development initially conceived as separate physical infrastructure projects would almost inevitably lead to their integration into the configuration of economic corridors. Economic corridors are explicitly aimed at the expansion of regional trade and the division of labor in the regional industrial structure.

Naturally, the GMS economic corridors are not without problems. The increase from five to nine corridors poses a serious problem, as the financing requirements are simply too large to develop them all at the same pace. Currently, the east-west and the north-south corridors, which had been proposed early in the initial stage, show a most substantial progress in implementation, followed by the southern corridor. Three corridors form the arteries that link up major cities of the subregion, such as Bangkok of Thailand, Vientiane of Lao PDR, Phnom Penh of Cambodia and Hanoi and Ho Chi Minh of Vietnam, with China. Therefore, they will be given top priority in the future implementation as well. The implementation of the other proposed corridors will have to start much later in line with the growth of hinterlands along their ways. It needs to be pointed out that the proposals for the remaining six corridors were agreed out of political consideration as well as by assessing the development potentials and performances of the member countries. The detailed development programming has not been completed on the four corridors added in 2005.

The primary importance of an economic corridor lies in its multi-sector program approach to development (transport infrastructure and other relevant economic and social sectors) for the purpose of expanding regional trade and promoting inter-country division of labor, with integrated implementation of physical and institutional development projects. This multi-sector approach to physical and institutional development provides a practical model for regional development programs in each GMS country, more specifically in a low income country where international trade has a much larger share in GDP. Moreover, the development program of an economic corridor appeals to private investors by presenting the clear image of government commitment to regionalization / globalization. Similar multi-sector development approaches are being tried in some regions of Africa and elsewhere, but most of them do not appear to have attempted the explicit programming of an economic corridor, i.e. integrating physical and institutional development. This is another reason why the GMS experiences might be useful in other developing regions.

5.3 Review of CBTI/CBTA-related Policies in GMS Countries

1) Objective of Review

The background, conditions, and information needed to promote CBTI/CBTA development have been discussed in the previous sections. Meanwhile, CBTI/CBTA development and its related policies on regional development should be dealt with individually by each country. The viewpoint largely differs on the relative superiority or inferiority of the country in terms of regional economy and other aspects.

In this section, the policy aspects to be taken into account in CBTI development are discussed in relation to the regional characteristics of a country. By doing so, it may be possible to extract some lessons for other countries under similar conditions on implementing projects/programs related to CBTI/CBTA.

2) Priority of CBTI Development and Related Regional Development Strategy

The present study examines the applicability elsewhere of the GMS experiences, notably those pertaining to Thailand, Vietnam, Cambodia and Lao PDR. The key is in finding similar characteristics in other regions. The applicability increases when countries of a given region have characteristics similar to the four GMS countries. However, the GMS-derived criteria for country characterization should not be too rigorously applied, because that would end up eliminating many countries and inordinately constricting the usefulness of the GMS experiences.

Accordingly, countries are characterized in a simple, contrastive way along the following two axes, with allowance for some spontaneity of judgment:

Axis 1: relatively higher income countries (A1) vs. lower income countries (A2) than neighboring countries

Axis 2: coastal countries (B1) vs. inland countries (B2)

The country type of A1B2 (higher income and inland) applies, for example, to Switzerland but is not found among the GMS countries. The characteristics of Vietnam are closer to the A1B1 type (Thailand) than any other type, as evinced in its strong commitment to cross-border transport development and its economic influence over the immediate neighbors. However, the income level is not high enough to be in the same class as Thailand.

The A1B1 type includes, for example, countries like Egypt and Brazil. Roughly speaking, this country type consists of regional leaders of medium income, capable of pursuing the cross-border transport development policy on their own. A considerable number of countries in Africa, Asia, as well Central and South America belong to either the A2B1 type (lower income and coastal) or the A2B2 type (lower income and inland). These two types of countries are the focus of bilateral and multilateral external aid.

Table 5.3.1 summarizes the priorities of CBTI development, salient features of regional development strategy and comparative advantages regarding three country types in the Greater Mekong Subregion. Cambodia and Lao PDR share many similarities, including development strategy. However, the development of seaports in Cambodia is likely to change their relative positioning in favor of Cambodia in the foreseeable future.

Table 5.3.1 Priorities of CBTI Development and Regional Development Strategy for Three Country Types

Type	Example	CBTI Dev't Priority	Related Regional Dev't Strategy	Comparative Advantage	Comparative Disadvantage
A1B1	Thailand	Roads, Ports & Railways	<ul style="list-style-type: none"> Active promotion of CBTA, leadership in ACMECS, and aid to CBTI development in neighboring countries Absorption and utilization of labor from neighboring countries Investment in neighboring countries (resource- and labor-intensive industries) 	<ul style="list-style-type: none"> Accumulated technology Wide industrial base Quality of labor force Market economy from the beginning 	<ul style="list-style-type: none"> Higher labor cost Strong currency Import dependence (fuels, intermediate materials)
A2B1	Cambodia	Roads & Ports	<ul style="list-style-type: none"> Inducement of FDI Emphasis on labor-intensive manufacturing & processing of consumer goods Industrial estate development along coasts and cross-border corridors Promotion of domestic logistics business Capacity development related to cross-border transport and improvement of governance 	<ul style="list-style-type: none"> Lower labor cost Mineral resources (petroleum, natural gas, etc.) Presence of ports 	<ul style="list-style-type: none"> Undeveloped infrastructure Poor governance in some sectors Low purchasing power
A2B2	Lao PDR	Roads	<ul style="list-style-type: none"> Inducement of FDI Emphasis on labor-intensive manufacturing & processing of consumer goods Attraction of FDI to power generation and mining Industrial estate development along cross-border corridors Promotion of domestic logistics business Capacity development related to cross-border transport and improvement of self-governance 	<ul style="list-style-type: none"> Lower labor cost Mineral resources (gold, copper, jewels, etc.) Hydropower resources 	<ul style="list-style-type: none"> Inland country Undeveloped infrastructure Low purchasing power

The following paragraphs give a brief account of each GMS country regarding the priorities of CBTI development and the emphasis of development strategy, including some implications of applicability to other countries of the same type.

3) Thailand (Higher Income Coastal Country)

(1) Priorities of CBTI Development

Thailand has been actively pursuing the network development of roads and ports. The country partnered with Malaysia in 1999 to start the landbridge container transport service by railways. The country's transport infrastructure is satisfactorily building up with the ports playing a central role in international trade.

Higher income coastal countries in Africa, Asia, as well as in Middle and South America vary a great deal in their respective levels of available transport infrastructure, which partly reflects their divergent geographical environments. Although it is difficult to generalize about them, the key point of prioritization from Thailand's experience is ports, including container transport linkages among ports, roads, and railways. In particular, it is crucial to study in detail the handling capacity of ports and the conditions of container facilities, as well as the transport network connecting ports with production/consumption centers. If economic/social ties with neighboring

countries are getting stronger, it is also important to understand the current conditions of cross-border roads and railways (standard, capacity, conditions, etc). While Thailand has developed such CBTI, it is necessary to likewise examine whether it has been as thorough in collecting relevant information, including past investment statistics, which may influence CBTI development.

The development of transport infrastructure must include not only the physical aspect but also institutional improvements such as the simplification of customs procedures and the lowering of institutional barriers that inhibit the expansion of international trade and division of labor. It is advisable to identify a country ready to take the initiative in a given region and to check the presence of a neutral facilitator-arbitrator which will provide effective financial and technical support to regionalization efforts. Lower income countries often lack the investment capacities for infrastructure. Thailand is vigorously promoting cross-border transport and extends its technical and financial assistance to neighboring countries, as mentioned also in the following section. It is recommended that higher-income countries should study if such policy sharing exists in the region and if their assistance to neighboring lower income countries is possible.

(2) Regional Development Strategy related to CBTI Development

Promotion of Regionalization

Thailand is a core supporter of regional coordination and collaboration as variously proposed and promoted by such international organizations as ASEAN, GMS, UNESCAP, and the Mekong River Commission. The country has led the way in launching ETI (Emerald Triangle Initiative, joined by Thailand, Lao PDR, and Cambodia) and ACMECS (Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy, joined by Thailand, Myanmar, Lao PDR, and Cambodia) and has contributed decisively to various regionalization efforts. It also provides aid to such lower income neighbors as Myanmar, Lao PDR, and Cambodia for their industrial and infrastructural development. Thailand aids CBTI development in these countries, though primarily motivated to meet the needs of its own private investors. The country's project aid is often provided in close association with ADB- and World Bank-financed projects. When CBTI development is proposed in other regions, the presence of an organization that leads such regionalization effort is crucial. Such an organization already exists for most regions in Africa, Central/South America and Asia. Thus, the true issue is whether or not that organization functions effectively. If not, the underlying reason should be known.

It cannot be denied that Thailand's active involvement in regionalization efforts has been primarily to serve its own economic ends, satisfying the needs for accessing cheaper labor, mineral resources, and electricity that are available in neighboring countries. However, it is equally undeniable that such action on the part of Thailand has also brought sizable benefits of increased employment and income to its neighboring countries. It must be understood that the more or less favorable intercountry relationships evolving in the Greater Mekong Subregion will not necessarily emerge in other regions as well. Societal destabilization caused by civil wars, religious confrontations, or conflicts of long historical standing with neighboring

countries is likely to keep down cross-border transport to a low level, while difficult border terrains simply inhibit any infrastructure development in some places. If the level of cross-border transport remains low, it is advisable to investigate into the reasons and possible countermeasures that may eliminate the problems.

Economic Development and Investment Strategy

Thailand's strategy for CBTI-related economic development and investment promotion is closely linked to the country's stance on regionalization as mentioned above. The strategy is basically reactive to what is going on in the private sector and therefore designed to back up the private sector activities. For example, labor supply of neighboring countries is largely absorbed by the horizontal division of labor in textile and apparel industries and by the vertical specialization in parts manufacturing industries. Thai investment is directed to those areas where the domestic supply is inadequate, such as hydropower generation and copper and gold mining in Lao PDR.

This strategy of economic development and investment is probably applicable to most higher income coastal countries in Africa, Asia, as well as in Middle and South America. As will be described in relation to Cambodia and Lao PDR, however, the strategy is liable to expand the informal sector which is not necessarily favorable. It will thus be necessary to formulate and implement programs that counteract the negative outcomes, such as illegal drug smuggling, slave trade, and transmission of infectious diseases. In addition, there are fundamental questions that must be answered, such as whether such development is welcome by neighboring countries, whether there is enough labor of a certain level in the neighboring countries, and whether there are interested investors. In the case of Thailand, these conditions were readily satisfied after peace was achieved in the early 1990s and following the institutional development of a policy sharing framework.

4) **Cambodia (Lower Income Coastal Country) and Lao PDR (Lower Income Inland Country)**

(1) Priorities of CBTI Development

Cambodia is a coastal country and possesses the advantage in bulk transport through maritime shipping. Cambodia far outdistances Lao PDR by this advantage. Cambodia should have been able to exploit the advantage to the full, but the civil wars in the past did not allow any significant development of transport infrastructure. The situation has hardly improved since the restoration of peace. The country now faces a daunting array of transport infrastructure projects to implement, namely the port development in Sihanoukville, road construction and improvement including a new bridge across the Mekong River, and construction of the railway section between Phnom Penh and Ho Chi Minh which is the major missing link of the railways connecting China and Singapore, to mention a few. Although the problems related to infrastructure are being solved quickly, the infrastructure level remains low.

