

## **Constructing International Logistics System in the Greater Mekong Sub-region**

Toshinori NEMOTO  
Graduate School of Commerce and Management, Hitotsubashi University  
Naka, Kunitachi, Tokyo, 186-8601, Japan  
[cc00330@srv.cc.hit-u.ac.jp](mailto:cc00330@srv.cc.hit-u.ac.jp)

Taro KAJI  
Institute of Highway Economics  
Morizumi Bldg. 1-12-6, Kudankita, Chiyoda-ku Tokyo, 102-0073, Japan  
[tr-kaji@ins-hwy-eco.or.jp](mailto:tr-kaji@ins-hwy-eco.or.jp)

### **Introduction**

The Asian region cannot escape the detrimental effects of global recession. Sluggish trends in both domestic and international trade are expected and cannot be avoided for the time being. However, it is unlikely that countries that have largely benefited from economic globalization and free-trade will prefer to revert to past economic structures when several barriers were present. A new way of internalizing the exposed market risks has to be developed to gradually regain confidence in order to make trading conditions become active just like before.

There have been growing interests on the issue of reducing or eliminating social diseconomies. The high-growth period has caused a number of externalities, such as the generation of bottlenecks with unexpected effects in production and distribution. For example, it can be mentioned that in developing countries, it is very difficult to ensure a reliable transportation system to ports as several bottlenecks are encountered frequently. Traffic congestion in large cities becomes more severe as a consequence of economic progress. Moreover, heavy truck restriction measures that are imposed to mitigate congestion problems may present unfavorable impacts and may be a counterproductive approach. As a result, transportation not only becomes inefficient but environmental as well as safety problems are created and localized, particularly in some routes. Thus, along with the review of the effectiveness of truck restriction measures, the confirmation of necessary resources for production, and the verification of conditions for hard and soft infrastructure provision are needed to understand the essential adjustments that will promote a more balanced and sustainable regional development strategy.

Using the East-West Economic Corridor (EWEC) of the Greater Mekong Sub-region (GMS) in Indochina as a case study, this paper attempts to clarify important issues, conditions and approaches that are essential towards the achievement of a balanced regional development strategy in the future. Particular focus will be on these vital issues: how international logistics system should be constructed, and how developed countries should approach international cooperation.

## **1. The East-West Economic Corridor (EWEC) as an agenda for international economic cooperation**

Assistance for developing countries can be broadly classified into bilateral economic cooperation in which economic assistance is provided by the aid giving nation, and multilateral economic cooperation in which assistance is provided through international organizations like the Asian Development Bank (ADB). The necessity for a harmonious economic cooperation, based on extensive plans and concepts set out by international organizations like the ASEAN, increases due to the expected globalization of economic activities, not only in multilateral economic cooperation but in bilateral one, as well.