Lao PDR is an inland country, seriously handicapped in bulk transport by the absence of easily accessible port facilities. Hence, the country relies on ports in Thailand and Vietnam, but international trade is at a disadvantage due to higher cost and longer distance of road transport. On the other hand, Lao PDR has its advantages. It is: i) in a strategic location in the center of the Indochina Peninsula with land transport

connections to China, Vietnam, Cambodia, Thailand, and Myanmar, and ii) has rich natural resources particularly hydropower and minerals including gold and copper. Foreign investments have already poured in from a number of countries including Thailand and Vietnam. Lao PDR can be the largest beneficiary of CBTI/CBTA development.

Cambodia and Lao PDR are both low income countries, although they differ from each other in many respects including natural conditions. Their economic superiority over other countries is too few to mention except for their cheap labor and some natural resources. The volume of their international trade is small in quantity despite the high proportion to their respective GDPs. Therefore, CBTI/CBTA development is strategically important for national development. It can be one of the common key strategies that can be pursued by the countries in the region to link the international road network and the core logistics facilities, such as ports, with the production /consumption centers in the region.

There are many similarly handicapped lower income countries in Africa, Asia, as well as in Middle and South America. A coastal country requires an efficient port as long as it wants to pursue industrial development. An inland country might be able in the long run to specialize in parts manufacturing of relatively high value-added contents. If a country plans to extend development activities and their benefits all over its territory, CBTI development would function as the fulcrum for turning industrial and other investments toward frontier regions.

The development of transport infrastructure must include not only physical facilities but institutional improvements such as simplification of customs procedures and lowering of institutional barriers that inhibit the expansion of international trade and division of labor. It is advisable to check the existence of a neutral facilitator-arbitrator that provides effective financial and technical support to regionalization efforts, as well as the institutional framework for policy sharing among the countries in the region.

(2) Aspects of CBTI Development

Economic Development and Investment Strategy

Cambodia is one of the poorest countries in the world, hard-pressed by the extreme shortage of capital and technology. The export of textile products has been increasing in recent years, partly because Thai industrialists invested in the country to take advantage of cheaper labor supply. Cambodia arguably has favorable potentials in labor intensive industries like agricultural processing and parts manufacturing, and in fact several industrial estates are being planned or proposed in various parts of the territory. However, infrastructural and institutional constraints and trained manpower shortage are too serious to move these estates from the drawing board to actual sites.

Lao PDR is another of the poorest countries in the world, seriously challenged by the extreme scarcity of capital and technology. The investment in hydropower generation has increased sizably in recent years, with capital and technology supplied mainly by Thailand and to a much lesser extent by Vietnam. The investment from the neighboring countries is on the increase in mining, notably gold and copper. In conventional terminology, Lao PDR is described as having favorable potentials in labor intensive industries like agro-processing and parts manufacturing, and industrial

estates are being planned in Vientiane and elsewhere. With domestic capital in short supply, estate development has been extremely slow, constrained by the extreme inadequacy of infrastructure, institutional capacity, and manpower capability.

The promotion of labor-intensive industries is the development strategy commonly sought by those countries endowed with large populations but no sizable natural resources. For example, Cambodia has a limited industrial base, with only textile industries showing signs of sound growth. The export picked up by the growth of textile industries accounted for nearly 60% of the country's GDP (2004, according to the WTO). The fact argues for the success of the development strategy. When a CBTI/CBTA-related project is proposed in lower income countries, the quantity and quality of labor are two of the key issues that must be addressed together with the legal/institutional system that would be conducive to investment. Investment is crucial to regional development. The present study concludes elsewhere that the promotion of labor-intensive industries can be done by a comparatively small investment that will bring about a comparatively large economic impact, and that this economic impact will benefit a wider area when combined with CBTI / CBTA implementation (cf. Section 6.5).

Capability Development and Improved Governance

CBTA implementation in Cambodia and Lao PDR has been launched to serve as the pilot case for the subregion. However, details of implementation have not been entirely in accord with the initial stipulation, and some parts have been arbitrarily changed. The major reason appears to be the inadequate training among the government personnel in charge and the poor understanding of the details of the CBTA and other related rules of conduct. Moreover, there has been a strong resistance among those people with vested interests in the traditional customs procedures (notably, tariff collection). To turn the situation around, the ADB and other international organizations have introduced several training programs for the relevant government personnel. Because Cambodia has few domestic truckers and forwarders competitive enough in cross-border transport, it is feared that the economic benefits of CBTI / CBTA implementation will be mostly snatched up by forwarders and truckers of Thailand and elsewhere.

The issue of governance or social capability is probably common to every low income country in the world, so is the issue of human resource development. To build up the social capability of these countries and raise the capability of individuals step by step, it is necessary to institute and continue various programs on education, skills training, and information dissemination in cooperation with multilateral and bilateral donors. Not only government officials but also transporters and forwarders in the private sector should be included in this initiative. In addition, it should be noted in the planning stage that the resistance to CBTA from those who have vested interests reportedly becomes strong when customs revenue shares a high percentage in the total revenue.

Box 5.3.1 Present Conditions of Cross-border Transport in Africa

There are many inland countries in Africa that depend on land transport for logistics and trade in the absence of ports. Thus a number of international corridors with numerous border gates exist. Trucks often queue even on the roads outside the parking space of the border facility. According to the World Bank, it sometimes takes 3-7 days to pass the border, even reaching two (2) weeks in extreme cases. Under these circumstances, road development cannot foresee any effect by itself and development goals will never be attained. The effort to improve cross-border transport has steadily been pursued for more than a decade, and, as an output of the effort, the implementation of the One Stop Border Post (OSBP) will start soon. The OSBP intends to shorten the cross-border process by allowing both countries to conduct joint procedure/ inspection. This may be compared with the conventional two-time procedures of exit and entrance. The OSBP is expected to be the breakthrough for improving cross-border transport.

JICA is currently supporting the OSBP project in Chirundu (Zambia/Zimbabwe border) which is located on the North-South Corridor, one of the arteries in southern Africa. The assistance covers mainly institutional development necessary for implementing OSBP (domestic laws and bilateral agreements) and training border officials including the preparation of OSBP manuals. More than 10 agencies/organizations are involved in border management. Hence, it is a time-consuming work to coordinate among domestic agencies/organizations and between both countries. As to other aspects outside JICA's direct assistance, such as computerization and localization of procedures/documents and management of the domestic OSBP committee, cooperation with other donors is in progress. In addition, Japan's ODA extends also to the "hardware" component for the Chirundu border; the bridge over the Zambezi and border facilities on the Zambian side. In this first OSBP project in Africa, Japan's ODA plays a major role.*

As to OSBP, not only economic benefits but the prevention of HIV/AIDS spread is expected. This is because the international corridors in Africa serve as the route of HIV/AIDS spread due largely to the truck drivers waiting at the borders for a long time. The OSBP is thus regarded as one of the effective countermeasures.

* Scheduled to be the first full-scale OSBP in Africa.

Control of Negative Impacts

Cambodia and Lao PDR are located between the two influential countries of Thailand and Vietnam. The expected increase in border crossing traffic as triggered by the CBTI / CBTA implementation would be mostly transit cargo, with fewer benefits coming to these two countries. It is also likely that these countries will have more than their fair share of negative impacts, namely (i) widening disparity with neighboring countries, (ii) transmission of infectious diseases, (iii) slave trade and illegal drug smuggling, and (iv) deterioration of traffic safety. These fears are not unjustified. Indeed, reports have already been made on the extent of the negative impacts (ii) and (iii) in Cambodia and Lao PDR. International organizations and NGOs have started various programs to counteract or contain some of these problems, and their activities are bringing in some favorable results.

The negative impacts from cross-border transport must be the frequent topic of heated discussions regarding low income countries anywhere in the world. The present study examined a few cases of ongoing activities against AIDS/HIV transmission, slave trade, and drug smuggling. The study also demonstrated the importance and the effectiveness of the ongoing CBTI / CBTA implementation in reducing regional disparities, as described in Chapter 6. The following points may be considered for lower income countries in Africa, Central/South America, and Asia:

- A. The development of CBTI/CBTA tends to favor lower income countries/areas.
- B. Cooperation with NGOs/NPOs is effective in alleviating the negative impacts of easier cross-border flow, including AIDS/HIV transmission and human trafficking.
- C. There should be an institutional framework to monitor and intervene, when necessary, in the informal sector to prevent AIDS/HIV transmission, human trafficking, and drug smuggling.
- D. Traffic safety measures in relation to cross-border transport in Cambodia and Lao PDR can be dealt with in a CBTA item which covers road standards, vehicle dimensions, insurance/guarantee outside the country, etc.

5.4 Comparative Case Study of Two Inland Countries: Lao PDR and Mongolia

Two lower income inland countries in Asia, Lao PDR and Mongolia, are compared to test the applicability of the basic conditions and other issues discussed in the previous sections.

1) Present Economic and Industrial Conditions

The population of Mongolia is about half of Lao PDR's, but the population in its national capital, Ulaanbaatar, is almost the same as Vientiane's. Animal husbandry has been the mainstay of the Mongolian economy. However, many smaller herders were driven to abandon animal husbandry by the economic confusion caused by the open market policy and two heavy snowfalls. These resulted in the excessive concentration of population in Ulaanbaatar. Per capita GDP in the two countries is about equivalent, but the export of Mongolia is nearly twice as large as that of Lao PDR. Major trading partners for Mongolia and Lao PDR are economically more advanced countries.