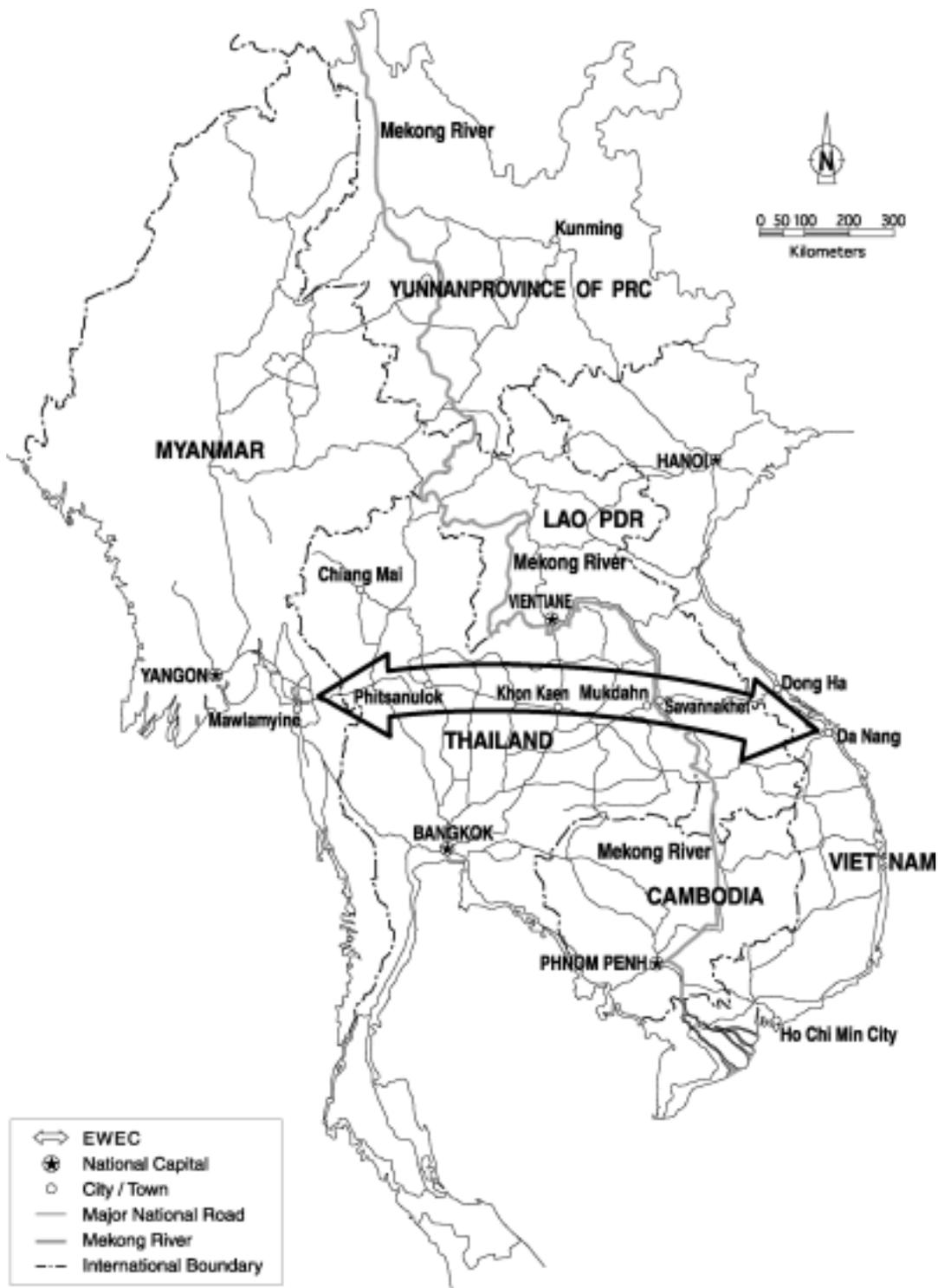
As a background, there are several cases where transport means and particular routes vital to the international flow of goods and people are not so important to domestic transport. Under the framework of bilateral assistance, when providing transport infrastructure that crosses the border, the two neighboring countries should do its part to provide the necessary connecting infrastructure. However, one of the adjoining countries sometimes does not recognize interests, and does not request the concerned project to the aid giving nation. In multilateral assistance, the priority of the projects is determined from the point of view of transport network development for the whole area.

The GMS program is the economic assistance concept that the ADB has been at work since 1992 for the purpose of strengthening economic ties and promote economic cooperation among six countries along the Mekong Sub-region. These are Cambodia, Laos, Myanmar, Thailand, Viet Nam and Yunnan Province in China (Figure 1). Although the program is under an informal framework unlike the ASEAN, the concerned countries agreed to formulate and carry out the project from a broad-based viewpoint in order to achieve mutual benefits.

EWEC is one of the pilot projects under the comprehensive plan for the GMS. This route runs from the central part of Viet Nam (Da Nang) to the southern part of Laos (Savannakhet) and connects all the way to Northeastern Thailand. Important infrastructure, industrial and tourism projects along this route have been planned.

The North-South traffic axis is vital to domestic transportation as major urban cities in these three countries are situated along this alignment (i.e. Hanoi and Ho Chi Minh City in Viet Nam). However, the East-West direction has great potential as an international logistics route in the future. This is because of the large differences in the prices of production factors including labor among the three countries. Viet Nam and Laos merely have around one-tenth of Thailand's per capita GDP of \$2,000. A disparity of around 5 times also exists in the amount of minimum wage. Thus, relatively labor-intensive production in Viet Nam and Laos is expected to benefit from this. With these price differentials, other resources may also become available resulting in complementary relationship between economies of the three countries. Improved transport conditions will undoubtedly increase direct foreign investments in order to make better use of resources.

There are also other expectations distinct for each country from the development of the



**Figure 1 The Greater Mekong Sub-region and the East-West Economic Corridor**

EWEC. For Thailand, where the economic scale is large in terms of GDP, and Viet Nam, where the population is large - the expansion of business chances due to improved market access to partner countries, and for Northeast Thailand and Laos - promotion of

trade as a result of guaranteed access to Da Nang port in Viet Nam. At present, a major amount of goods is being imported (and exported) by Laos via Thailand, and in contrast, a small amount is via Viet Nam.

The following issues should be considered to be able to maintain balance in the formulation of a regional development strategy:

1. How to develop industry and tourism, and how to efficiently control its effects to the environment.
2. How to supply the needed physical transport infrastructure to accommodate the generated transport demand.
3. How to determine and harmonize the necessary regulations to accelerate cross border transport.

**Table 1 1998 Population and GDP for Thailand, Laos, and Viet Nam**

	Thailand	Laos	Viet Nam
Population (million)	61.20	5.03	78.10
GDP	4,818 billion Baht = 107 billion US\$	4,260 billion Kip =0.56 billion US\$	361,468 billion Dong =24.6 billion US\$
Per Capita GDP (US\$)	1,748 (3,087)	111 (391)	315 (311)

Note: Figures in ( ) for Per Capita GDP refers to 1996 data.

Source: Statistical Yearbook for Asia and the Pacific 1999, United Nations

**Table 2 Exports and Imports of Three Countries**

		Thailand	Lao PDR	Viet Nam
Exports	Trade direction	1997 1)United States 2)Japan 3)Singapore	1977 1)Thailand 2)Japan 3)United States	1997 1)Japan 2)Singapore 3)Australia
	Commodities	1998 1)Textile products 2)Rice 3)Integrated circuits	1992 1)Wood 2)Electricity 3)Coffee	1992 1)Rice 2)Coal 3)Footwear
Imports	Trade direction	1997 1)Japan 2)United States 3)Singapore	1997 1)Thailand 2)Vietnam 3)Japan	1993 1)Singapore 2)Korea 3)Japan
	Commodities	1992 1)Steel 2)Fuel Oil 3)Raw Cotton	1995 1)Fuel 2)Fabrics 3)Trucks	1996 1)Diesel* 2)Chemical* 3)Trucks*

\*The exact volumes are unknown

Source: UN "Statistical Yearbook for Asia and the Pacific", 1999

## **2. Industrial development in consideration of the environment**

### **2.1 The integrated development plans for the Northeastern Border Region (NBR) in Thailand and the Savannakhet and Khammouan Region (SKR) in Laos**

JICA undertook surveys from 2000 to 2001 as part of the integrated development plan for the Northeastern Border Region (NBR) in Thailand, and the Savannakhet and Khammouan Region (SKR) in Laos. These regions, as shown by Figure 2, are located in the banks of the Mekong River and have a combined population of 4.1 million people. A summary of the integrated development plans for both regions are discussed in this section.

#### **(1) The integrated development plan for the NBR**

There are 3.1 million people residing in the NBR. The agricultural sector of the NBR accounts for 26% of the GRP (Gross Regional Product), the service sector accounts for 63%, while the industrial sector has a very minimal share. In 1996, the per-capita GDP was 35% of the national average. However, the financial crisis that struck Asia in 1997 caused it to depreciate to as low as 27%. Because prices of agricultural commodities in the NBR are cheap and unstable, the income of farmers is very low. In addition, since the NBR has no major resources and market and export facilities are located far away, the so-called "urban economy", which is a contributor to the local economy, is weak as far as industrial production, consumption and distribution are concerned. These factors make income or per-capita GDP in the agricultural village particularly low.

After completion of discussions with local officials, a vision for the future was formulated specifying that the NBR would become the focus of EWEC, and would become a region promoting sustainable development through the efficient utilization of natural resources, environment and human resources. Furthermore, with regards to the household income, numerical targets of 100,000 Baht (US\$2,400) in agricultural villages by year 2020 were set as the standard levels for farmers to be able to sustain themselves.

In addition, the following strategies are being recommended in order to achieve NBR's future vision as well as development targets.

#### *Development strategy 1: Natural resources and land use management*

Local resources, environment and ecology of the NBR are mainly damaged due to deforestation. Deforestation causes not only a reduction in the underground water-holding capacity but also generates problems such as flood, and soil erosion, among others. Thus, in addition to giving more consideration to sustainably protect local resources, environment and ecology, land utilization plans should also be formulated to appropriately guide agricultural development.

#### *Development strategy 2: Diversification of local economy*

As a base for NBR's regional economy, agricultural industries and farming communities will have to be strengthened by promoting practical use of local resources,

and facilitating agricultural restructuring in accordance with crop suitability and marketability. The rural economy needs to be further facilitated, creating new income generating opportunities. This can be materialized through proper agricultural diversification and promotion of non-agricultural economic activities such as cottage industries, and agro-processing industries, among others. Financial and technical support programs strategically strengthen these types of activities at the local level.

*Development strategy 3: Promotion of a new leading industry in the region*

Economic integration in the GMS further generates business chances. In particular, it encourages the use of local products, and promotes agro-processing industries due to the opening-up of the GMS market. It also encourages export, logistics and transport-related industries appropriate for NBR's geographical characteristics. In addition, it also promotes the tourism industry due to the cooperative efforts of Thailand and Laos.