Table 5.4.1 General Comparison of Mongolia and Lao PDR

	Mongolia	Lao PDR
1. Land Area ¹⁾	1,564,100km ² (four times larger than Japan)	240,000km ² (72% of Japan)
2. Population ¹⁾	2,594,100(Dec. 2006)	5,609,000 ³⁾
3. National Capital ¹⁾	Ulaanbaatar Pop. 965,300 ³⁾	Vientiane Pop. 730,000 (estimate of the metropolitan area)
4. Ethnic Composition ¹⁾	Mongols (95%) Kazakhs and others	Lowland Laos (60%) and others, totaling 49 ethnic groups
Economic Conditions		
1. Major Industries ¹⁾	Mining, animal husbandry and light industries	Agriculture, industries, forestry, mining and hydro-power generation
2. GDP (at Current cost) ²⁾	3,172billion Tugriks 2.689billion US\$	30,330 billion Kips ³⁾ 2.847billion US\$ ³⁾
3. Per Capita GDP ²⁾	1,043 US\$	511 US\$ ³⁾
4. Economic Growth ²⁾	8.4%	7.3% ³⁾
5. Inflation ²⁾	6.0%	7.2% ³⁾
6. Unemployment ²⁾	3.2%	5.1% ³⁾
7. Total Trade ²⁾	3,028 million US\$	1,942 million US\$
(1) Export	1,543 million US\$	882 million US\$
(2) Import	1,485 million US\$	1,060 million US\$
8. Major Trade Items ¹⁾		
(1) Export	Minerals (copper concentrate, Molybdenum concentrate, fluorite), Livestock products (leather, wool, cashmere)	Apparels, gold & ores, electricity, timber products
(2) Import	Petroleum products, automobiles, machinery & equipment, sundry goods, medical supplies	Fuels, manufactures, apparel materials
9. Major Trading Partners ²⁾		
(1) Export	China, USA, UK, Canada, Korea	Thailand, Vietnam, China, Malaysia
(2) Import	Russia, China, Japan, Germany, Korea	Thailand, China, Vietnam, Singapore

Source: 1) Ministry of Foreign Affairs Home Page, 2) ADB, Kei Indicators, 2007

Note: 3) as of 2005

2) Border Crossing Points in Mongolia and CBTI Development

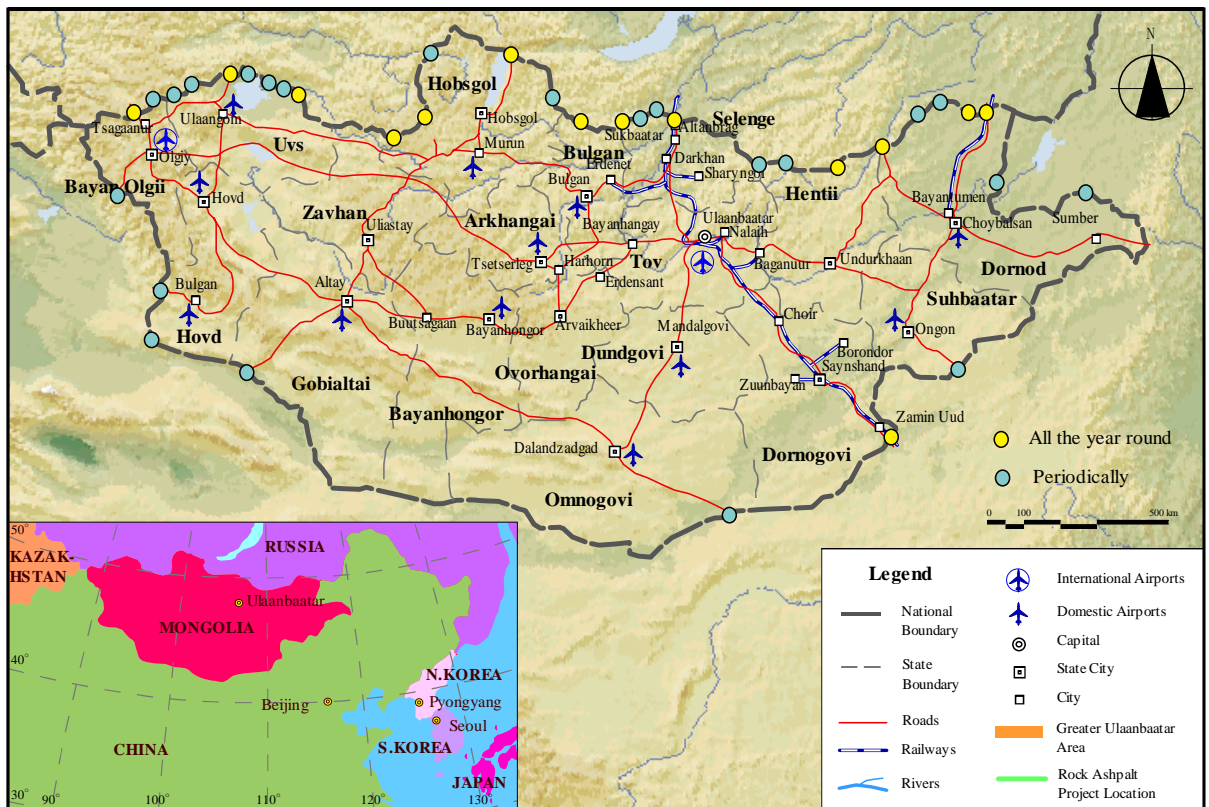
As shown in Figure 5.4.1, 30 border crossing points dot the Russian border and 14 of them are open year-round. There are 11 crossing points along the Chinese border, of which two are open year-round.

International transport, excluding air travel, uses roads and railways in Mongolia. There are two border crossing railways, the south-north railway that passes Ulaanbaatar midway and the Bayantumen railway, a branch line of the Russian Trans-Manchurian Railway that

comes down from the north to Choybalsan, a major city in the eastern part of the country. The Asian Highway No. 3 runs along the south-north railway. The ADB-financed construction of the highway began from the Russian end and will take a few more years to reach the Chinese border.

Container cargo transport from Tokyo to Ulaanbaatar takes either one of the two railway routes, the southern route through China and the northern route through Russia. The southern route (railway gauges of 1,435 and 1,520mm) has a distance of 1,400km from Tianjin to Ulaanbaatar. It takes two weeks to transport cargo at a cost of US\$680/TEU. The northern route (gauge of 1,520mm) has a total distance of 2,000km from Vladivostok and Nahodka to Ulaanbaatar, and it takes three months to transport cargo at the cost of about US\$1,800/TEU. The northern route used to be the major route for international transport until the early half of the 1990s. The volume of freight on the route continued to shrink since then. The route is now hardly used because of the deteriorated service level like reduced service frequency and irregular schedule¹²⁾.

Figure 5.4.1 Border Crossing Points in Mongolia

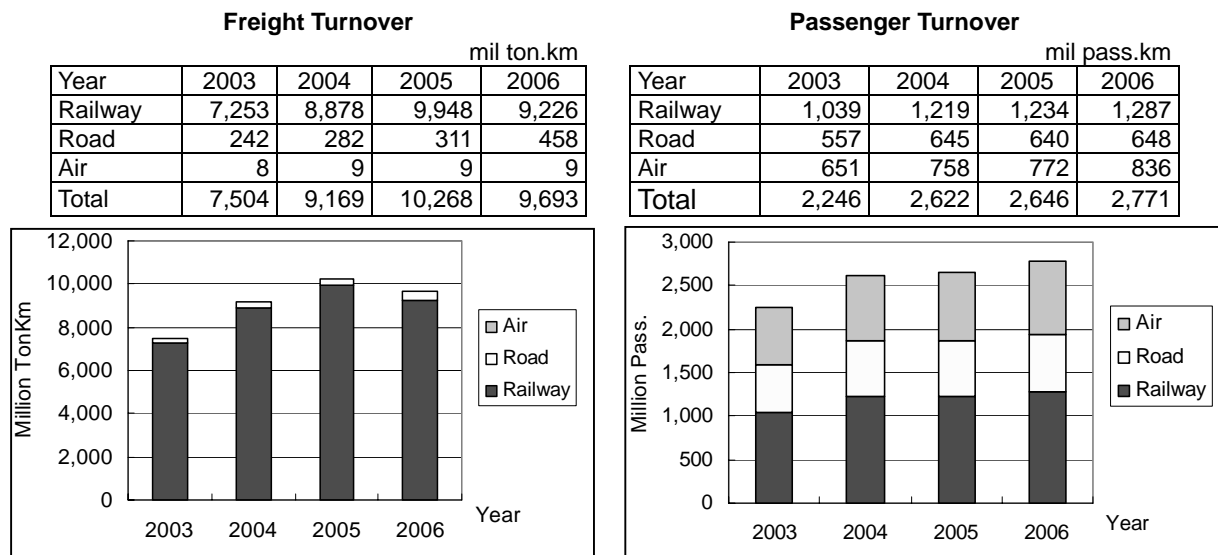


¹²⁾ The improvement of the Russian Trans-Manchurian Railways is now underway. In the meantime, the container cargo for Ulaanbaatar is sent via Tianjin on the southern route.

3) Present International Freight Traffic

Major industries and the bulk of the population are located along the south-north railway. Therefore, the traffic of freight and passengers, both domestic and international, relies heavily on railways, as shown in Figure 5.4.2.

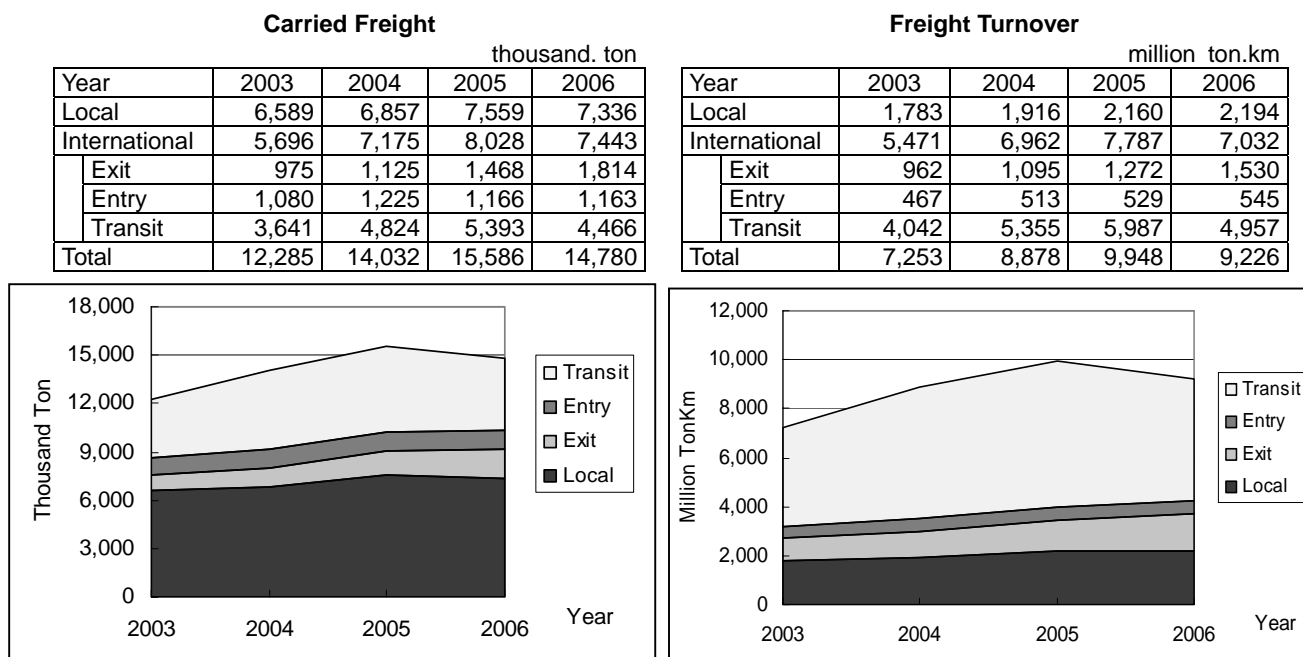
Figure 5.4.2 Freight and Passenger Traffic by Mode in Mongolia



Source: Mongolia Statistical Yearbook 2006.

Mongolia borders with Russia and China, both politically experienced and economically advanced countries of huge scale. As indicated in Figure 5.4.3, transit cargo between the two neighbors accounts for a large part of the international freight.