*Development strategy 4: Increase of technical and managerial workers in middle-class*

Because the lack of middle class workers has become one of the major constraints in the NBR, it is crucial to formulate a strategy for nurturing them. It is also important that the training of middle class workers could shift the Thai industrial structure into a technology-oriented one.

*Development strategy 5: Urban centers and infrastructure provision*

To ensure manufacturing industry support at the local market of NBR, it is necessary that a certain degree of urban accumulation exists. Infrastructure building and the accumulation of service industries (i.e. distribution, financial, information, etc.) supporting the activities in the major city of NBR will actively induce urban development.

The comprehensive development plan for NBR is executed by 92 projects consisting of a total project funding of 22.8 billion Bahts (US\$ 552 million, 2000 prices). In addition, this plan is scheduled in three phases.

*Phase 1:* Reinforcement of existing economic activities and preparation for future development (2001-2005)

*Phase 2:* Development of local industries and human resources (2006-2010)

*Phase 3:* Promotion of industries for the GMS market (2011-2020)

(2) The integrated development plan for the SKR

There are 1.07 million people (about 20.5% of the total population in Laos) residing in the SKR. Agriculture is the major economic activity, accounting for nearly 64% of GRP. The service sector contributes about 21% of GRP. About 90% of trades in Savannakhet are transit goods. Although Savannakhet has the largest number of industry- handicraft establishments in the country, most of them are small and wood related, followed by the garment products and food processing. Approximately 37% of people in Savannakhet and 40% in Khammouan are reported to be below the poverty line in a 1997-98 survey. GDP per capita in the SKR is estimated to be about US\$ 320 in 2000.

Major constraints and limitations of the SKR are the relatively high population growth rate, limited availability of social services, a short supply of qualified manpower, the low farm productivity due to single crop of rice, an insufficient accumulation of capital and know-how, a lack of entrepreneurship and motivations and so forth. From the point of view of environment, large forest areas should be protected as a global asset from shifting cultivation still prevailing in the mountain area. A large portion of the SKR is not accessible by all-weather roads and there still remain many villages that have no road access.

Based on the current situation and constraints of the SKR, as well as in the light of a long-term policy framework for SKR development, the following strategies are proposed.

*Development Strategy 1: Area Development*

The agriculture development plan and local industry promotion plan are proposed strategically for three zones: Lowland extending along the Mekong River, Midland in the central part, and Mountainous area in the eastern part. However, strategies are adopted to integrate the rural and urban areas and maintain their balance.

*Development Strategy 2: Income Generation*

SKR development plan places more emphasis on enhancing farmers' income within 10 years by 2010. This scenario is attainable by applying a strategy to promote integrated farming and local industries.

*Development Strategy 3: Capacity Building*

Trained people in the SKR are in short supply and the SKR development plan will prioritize human resource development programs. Limitedly available resources will be strategically allocated to education and training in the SKR. For instance, an Agricultural College is proposed to practically educate village leaders in market-oriented agriculture as well as to serve for capacity building of extension workers.

*Development Strategy 4: Resource Management*

The forest resources in the SKR are the most important assets of the region and their management is of national and global importance. The resource management will therefore concentrate on the management of forestry resources because forest areas have gradually degraded with shifting cultivation and over-logging.

*Development Strategy 5: From a Land-locked to a "Land-linked" country*

The SKR is a land-locked region sandwiched between Thailand and Viet Nam. When the EWEC is completed along the Route 9, it will open dual outlets and turn the SKR into a land-linked region. Being land-linked, the SKR should strategically promote the production of niche products for niche markets.

*Development Strategy 6: Creation of an SKR image*

The SKR produces a variety of products for domestic consumption and for exports to international markets. These products, however, have no brand name among the

markets. Therefore, a strategy is proposed to make them “ecology-friendly” products and to have the SKR try to advance the image worldwide.

#### *Development Strategy 7: Integration of Development Programs*

Since the SKR is large and sparsely populated, it is inefficient to plan and implement a single project/program sectorwise. Under the SKR development plan, several programs are strategically integrated into initiatives for implementation. These initiatives are objective-oriented and they are proposed to be initiated in the SKR and to be disseminated to other regions.

The integrated development plan for the SKR is executed by 57 programs/sub-programs. In addition, the development scenario for the SKR is scheduled, dividing the planning period into three phases as follows:

*Phase 1:* Formulation of foundation for regional development (2001-2005)

*Phase 2:* Dissemination of the new systems and reduction of rural poverty (2006-2010)

*Phase 3:* Consolidation of the balanced and cyclical society (2011-2020)

## 2.2 Special economic zone development plan for the Savannakhet Region in Laos

Although the Lao government prepared plans in the past to promote development at regions bordering China, Thailand, and Viet Nam, and designated them as special economic zones, no concrete plans were made principally because the functions of the special economic zones and their roles were not precisely defined. In view of the fact that Savannakhet province is located between Thailand and Viet Nam, and that the EWEC will be passing through it, the Laos government selected Savannakhet as a priority region and requested JICA to carry out a study on the special economic zone development plan for the region.