Figure 5.4.3 Railway Freight Transport in Mongolia

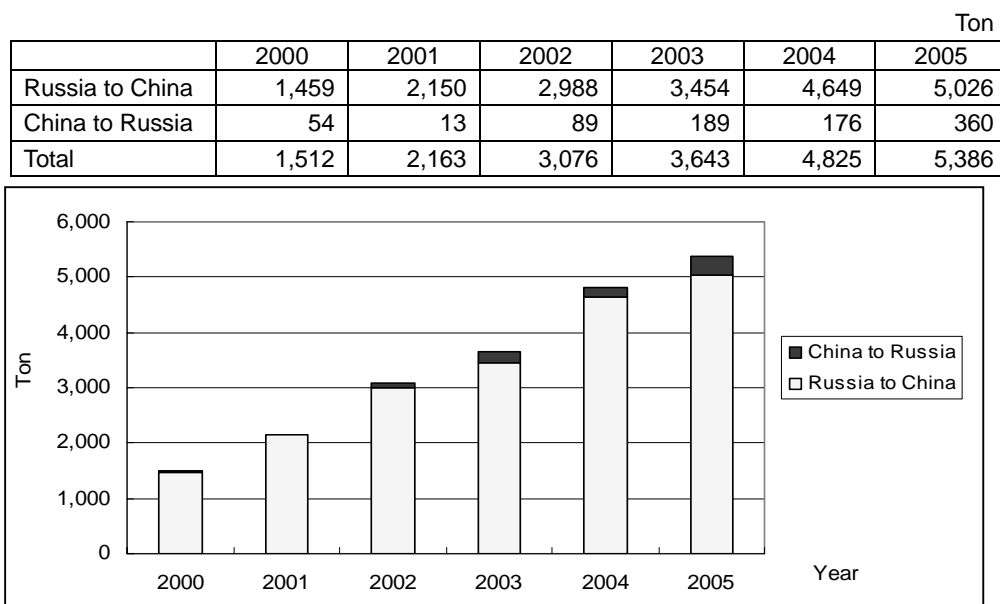


Source: Mongolia Statistical Yearbook 2006.

Note: Transit cargo dropped in 2006 because the export of petroleum products from Russia to China and Mongolia was cut down due to the faltering business of UCOS, a major petroleum company.

As shown in Figure 5.4.4, the bulk of transit cargo in Mongolia constitutes export from Russia to China.

Figure 5.4.4 Breakdown of Transit Cargo



Source: Ulaanbaatar Railway Co.

The Mongolian Railways Co. was jointly established by Mongolia and Russia with equal an investment share of 50%. Therefore, there is no reason for Mongolia to be dismayed by transit cargo passing through. There are little institutional barriers at the crossing point on the Russian border. At the crossing point at Zamin Uud on the Chinese border, there are some barriers. Firstly, the railway gauge is different between Mongolia (1,520mm) and China (1,435mm), requiring the transshipment of transit cargo from one railway to the other. Secondly, the transshipment at Zamin Uud is now nearing the capacity. Thirdly, the locomotives of Mongolia are too superannuated to last any longer. Fourthly, the railway on the Chinese side is limited in its transport capacity. These factors add up to increase the cross-border barrier between Mongolia and China. In addition, the barrier rises at the politically high-handed attitude expressed by China at the border.

Given these circumstances, Mongolia is now studying the possibility of restoring the northern route as a viable alternative, thereby reducing the almost total dependence on the southern Chinese route.

The national freight company TUU-SHIN was established in 1990 with financing from UNCTAD/ESCAP to handle container cargo. The company transports mainly imported goods, like food products and construction materials, from China. This specialization is related to the fact that the railways mostly carry bulk cargo, such as petroleum products (31%) and timber (24%) from Russia and copper concentrates (8%) and fluorite (2%) for export. The Government of Mongolia hopes to raise transport efficiency in the future by introducing the system of multimodal logistics to handle both export and import products.

4) **Future Direction of Development in Mongolia**

Foreign direct investment in Mongolia has been attracted to the development of underground resources, and the international transport network has been servicing the

export of mined products. Large-scale mining projects are about to begin in the southern part of Gobi and the eastern region, and the improvement of railways is now proposed to export the outputs from these development projects.

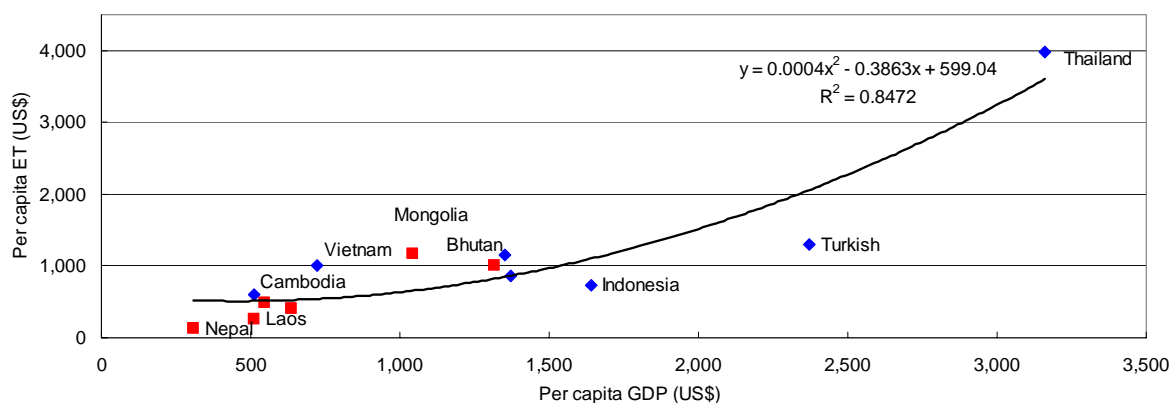
The Russian Trans-Manchurian Railways has been taking various measures to restore the regular scheduled services and expand the transport capacity. As the Russian Railways succeeds in recovering user trust, the Bayatumen railway as its branch line will be able to play its due role in international transport, contributing to the development of Northeastern Asia.

Mongolia has potentials in animal husbandry, thermal power generation by coal, and processing of mineral resources. The country needs to formulate the strategy for regional development, specifically to integrate industrial promotion with transport infrastructure development. Railways will continue to shape the future structure of the international transport network and regional industrial activities.

5) Development Issues Shared by Mongolia and Lao PDR

As shown in Figure 5.4.5, the total volume of external trade generally increases as GDP per capita increases regardless of the geographical conditions of the country, i.e. inland, coastal, or island countries. This shows that economic growth enhances trade, which puts greater urgency on CBTI and CBTA development.

Figure 5.4.5 Relationship of GDP Per Capita and External Trade Per Capita



Inland Country

	Mongolia	Bhutan	Nepal	Lao PDR	Kyrgyz	Uzbekistan
Population (million)	2.6	0.6	25.9	5.6	5.2	26.7
GDP (million US\$)	2,689	799	7,668	2,847	2,473	15,453
Per capita GDP (US\$)	1,043	1,318	310	511	545	637
ET ¹⁾ (million US\$)	3,028	644	3,248	1,435	2,512	10,786
Per capita ET (US\$)	1,167	1,015	125	255	486	404
ET/GDP	1.13	0.81	0.42	0.50	1.02	0.70

Coastal Country/ Island Country

	Sri Lanka	Cambodia	Vietnam	Indonesia	Thailand	Philippines	Turkey
Population (million)	19.89	14.16	84.16	222.05	65.23	86.97	6.59
GDP (million US\$)	23,906	6,898	60,884	364,459	206,247	117,562	15634.27
Per capita GDP (US\$)	1,370	513	723	1,641	3,162	1,352	2371.59
ET ¹⁾ (million US\$)	17,160	8,427	84,717	161,768	259,176	100,706	8576.00
Per capita ET (US\$)	863	595	1,007	729	3,973	1,158	1300.91
ET/GDP	0.72	1.22	1.39	0.44	1.26	0.86	0.55

Source: ADB, Key Indicators, 2007.

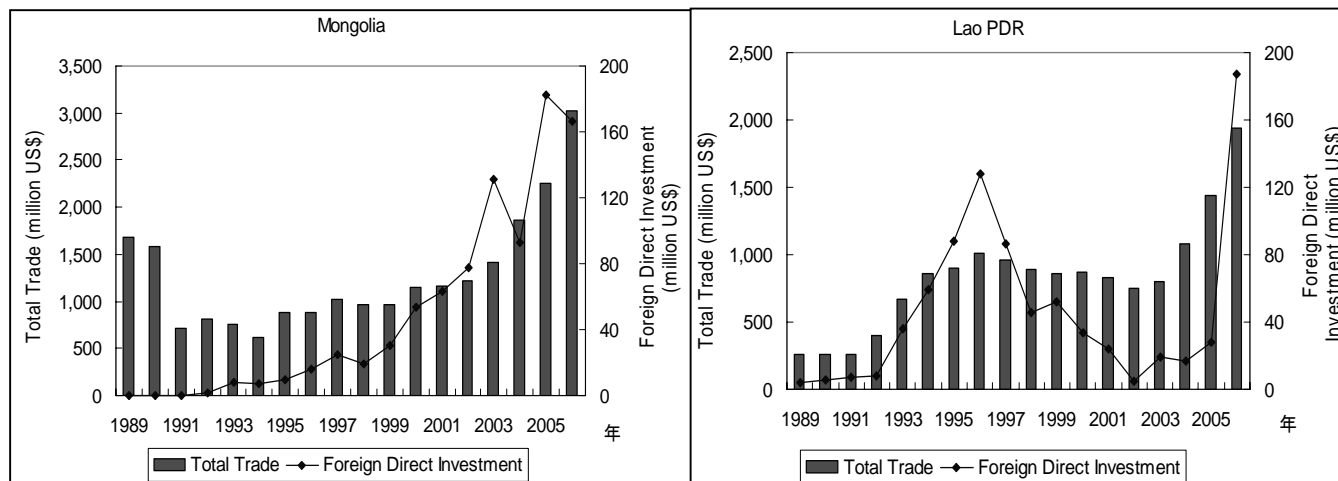
1) ET refers to external trade.

Both Mongolia and Lao PDR are inland Asian countries. Inland countries are commonly considered to be under unfavorable economic conditions compared to coastal and island countries. It is partly because coastal resources, such as fisheries, are not available to inland countries. What is more critical is the difficult access to port facilities, which play a major role in external trade. Both Mongolia and Lao PDR have their own development strategies to overcome such disadvantage.

Mongolia and Lao PDR have common characteristics, three of which are described as follows: first, almost 20 years have passed since both countries moved toward a market economy around 1990 following perestroika, or the restructuring of the Soviet economy; second, they have a monoculture economy¹³⁾ which depends on natural resources; and third, development is mainly concentrated in special economic zones near the borders and along international economic corridors.

Both Mongolia and Lao PDR have achieved economic growth along with the transition to market economy and regionalization in Asia. The total amount of their trade and direct investments increased as shown in Figure 5.4.6.

Figure 5.4.6 Total Trade and Direct Investment in Mongolia and Lao PDR



Source: ADB, Key Indicators, 2007

These two countries have adopted policies to reduce regulations and thus attract foreign direct investments in exploring their respective rich underground mineral resources¹⁴⁾, which have been undeveloped up to now. In order to overcome the handicap of inland countries, i.e. higher transport cost to port facilities, they have promoted industries that can absorb transport development costs. Mongolia, where investments have been poured into mineral resource development¹⁵⁾, has utilized its predominant transit cargo transportation routes and has improved the transport efficiency of its domestic routes. On the other hand,

¹³ In Mongolia, the share of mineral resources in its total 2006 export reached 58%. In Lao PDR, 37% of its total export is covered by garment, electricity, and timber products.

¹⁴ In Lao PDR, several mineral deposits have been discovered. They include extensive beds of rock salt, which can be used as fertilizer material, and more than 10 billion tons of tin deposit. Deposits of antimony, sulfur, gold, tungsten, iron, copper, lead, magnesium, and manganese, have also been discovered. In Mongolia, major natural resources include molybdenum with one of the largest deposits in the world, as well as gold, copper, and uranium.

¹⁵ The most popular sector for foreign direct investment is research and study of geology, followed by trade and logistics. In 2005, the FDI in these two sectors accounted for 48% and 16% of total accumulated amount of FDI during the period 1990-2000.

in Lao PDR, power development has been promoted to utilize its rich water resources and to export them to Thailand, without incurring huge transport costs. Both countries have put emphasis on the development of their respective tourism industries.

6) Comparison of Mongolia and Lao PDR

In general, inland countries need to overcome several disadvantages to facilitate economic growth. In the absence of seaport facilities, they have to transit through other countries' territory for their external trade. The experiences of inland countries who have succeeded in overcoming such constraints and have achieved economic growth can serve as lessons for other countries facing similar conditions.

Along this line, Mongolia and Lao PDR have taken several common strategies. They have placed importance on the crossing points of international transport routes by formulating economic corridors to optimize them. They have likewise developed international logistics routes and promoted regulatory reforms in order to attract foreign direct investment. Moreover, they have promoted investments in natural resource development, which can easily absorb transport costs, and tourism development, where border crossing barriers do not pose serious deterrents.

At present, Mongolia faces several constraints, including the decrease of transport capacity along its core transport corridor, the north-south railway, due to the deteriorated rolling stocks and the lack of capacity of transport infrastructure such as railway and road at southern cross-border points with China. In this context, Mongolia can learn from the experiences of Lao PDR in CBTI development: Mongolia's CBTI development program, which has been promoted with the financial assistance of the ADB, China, and the US, should consider the regionalization of northeast Asia.. At present, there is no international arrangement to facilitate border-crossing procedures at either the northern or the southern cross-border points. GMS-CBTA implementation in Lao PDR can be also a good practice for Mongolia.

On the other hand, Lao PDR can learn from the experiences of Mongolia in improving transit cargo efficiency. Mongolia has enhanced its transit cargo transport, improved its efficiency, and developed regional economic corridors, thereby increasing the potential of natural resource development along such corridors.

6. Strategic Cross-border Transport Planning Models

6.1 Purpose of this Chapter

This chapter deals with the strategic cross-border transport planning models used in the planning and the evaluation of infrastructure and regional development projects in relation to cross-border transport. Although the following discussion topics relate to other chapters in this report, it is prepared as an independent chapter, since it is an analytical tool and its result is still hypothetical due to insufficient data and preliminary assumptions made. In sections 6.2 and 6.3, existing models are reviewed, and directions for model construction are determined. In Section 6.4, the database created by this study is described. Section 6.5 discusses the data and information that should be collected. Section 6.6 presents the possible impact of the CBTI/CBTA and the FDI on the regional economy, although preliminarily. The results of this trial analysis are described in chapters 3 to 5, albeit qualitatively due to insufficient data.

6.2 Review of Existing Models

- 1) Development Direction of Strategic Cross-border Transport Planning Model – from Research to Practice

With a constrained budget for Japanese ODA, JICA is requested to improve affectivity and efficiency in its operation. Hence, in CBTI development, it is imperative to clearly show project/program effectiveness by planning and evaluating projects from various viewpoints, taking account of existing conditions, effectiveness, efficiency, and sustainability.

While CBTI development in the GMS is mostly led by the initiatives of the ADB, project planning and evaluation are mostly qualitative, and quantitative analyses are not necessarily applied. This is due to the limited availability of data, low integrity of available data, as well as the vast time and resources required to obtain reliable data.

Moreover, for a project such as CBTI development which casts a wide influence over several countries or regions, the evaluation tends to remain qualitative due to the absence of uniform information. Although quantitative analyses are already popular in the usual transport sector projects (e.g. in the form of running time and operating cost reduction), the methodology can only be applied in CBTI research projects in the Greater Mekong Subregion.

The development of a suitable model that should respond to the needs of planning and evaluation of CBTI projects/programs by overcoming the difficulties of data deficiency is thus long-awaited. .

2) Existing Strategic Cross-border Transport Planning Models

(1) Transport Model and Regional Economy Model

The strategic cross-border transport planning model has two submodels, namely: (i) transport model which estimates traffic demand, and (ii) regional economy model which measures the influence of CBTI/CBTA improvement on the regional economy. The former assesses the possible changes in traffic due to CBTI/CBTA development, and the latter evaluates the growth of the regional economy using the outputs of the former. The current status of these existing models is described below

In the transport model in economics, the trend-type model has conventionally been used. Recently, however, the stochastic choice model expressed in logit or gravity equation, which is usually used in transport engineering, has become the mainstream after its suitability has been recognized in microeconomics. For instance, various variables, such as distance, travel time, population, and several industrial indicators, are now used in the gravity model as interzonal impedance, which can estimate the volume of interzonal passenger and goods flow.

Meanwhile, the existing regional economy model can be further divided into interregional industrial input-output model and spatial computable general equilibrium model (SCGE Model). These models both require transport cost as their basic input which can be obtained using the transport model.

The interregional industrial input-output model requires an input-output table showing the interdependency among industrial sectors. This model assumes the existence of input-output tables for the region or accurate industrial database from which the input-output tables can be created.

The SCGE (or CGE) model assumes a balanced supply-demand relation in the market economy composed of mutually dependent general goods, services, and production elements such as capital and labor. Particularly, a model applicable to a wide area covering several countries is constructed in order to analyze spatial issues such as interregional trade and income gaps. Most of the current SCGE models not only express interdependency by mathematical equations but introduce a number of economic indicators including the input-output table. Some models constructed to deal with international trade assume imperfect competition after alleviating the assumption of perfect competition (market price = marginal cost). Moreover, there are researches on nonequilibrium models assuming a nonbalanced ever-changing market economy (dynamic model, model considering monetary market, etc). In this case, however, a mathematical interpretation of the results become very complex in spatial economics theory, and the database should be prepared in a time series while the SCGE model can be constructed on single-year data.

(2) Outline of Existing Models

There are few existing models that can deal with CBTI development. Some examples are shown in Table 6.2.1. They measure explicitly the impacts of CBTI development in the Greater Mekong Subregion. All of these can be considered as deserving of an examination in this study. In particular, with respect to the ADB model, the transport network (excluding air) in the Greater Mekong Subregion and OD tables of both

passengers and goods for eight (8) different modes are included in the database based on a provincial zoning. While this will be useful for future studies, the model needs to be refined in order to simulate the route choice due to CBTI development, since OD information on trade volumes by shipping is still unavailable (all OD points are represented by individual ports).

Table 6.2.1 Selected Existing Models for GMS Cross-border Transport

Model	Outline
<p>ITT Model: Trans-Asia Transport Issues and Policy Analysis (Ieda, Fujino, Yoshida, Abe, Shibasaki, and Ma; ADBI Annual Conference, 2006)</p>	<p>This model forecasted container traffic on road, railroad, and sea transport in the GMS and China. It considered users' choice of transport mode. The estimated case indicates that container load, transported by sea, would change to inland transport due to the development of the Asian Highway.</p>
<p>ADB Model: GMS Transport Sector Strategy Study (PADECO, ADB, 2005)</p>	<p>Network is constructed for eight (8) transport modes in the GMS and based on the survey data of past studies. OD tables were prepared for passengers and goods. Then using JICA STRADA traffic assignment was conducted to quantify savings in travel time and cost due to the improvement in transport infrastructure.</p>

There exist two regional economy models which are similar to the strategic cross-border transport planning model that is the subject of this study. These are: (i) the model developed by the EU in 2004 to measure the effects of transport infrastructure development, and (ii) the METI (Ministry of Economy, Trade and Industry of Japan) model developed in 2006 which considers economies of scale. Their outlines are shown in Table 6.2.2.

Table 6.2.2 Selected Existing CGE Models

	CGEurope Model (2004)	METI Model (2005)
Developer	Brocker, J, et al.	Ministry of Economy, Trade and Industry of Japan
Structure and Features	<ul style="list-style-type: none"> • SCGE Model that was constructed and is being improved to measure the effects of transport infrastructure development. • Model as simple as possible that reduced the number of hypotheses and assumptions. • Transport model is included. 	<ul style="list-style-type: none"> • Imperfect competition, economies of scale, and input coefficient were introduced for 9 domestic regions. • Activities other than those of corporations (household economy, etc.) fall under the same category as the usual CGE model.
Input-Output Coefficients and Manufacturing Technology	<ul style="list-style-type: none"> • Variable or endogenous input-output coefficients enable estimating the policy-oriented changes in industrial structure. • Identified corporate technology by CES. 	<ul style="list-style-type: none"> • Input-output coefficients are variable. Concurrently, in respect of corporate manufacturing technology, the type of CES is used as in the case of "CGEurope."
Monopolistic Corporate Behavior	<ul style="list-style-type: none"> • Indicates no explicit monopolistic corporate behavior or markup ratio. • Considers the variety of artificial prices to reflect product differentiation. • Does not indicate fixed cost in the formulae regarding economies of scale. 	<ul style="list-style-type: none"> • Indicates variable markup ratio. • Explicitly considers monopolistic corporate behavior, introducing product differentiation and economies of scale (fixed cost). Estimates the number of corporations and fixed cost internally.
Armington Structure	<ul style="list-style-type: none"> • Introduces variety in a 2-layer structure to allow substitution between import and domestic production. 	<ul style="list-style-type: none"> • Regards domestic and imported assets as imperfect substitutes, and synthesizes with CES function.
Calibration	<ul style="list-style-type: none"> • Does not use unmeasurable variables. • Constructed based only on actually measured data. 	<ul style="list-style-type: none"> • Unmeasurable variables are set up by calibration.

3) Methodology of Project Evaluation

The strategic cross-border transport planning model has to be able to evaluate the possible volumes of traffic and trade vitalized by CBTI development, and their impacts on the regional economy. There are several kinds of basic approach for project evaluation as shown in Table 6.2.1.

Of the above-mentioned existing models, the ADB *GMS Transport Sector Strategy Study* is classified as the direct effect estimation model, while the CGEurope and the METI models are considered as the combined transport/regional economy model.

Table 6.2.3 Basic Approach for Project Evaluation

				Quantitative Method		Qualitative Method	
				Methodology	Assessor		
Goods Market	Financial Assessment			Analysis of balance of account		Enterprise	—
	Economic Evaluation	Economic Impact Measurement	Individual measurement	Accumulation of effects		User/	• Scenario writing • Opinion Gathering (Delphi)
				Direct Effect Estimation Model		Enterprise	
			Comprehensive Approach	Regional Economy Model	Econometric Model	Regional economy assumed in the model (Direct or indirect stakeholder)	
					Industrial Input-Output Model		
		(S)CGE Model					
		Transport/Regional Economy Combined Model					
		Economic Benefit Measurement	Individual Measurement	Approach by Welfare Economics	Transport Model (Transport Demand Forecast Model, et al)	Economy assumed in the model (User & enterprise)	
					Analysis of perception/behavior (user)		
	Market Analysis						
Non-goods Market	Environmental Impact Assessment (Technical external diseconomy measurement)			e.g. CVM et, al.		—	

Source: MORISUGI Hisayoshi, et. al. "Evaluation of Benefit of infrastructure Development" – Approach by general equilibrium theory.