Savannakhet province has a total population of 670 thousand people, in which half is involved in economic activities. Majority of the people’s source of livelihood is in the agricultural industry. Because the Savannakhet region has an abundant supply of forest and water resources, and has extensive lands for agricultural use, it offers huge potential for the development of wood and lumber industries, as well as industries related to agriculture.

Savannakhet is also located at the junction of the north-south axis and the east-west axis of the GMS. Road development projects are currently in progress, such as the construction of The Second Mekong International Bridge that directly links Thailand, and the improvement of the National Route Number 9 that links Central Viet Nam and Savannakhet.

In order to make the best use of the transport conditions, it is important to designate a special economic zone at Savannakhet that offers favorable environment for attracting local and foreign companies. In particular, promotion of marketing is indispensable for their products as they are currently marketed through limited channels in neighboring countries. Some agricultural products may be marketed through the contract farming system, through exporters who have channels established in international markets, or

through promotion of foreign direct investment as foreign investors have their own channels for exports. In addition, promotion of employment, enhancement of living standards, introduction of international business practice, requisition of new technology, expert knowledge, among others, should also be encouraged.

The following are being proposed for each category;

*Manufacturing and Processing:* lumber, agriculture products, food processing, garment, footwear

*Logistics:* sorting, packaging, labeling, transport, storage

*Commerce:* international trade, trading agent, retail industries, duty-free shops

*Amenity:* hotel, travel agencies, rent-a-car, sports and leisure

*Support services:* management center (administrative services), marketing center (foreign direct investment promotion, promotion of exports and local industries, diffusion of market information), utility supply, financial services, training, etc.

### **3. Provision of transport infrastructure**

The EWEC links Myanmar, Thailand, Laos and Viet Nam, where the core transport infrastructure, road network, requires further improvement to be able to display its full potential as an economic corridor. The present bottlenecks occur at the river crossing of Mekong River between Mukdahan and Savannakhet, and at National Route 9 consisting of an approximate 200-kilometer road segment from Savannakhet to the Viet Nam border. Present transportation between Thailand and Laos mainly relies on 50-60 passenger-capacity boats or truck-only boats which cross the Mekong River. In addition, a major portion of National Route 9 is unpaved, or if paved, is suffering from extensive damage. Even the bridge structures have insufficient load capacities, or have become too old for traffic use.

Loans from Japan through the Japan Bank for International Cooperation (JBIC) have been made available for the development of The Second Mekong International Bridge which will connect Mukdahan and Savannakhet. After completing the detailed designs for the bridge, construction agreements were made by Thailand and Laos in March 2001. In December 2001, loan agreements for this project between Laos and JBIC, as well as Thailand and JBIC, were signed. Subsequently, preparations for its construction including bid documentation and construction management are supposed to be executed by Japanese consultants which completed the detailed designs. The new bridge will be completed by the year of 2005.

In addition, as shown by Figure 2, National Route 9 is divided into 3 segments. Phase 1 and Phase 2 are under the Japan International Cooperation Agency (JICA) assistance, while Phase 3 is under the road improvement project of the ADB. The first stage of Phase 1 construction which starts from the junction of National Route 13 and National Route 9 and ends 20 kilometers towards the east has been undertaken by Japanese consultants and was completed in March 2001. The second stage of Phase 1 construction (from the end point of Phase 1 up to 53 kilometers towards east) is also being constructed by Japanese contractors and is expected to be completed in March 2003. For the 60-kilometer Phase 2 project, the bidding was done in October 2001 and

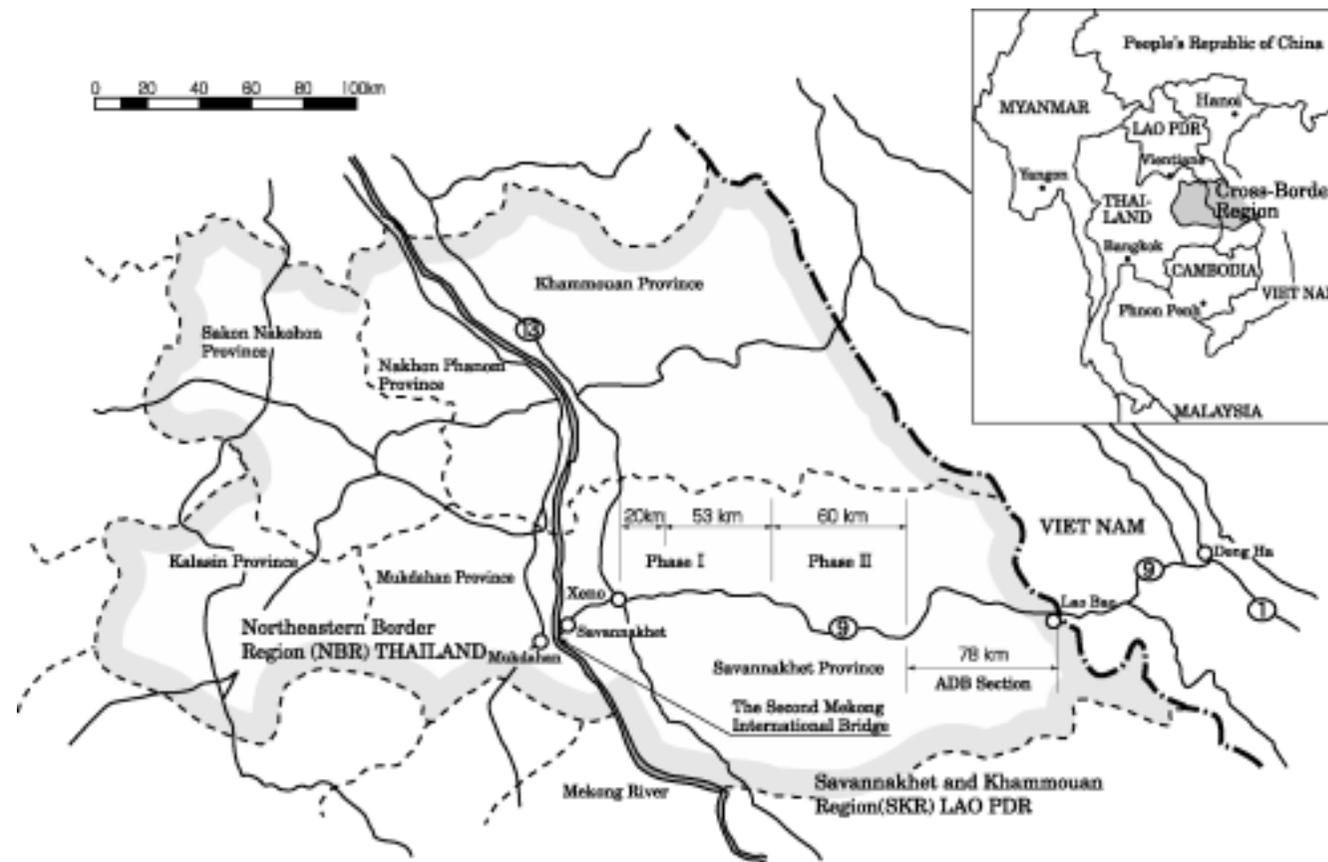


Figure 2 Map of the cross-border region of Lao PDR and Thailand

the successful bidder was also a Japanese contractor. This project will be completed in March 2004. Phase 3 under ADB funding assistance is composed of a 78-kilometer road segment being constructed under joint venture (JV) of Viet Nam and Laos contractors and is scheduled to be completed in October 2003.

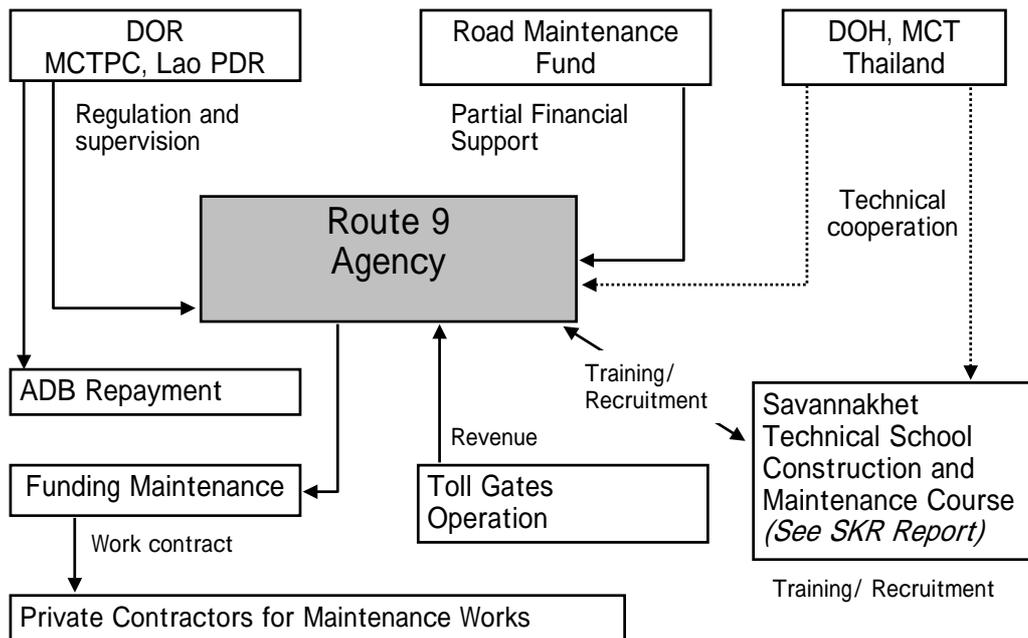
The Second Mekong International Bridge (Figure 3) which has a total bridge length of 1,600 meters is a continuous boxed-type PC bridge with 2 road lanes (1 lane per direction). Detailed specifications of the bridge are: road width =  $3.5\text{m} \times 2$ , shoulder =  $0.5\text{m} \times 2$ , shoulder for median strip =  $0.25\text{m} \times 2$ , pedestrian sidewalk =  $1.5\text{m} \times 2$ . Similarly, the National Route 9, which also has 2 lanes (road width =  $3.5\text{m} \times 2$ , shoulder =  $1.5$  to  $2.5\text{m} \times 2$ ), is an asphalt paved road classified as an Asian Highway class 2 road structure.