6.3 Future Direction of Model Construction

1) **CBTI Development and Strategic Cross-border Transport Planning Model**

The strategic cross-border transport planning model measures the effects of the development of CBTI or its related institutions, such as customs, on the regional economy. This model has two submodels, namely transport model, which forecasts traffic demand, and regional economy model, which forecasts changes in regional economy.

Based on the Phase 1 report of this study, the following changes are considered to arise due to CBTI development:

- **Regionalization entails CBTI development.**

CBTI development increases passenger and goods flow in the region and promotes regionalization by strengthening internal linkages.

- **The ratio of internal trade in a region where CBTI is well developed is high.**

Trade promotion can be expected within a region through CBTI development.

- **Transport demand grows following the improvement of cross-border procedures such as the introduction of IT.**

Increase in freight volumes can be expected by enhancing cross-border services including the implementation of high-tech management.

- **Negative Impacts**

Negative impacts may stem from developing CBTI, such as increase in traffic accidents along with the growth in truck numbers, foul odor emanating from garbage transport, and further weakening of the economy of poor countries.

Therefore, CBTI can positively or negatively influence regional economy along with the changes in passenger and freight movement. It is important to assess these impacts not only qualitatively, but also quantitatively.

As mentioned earlier, however, there hardly exists a model that can provide quantitative measurement of the benefits/disbenefits of CBTI development. Most of the existing models engage only in qualitative assessment, except for the ADB research that has forecast changes in traffic flow as a result of CBTI development in the Greater Mekong Subregion.

On the other hand, it was reported in the field survey of this study that people in GMS countries are highly interested in the concrete changes to be generated by CBTI/CBTA development.

Therefore, it is expected that the strategic cross-border transport planning model, which would be a combination of the transport and regional economy submodels, should be developed not only to assess the changes in traffic flow, but also to comprehensively measure the economic impacts resulting from CBTI development. The development of such strategic cross-border transport planning model would be an intellectual contribution by JICA.

2) **Approach to the Development of the Strategic Cross-border Transport Planning Model**

The strategic cross-border transport planning model will rely on the available database.

This study assumes that all necessary databases could be obtained based on which a desirable model combining the transport and regional economy submodels will be discussed. Such model will enable the comprehensive measurement of economic benefits.

CBTI development will reduce transport costs and generate advantages to the industries and households in the influence area. The local economy will be vitalized by improving site conditions for local industries, and further regional growth will materialize through increased transport volumes. These effects will spread to other regions through interindustry linkages. The strategic cross-border transport planning model has to explain this process. It should also be responsive to various changes in cross-border transport not only in terms of hard measures (i.e. infrastructure) but also soft measures (e.g. strengthening traffic regulation and improvements in customs procedures). Moreover, the model should be capable of assessing economic competition among regions, the attribution of development benefits and changes in land use.

As described above, the strategic cross-border transport planning model requires a transport model which forecasts traffic demand, and a regional economy model which forecasts changes in the region's economy. The direction for model construction and database formulation is explained below. In addition, the transport model and the regional economy model are interrelated, having a nested structure like the existing CGEurope and ITT models.

(1) **Transport Model**

Transport model estimates changes in passenger and freight traffic in relation to CBTI development. The changes can be induced by two factors, i.e. route change and newly emerging induced traffic demand.

Route Changes

CBTI development would result in route changes. Due to shortened time and reduced transport cost, traffic on existing routes may shift to the newly developed routes. This includes the shift in transport modes such as from shipping to road.

As for the methodology of forecasting route changes, the route choice approach known as traffic assignment used generally in traffic engineering can be applied. This compares the generalized cost of feasible routes. The generalized cost is the sum of various transport costs and time costs of passengers and freight. As for traffic assignment, a number of algorithms have been developed on different hypotheses of route choice, and many of them are incorporated into the JICA STRADA which was developed by JICA. The 2005 transport sector strategy study of the ADB utilized JICA STRADA and estimated cross-border traffic volumes and benefits in relation to CBTI development.

With regard to logistics, the punctuality of transport services and the risk of freight damages should be considered in the route choice. Moreover, political/cultural barriers, as well as language differences, have to be quantified as cross-border impedance, as examined in the CGEurope model.

Cross-border transport forecast modeling is different from the conventional transport demand forecast in that the former involves very long trip lengths between origins and destinations, as well as complicated multimodal features. Trip time may extend to

several days depending on the selected modes. Besides, assessing the criteria of transport time and logistics cost would be different between the two methods depending on the cargo item. In this sense, the traffic assignment model including the transport network needs to be reviewed carefully.

Generation of Induced Traffic

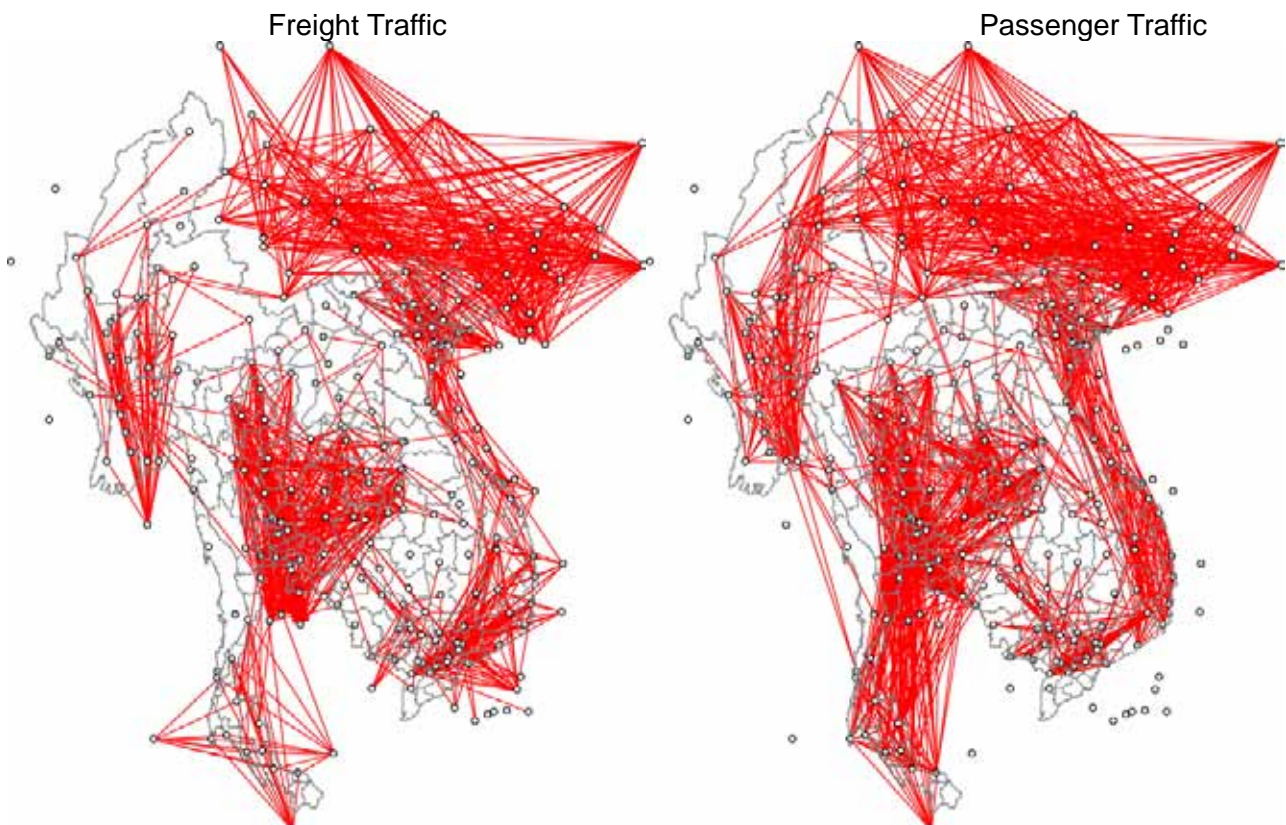
Induced traffic signifies the generation of new traffic and trade among regions due to CBTI development where before few activities had been observed.

The figure below illustrates the traffic flows expressed in the desired lines, according to the ADB study. While it shows the current traffic flow, the future pattern is expected to be similar since the projection is based on trends.

According to the ADB study, the OD pair which is not currently a regional corridor (eg Hanoi ⇔ Bangkok) will not have passenger and goods flows even in the future. Thus, route changes resulting from CBTI development cannot be accurately assessed. In addition, due to data unavailability, particularly on shipping ODs, intermodal analysis is not possible at present. This problem is true not only for the Greater Mekong Subregion but also for a wider area (e.g. Japan ⇔ Bangkok).

Aside from the changes in traffic volume due to route changes, induced traffic generated by the development of new trades is another important effect of CBTI development. However, induced traffic is hard to estimate amid the lack of historical data concerning province-wise socioeconomic indicators.

Figure 6.3.1 Desired Lines of Freight and Passenger Flows in the Greater Mekong Subregion



Note: Prepared by the Study Team based on the ADB's *GMS Transport Sector Strategy Study* (2005).

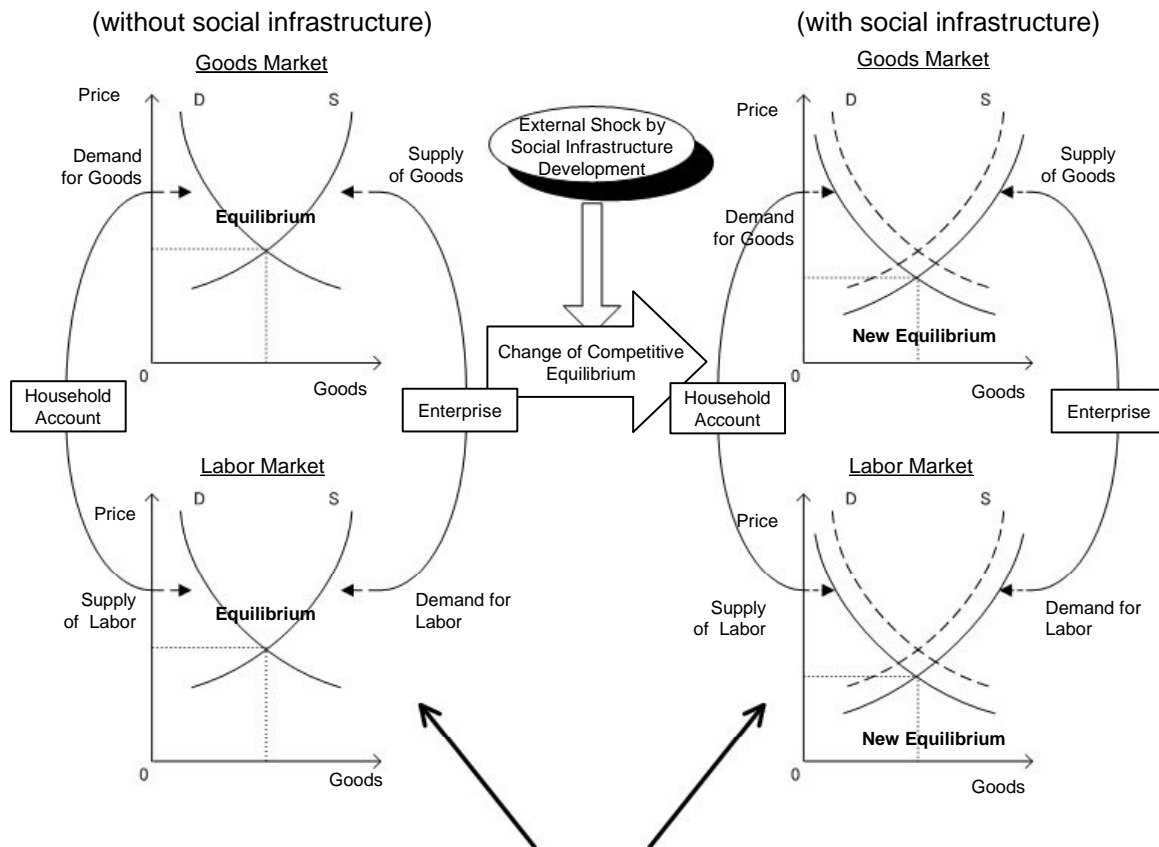
The gravity model is generally used to estimate induced traffic. This considers population, production, trade amount, etc. as a potential of each zone and distance, trip time, etc. as impedance. The basic model is available with JICA STRADA. In recent years the economics field has also applied the gravity model to estimate traffic volume, and there are some papers targeting the Greater Mekong Subregion.

A distinctive point between traffic engineering and economics is that the idea of a control total (fixed total traffic volume) is applied in traffic engineering. Accordingly, the total traffic volume in a region is sometimes assumed to be the same. But the economics field tends to assume ever-growing regional economy. Therefore, the total traffic volume computed by the gravity model is considered to increase. The characteristics of the subject region usually become the basis as to which way of thinking is preferable. In developing countries, however, the latter's assumption seems to be more appropriate.

(2) Regional Economy Model

The regional economy model will be based on the SCGE model which is highly generalized. The concept of the SCGE model is shown below. The development of social capital, including CBTI, is expected to create changes in the cost of transport services, and the impact will spread all over the region.

Figure 6.3.2 Concept of Computable Generalized Equilibrium Model



Measuring the Gap of Effective Level by Comparison of Both Figures

Source: Policy Research Center for Construction of Ministry of Construction, *Research of Structured Effect on Transport Network* 2000.

With regard to the more detailed industrial structure in the SCGE model, it is desirable to apply multinational industrial input-output tables. The model's overall structure is shown below. In constructing the regional economy model, it is desirable to introduce the following functions in connection with the available database:

Market Structure

Multinational trade will be the subject. By assuming an imperfect competition, a model which also permits monopolistic competition is desirable. In particular, such model would enable measuring the straw effect (ie deteriorating regional economy albeit trading has become facile) that may occur in small countries such as Cambodia and Laos.

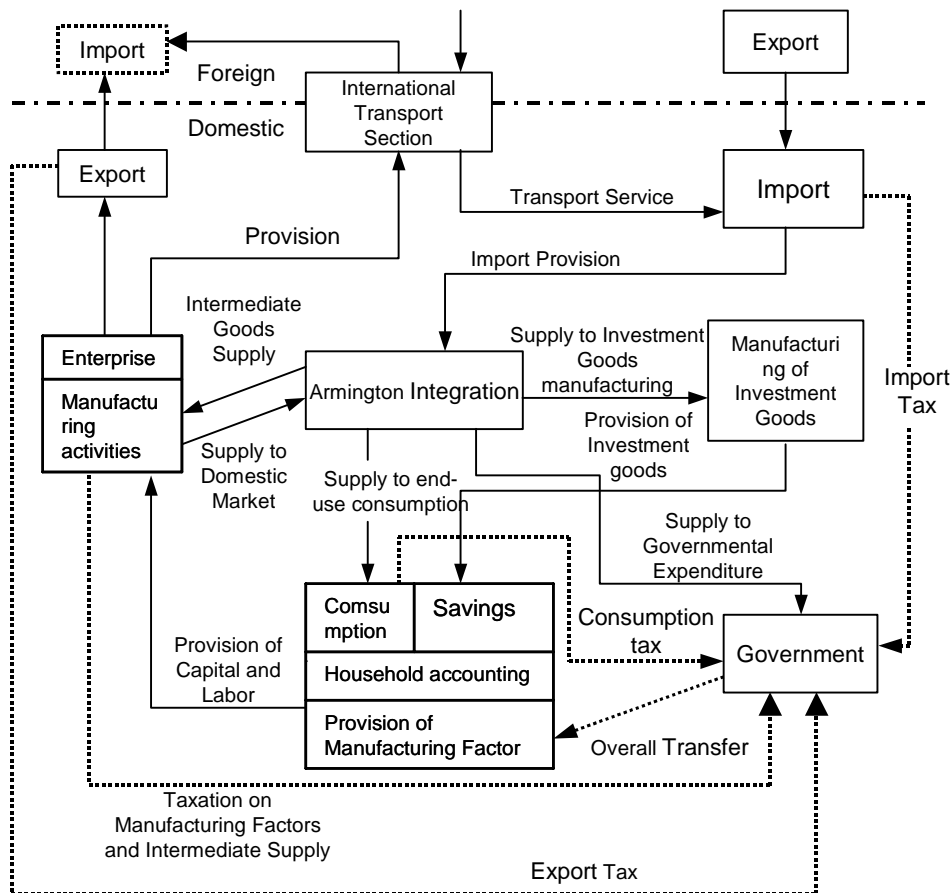
Industrial Structure

A variable industrial structure would preferably be assumed because CBTI development is likely to trigger drastic changes in trading.

Armington Assumption

It is unrealistic to assume a perfect substitution of own country for import from other countries in developing countries such as the GMS countries. A model of imperfect substitution is worth investigating.

Figure 6.3.3 Overall Structure of the Regional Economy Model (Flow of Assets/Services)



Note: Developed based on the METI model.

6.4 Database Created in the Study

1) Sources of Data

The data collected in this study can be classified into four (4) categories below. All these data are necessary for constructing the strategic cross-border transport planning model. The collected data were compiled using GIS to the extent possible.

- (1) Traffic demand and international trade;
- (2) Socioeconomic indicators (production, employment, population, etc.);
- (3) Industrial input-output tables; and
- (4) Transport network.

(1) Traffic Demand and International Trade

Concerning the current status of traffic volumes on the GMS transport network, the database on the Asian Highway developed by UNESCAP is the most significant source. It includes road inventory and was used by the ADB's *GMS Transport Sector Strategy Study* as well. As to OD data, some countries have domestic OD data, which was prepared in various JICA development studies. OD data between countries (cross-border transport and trading) is available from the ADB study. These OD tables consist of passenger and goods flows by mode of transport (partially including waterways)..The ITT model also uses OD data on containers, which has not been obtained yet.

On the other hand, only the value of international trade is available from JETRO. There is scarcely information on weight or TEU by cargo item. Thus, a lot of effort will be needed in the future to collect such trade information.

Table 6.4.1 Status of OD Data¹⁾ on Transport Demand in the Greater Mekong Subregion

	Thailand	Vietnam	Laos	Cambodia	Myanmar	China/ Yunnan Prov.	GMS
Domestic OD ²⁾	-	o (JICA)	o (JICA)	o (JICA)	x	-	-
Cross-Border OD ³⁾	-	o (JICA)	x	-	x	-	o (ADB)
International Trade OD ⁴⁾	o	o	-	-	-	-	-

1) As of October 2006.

2) o: OD data was compiled in the *National Transport Development Strategy Study in the Socialist Republic of Vietnam* (JICA, 2000), *The Study on Road Network Development in the Kingdom of Cambodia* (JICA, 2005), and *The Study on Improvement of Roads in the Southern Region in Lao People's Democratic Republic* (JICA, 2003) x: Incomplete - : unknown.

3) o: *National Transport Development Strategy Study in the Socialist Republic of Vietnam* (JICA, 2000) and TA No.6195 - REG: *GMS Transport Sector Strategy Study* (ADB Mekong Office, 2005) made OD tables for cross-border transport for subject GMS countries, thereby demand estimate of freight transport is possible. x: Incomplete, - : unknown.

4) o: Each country's trade statistics are published by either the tax agency or the national statistics bureau. Multinational trade statistics by country are available at the International Trade Investment Institute of IMF and at the Asia Economic Research Institute of Japan, both of which have prepared International trade matrices by type of goods. x: Incomplete, - : unknown.

(2) Socioeconomic Indicators

National socioeconomic indicators, such as population, employment, industry, and production, are available for almost all GMS countries. But the construction of the strategic cross-border transport planning model requires more detailed data by area or province.

Population data by province can be obtained in national statistics offices and the ADB study. However, there is little time-series information available that can be collated with the survey year, and changes in administrative units, such as the integration or the abolition of provinces, make data scarcer. Data other than population is also almost nil.

(3) Industrial Input-Output Tables

When constructing the regional economy model, there is a need to understand how CBTI development impact will spread among the industries and the region. For this purpose, industrial input-output tables are the most suitable.

The 5 countries and 2 provinces (of China) in the Greater Mekong Subregion are entirely different in social systems, human resources, administration, and technology levels. Understanding the real economic conditions is made more difficult due partly to the tight disclosure of information. The current situation is summarized in Table 6.4.1. Countries that publicly announce official national industrial input-output statistics are Thailand, China, and Vietnam, while Lao PDR, Cambodia, and Myanmar do not have such data so far, except for industrial input-output tables made in part by researchers. As for regional and provincial industrial input-output tables, the only ones available are for Yunnan Province in China (Statistics Bureau) and those in a handful of case studies done by researchers.