The issue will necessarily turn how to maintain the Second Mekong International Bridge and Lao section of Route 9 after the projects are completed and they are opened to traffic. Well-maintained the bridge and Route 9 is a critical element of the EWEC. Also the development scenarios of both the SKR and the NBR depend on the success of EWEC.

For the maintenance cost, there are three major alternatives: (1) Simple User Charge at several toll gates, (2) Cost Sharing by three countries (national budget) and (3) Combination of User Charge and National Budget in reflection to each national condition. With respect to Alternative (1) and (2), the cost is shared by each country in proportion to traffic volumes (by the registered country) or other indicators such as vehicle-km, amount of exports, etc. How to choose the alternative depends on traffic demands for Route 9. If the traffic demands are forecasted high and the unit cost of



**Figure 3 View of the Main Bridge from the Thailand side<sup>4)</sup>**



**Figure 4 Route 9 Agency<sup>5)</sup>**

maintenance per vehicle is kept at an appropriate level, alternative (1) can be chosen without any financial support of the adjacent countries.

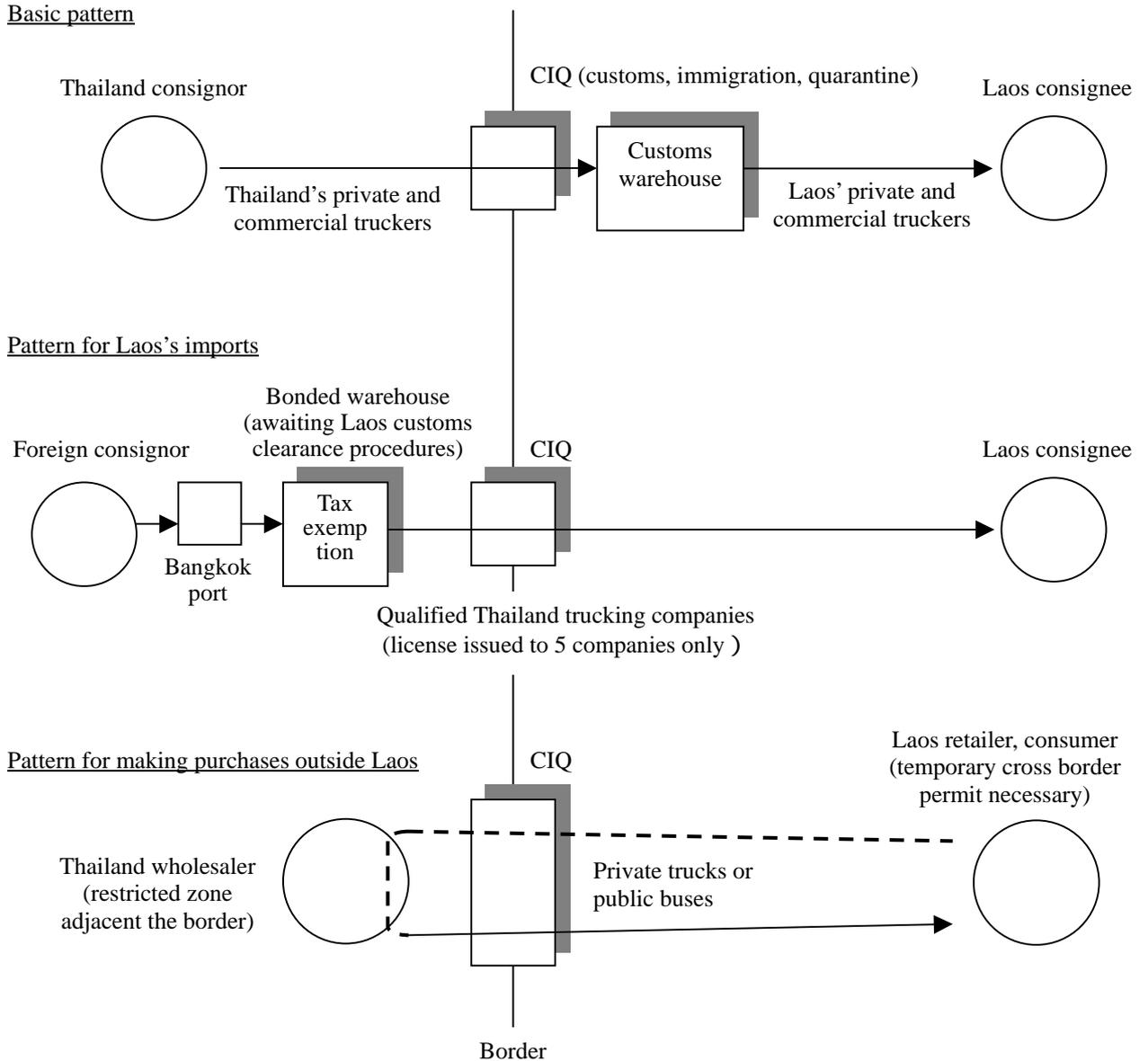
JICA study recommends that a new agency under the DOR (Department of Roads), MCTPC (Ministry of Communication, Transport, Post, and Construction) be set up responsible for the Route 9 maintenance. The agency, temporarily named as “Route 9 Agency”, will function as shown in Figure 4.