Table 6.4.2 Current Status of Industrial Input-Output Tables of GMS Countries¹⁾

Year Content/Type of Industrial Liaison Table		1980	1995	1996	2000	Output/Organizations Involved		
		Basic Table	Extended table	Basic Table	Basic Table			
Domestic	Vietnam	National Table	○	○	○	○	GSO ³⁾ (prepared by AREES ¹⁾ member)	
		Regional Table	Hong Ha Region	○	×	×	×	GSO-ADB (prepared by AREES member)
			HCM urban zone	×	×	○	○	AREES
			Danang urban zone	×	×	×	○	AREES
			Hanoi urban zone	×	×	×	○	AREES
			Haiphong urban zone	×	×	×	○	AREES
		QUANGTRI	×	×	×	○	ADB	
		Table between Regions	Between HCM urban zone and others in vietnam	×	×	○	○	AREES
			Hanoi urban zone and others in	×	×	×	○	AREES
			Between HCM urban zone, Danang urban zone and others in Vietnam	×	×	×	○	AREES
	Industrial Liaison Table among regions in Vietnam		×	×	×	○	AREES	
	Lao PDR	National Table	×	×	×	×	NSC ³⁾ as Administration Organization involved	
		Regional Table	Savanakhet	×	×	×	○	output by AREES member
	Cambodia	National Table	×	×	×	○	AREES	
	Thailand	National Table	×	○	×	○	NESDB ³⁾	
		Regional Table	Regional Industrial Liaison Table in Thailand	○(20 Sections)	×	×	×	Prepared by keio University
		Table between Regions	Regional Industrial Liaison Table in Thailand	○(20 Sections)	×	×	×	Prepared by keio University
	China	National Table	○(1987)	×	×	○	Chinese State Affairs Administration	
		Within Region's Table	Table of Yunan Province	○(1987)	○(92)	○(97)	○(2002)	Statistics Burcau of Yunnan province ²⁾
			Others and each Provincial table within Province	○(1987)	○(92)	○(97)	○(2002)	Respective Statistics Bureau
Among Regions's Table		Table among Nationwide 7 Regions	○(1987)	×	×	×	UNSRD-Chinese State Affairs Administration	
		Table among Nationwide 29 Regions	×	×	○	×	Nagoya University (Ezaki)-Chinese State Affairs Administration	
	Table among Nationwide 8 Regions	×	×	×	○	IDE -Economic Forecast by national Information Center		
Overseas	Indochina	Table between 2 countries	Thailans-Vietnam	×	○	×	×	IDE-NESDB
		Vietnam-Cambodia	×	×	×	×	AREES	
	Others in Asia	Among Multi-nationals	International industrial Liaison Table of Asia	○(1985 and 1990 Yearly Table)	○	×	○	IDE

Sources: AREES, NIS(Cambodia), GSO(Vietnam), NESDB(Thailand), NSC(Laos), SBYP(Yunnan Province), ADB, UN-ECAP, and hearings from IDE, etc.

Note: 1) As of October 2006.

2) AREES: Association of Regional Economic Environment Studies, a human network of experts at statistics bureau of respective country and local economists. Data is not open to the public

3) IO Table within the region of Yunnan Province in China has been prepared (e.g. Kunming City, 1997, and 2002).

4) NIS, GSO, NESDB, NSC, and SBYP are national statistics bureau or working group on IO table of each country.

(4) Transport Network

CBTI development is not only related to passenger traffic and logistics flow across national borders; it also contributes to the entire region as part of the nationwide transport and trade network through linkages to the domestic network. This network, including shipping and air, is one of the indispensable databases for transport planning. Network data on road, railroad, and water transport, which were developed in the ADB *GMS Transport Strategy Study*, are available for the study.

The transport network comprises nodes that connect points at intersections and intermodal terminals, as well as links that are sections of roads, railroad, and waterway. Each link has impedance parameters, such as travel speed and travel cost. It is necessary to examine how to set up link parameters logically, where GIS is effectively used.

2) Database Prepared in the Study

In this study, all collected data were compiled in a unified style using GIS to the maximum extent.

GIS is capable of having both positional information and numerical/alphabetical data at the same time. Overlaying these data facilitates an understanding of the interrelationship between different data.

Figure 6.4.1 Display Example by GIS



6.5 Data Requirement and Possibility of Collection

1) Necessity of Database Establishment

To effectively pursue CBTI development, there is a need to investigate the actual traffic flows in the planning area and to grasp quantitatively the impact of the CBTI project package, based on which the priority of the individual projects should be determined. After CBTI development, monitoring of project outcomes and impacts is important to learn the lessons and to feed them back to planning.

A variety of data at the regional or subregional level and compiled in a standardized format are essential in constructing the strategic cross-border transport planning model. This is essential for JICA to extend efficient technical cooperation to concerned countries and to confer with them from a sound technical basis. The need for a quantitative database is present from planning to implementation stage, as follows:

(1) Database for understanding current CBTI situation

To start CBTI development, it is necessary to understand current CBTI status (including existing plans). It is especially important to know quantitatively the present constraints to CBTI development. The necessary task is to collect information and construct a database that enables comparison.

(2) Database for planning CBTI

Planning is required prior to CBTI implementation. It is imperative to understand what kind of CBTI would be most effective in light of limited resources. In other words, project benefits must be quantified in advance. The strategic cross-border transport planning model, which combines the transport and regional economy models, would serve this purpose well. But, this requires another database covering various planning parameters including forecast output.

(3) Database for monitoring completed CBTI

For the purpose of measuring the impacts of CBTI development across a region/subregion, it is necessary to continuously monitor various performance indicators. To conduct this successfully, the improvement and the updating of the created database are essential. This also requires establishing or assigning an appropriate organization to monitor the database properly.

2) Outline of Planned Database

A database that includes transport and socioeconomic indicators is needed for CBTI development in the Greater Mekong Subregion. The database should preferably have the following features:

(1) Database Types and Compilation Methods

Needed data for the CBTI development plan as well as for constructing the model are shown in Table 6.5.1.

Each data is compiled as a GIS data with positional information, as ASCII data file or table, and as a descriptive document, depending on the data characteristics. In the case of the CGEurope model, the transport network is saved as a GIS data, while all other data are stored as data files following the ASCII format. Since descriptive documents cannot be processed in a systematic manner, storing them in other formats is suggested.

Table 6.5.1 Database Types and Storage Methods

Type of database	Data saving method		
	GIS	ASCII File	Docu- ment
Indicator by country (GDP, legal system, etc.)	○	○	○
Indicator by zone (province or special city)	○	○	
Cross-border point information	○	○	○
Cross-border regional information (area development, facility, project information)	○	○	○
AH road and other road network information	○	○	
Railroad network (incl. major stations) information	○	○	
Waterway (incl. port/harbor locations) information	○	○	
Air transport (airport location) information	○	○	
OD table (land, sea, air) passenger, ton/value		○	
Industrial IO table, Social Accounting Matrix (SAM)		○	

(2) Basic Structure of Database

Data items included in each database mentioned above are shown in Table 6.5.2. The following should be considered in database construction:

Time-series Changes

All data should preferably be collected in a time series excluding some nationwide indicators depending on country. The CGEurope model collects data once every 5 years. This study also recommends such data collection. The target should be to collect all the data in the same year for all countries and regions covered in a study.

Setting of Unified Code

It is preferable to set a unified code to allow mutual referencing between data items. Referencing becomes easier and errors are lesser if simple alphanumerical codes are used rather than region names and data names.

Consideration of Expandability

The database should have a flexible format to allow adding data for additional year or field. CGEurope adopts a format wherein regional data is inputted following each regional code, while interregional data is inputted following all the related regional codes.

Quick Retrieval of Data

When a database is constructed, consideration must be given to quick retrieval of data. Also, data saving methods that require special software should be avoided. For example, if a database is constructed on Excel, the data should be saved as CSV formatted text file, except when analysis is executed. Saving by paper (printed material) should be avoided as well.

Table 6.5.2 Contents of Database

Type of database	Content
Indicator by country	History, area, population, race, language, religion, political system, administrative organization, economy (major industry, GDP, economic growth rate, consumer price index, unemployment rate, trade value, trade item, trading partner, currency, exchange rate), foreign policy (budget, military power), bilateral relationship with Japan, economic cooperation
Indicator by zone (Province)	Capital (provincial capital), area, habitable area, population (by age group, by sex, birth/death rate, natural increase, social increase, employment, unemployment), economy (major industry, GDP, economic growth status, production value by industry), transport (generation/attraction by passenger/freight mode)
Cross-border point information	Location (border city), cross-border mode and dimension, traffic volume (passenger/freight flow), custom clearance (gate, visa, office), other infrastructure, etc.
Cross-border regional information	Regional development project, industry, number of employees, production value, energy demand/supply situation
AH road and other road network information	AH number, section number, length, class(width, number of lanes, pavement, road structure), traffic volumes by mode, current condition and development plan by section
Railroad (incl. major stations) network information	Route section code, length, standard (gauge), service frequency, transport capacity, fare/charge, scheduled speed, transport time, major stations, plan
Waterway (incl. location of seaport/harbor) information	Operating route, standard (displacement, goods transported), service frequency, transport volumes, major sea/river ports (location, handling capacity), transport fare/charge, transport time, plan
Air transport (incl. location of airport) information	Class (international, domestic), largest usable aircraft, service frequency by destination, transport volume by destination (passenger/freight flow), air control system, plan
OD table (land, sea, air)	OD transport volumes by mode, logistics OD volumes by product item (value, TEU)
Industrial IO table, Social Accounting Matrix (SAM)	Industrial IO table of about 10 Industries, social accounting matrix (SAM)

3) **Direction of Data Collection / Maintenance**

Data collection and database maintenance should be done taking into consideration the experiences of advanced countries. Since the Greater Mekong Subregion has no coordinated database, particularly with regard to CBTI development which requires detailed data in terms of zone unit and transport network, it is important for JICA to extend technical cooperation on the basis of Japan's experiences in database creation.

It is urgent to determine the concept of the overall database and to work out the policies for data collection in order to construct the strategic cross-border transport planning model for the implementation of CBTI development in the subregion. It is high time to start gathering valuable case data, such as consequent changes in traffic and regional economy following the completion of the Second International Mekong Bridge.

The possible methodologies for data gathering/maintenance could be as follows:

(1) **Cooperation with International Organizations**

Data collection should be promoted by sharing information and cooperating with international organizations, such as the ADB and UNESCAP, or with related organizations in the respective GMS countries.

It should be expected that the databases of these organizations do not follow a unified database system, and re-editing would be needed based on a uniform format. In addition, it is important to investigate the timing and method of data collection to ensure data reliability.

(2) **Coordination with Research Institutions**

Data collection and model construction should be done with due consideration to the opinions of the academe and the experts. The outputs of research organizations, such as the ADBI, the Civil Engineering Society, and the East Asian Society of Transport Science, should also be used to the maximum extent possible. In particular, data, like the industrial input-output tables, have been hardly produced by government organizations, even though a number of case studies have been conducted by government research institutions. These research data can be the foundation of the database and could be useful when and if updated and complemented by other data.

A valuable undertaking is the Japan Civil Engineering Society's hosting of a research activity. It has set up 5 separate working groups to work on: 1) Future scenario writing, 2) Flow forecast methodology, 3) Policy evaluation method, 4) Database construction, and 5) International economy and policy trend. Coordinated by the Strategic Research Committee on the International Transport Network, the research output is expected to be out by 2008.

(3) **Human Network in International Conferences and Training Programs**

By making use of international conferences organized by UNESCAP, ADB, and others, data can be obtained through public presentations and human networking. Data could also be gathered through trainees who attend a variety of training programs sponsored by JICA.

(4) Technical Cooperation in Database Construction

Items (1) – (3) mentioned above are examples of how to collect existing data. Future data collection aiming at database construction would require extending technical assistance to each country on data collection methods, database construction and maintenance and ensuring sustainable mechanism to follow up with its own initiative. Technical cooperation can be conducted through the establishment of a new training institution or a database center in addition to the JICA training programs which could include determining the need for databases and sharing them with neighboring countries, the methodology of data collection, and so on.

(5) Research on Techniques to Complement Data

Although it is not directly related to data collection and maintenance, the fact remains that not all data can be obtained for all the regions concerned. This problem was also experienced during the database construction for the CGEurope Model. To cope with this problem, the database was divided into 3 layers, namely EU, country, and region. The upper layer of data was used as control total to apply to the lower-layer data. It is believed that there are similar problems in the Greater Mekong Subregion. It is thus necessary to study the techniques that enable substitution of missing data.