In the meantime, it must be noted that traffic accidents have started to increase with the improvement of the road network in Laos. According to a local contractor in the area, the number of motorcycles that have been able to travel faster has increased causing an outbreak of unfortunate cases where drivers commit errors that result in injuries and death. This is caused by the absence of established traffic control and regulations, as well as the lack of medical facilities and emergency system during the occurrence of accidents. Thus, road constructions as well as establishment of other social economic mechanisms are strongly felt to be necessary.

#### **4. Provision of a system for cross border transport**

In order to promote the international movement of freight, provision of physical infrastructure alone will not suffice. The amount of traffic will not increase if trade restrictions are not reduced, financing and insurance services supporting trade are not raised, systems for cross border traffic are not improved, and cross border procedures are not made efficient. Since some bridges along the borders were not provided with these systems, contrary to expectation, little traffic was attracted after their completion.

Two barriers can be mentioned that mostly restrain the movement of freight - “customs duty” and “quantity restrictions”. Although continuous efforts are being done to lower customs duty in the ASEAN region, high customs duties are still imposed on many goods (i.e. agricultural products). Moreover, Laos and Viet Nam have become the hotbed of smuggling mainly because of formal and informal quantity restrictions, restrictions on handling traders, and the various commissions that still remain.



**Figure 5 Logistics conditions at the border of Thailand and Laos**

Furthermore, lack of procedures and a system for cross border transport of people and freight has become a problem in several policy fields other than trade. Customs clearance and quarantine not only takes a long time, but transshipment on a separate truck is immediately needed after cross border transport. This is because trucking companies only registered in a particular country are allowed to perform business. In addition, transshipment of cargo becomes inefficient because containers are not utilized for transport (although containers may be used to prevent cargo theft, these are for domestic transportation only). If these barriers are not removed, international freight distribution will remain stagnant.

Figure 5 shows three general patterns on how logistics is being carried out in the Thai-Laos border. For goods coming from Thailand and bound for Laos, the basic and most often observed pattern is one which involves unloading of goods at the border, checking of customs authorities, and then picking-up by local truckers for distribution in Laos. The second pattern, which is observed for Laos's imports, involves the utilization of qualified licensed truckers from Thailand to perform direct distribution within Laos. However, a limited number of only five trucking companies are issued licenses. The third pattern is concerned with making purchases outside Laos, and involves retailers and consumers from Laos being issued temporary cross border permits to enable them to purchase goods at a restricted trade zone in Thailand which is situated near the border.

**Table 3 Agreement on the promotion of cross border transport**

Objective	<ol style="list-style-type: none"> <li>1. Promotion of cross border transport</li> <li>2. Simplification of documents, application, regulation, procedures, and harmonization for cross border transport</li> <li>3. Promotion of intermodal transport</li> </ol>
Policy	<ol style="list-style-type: none"> <li>1. Single-window system (passport, visa, driver license, taxation, quarantine, vehicle inspection, insurance, etc.)</li> <li>2. Single-inspection system</li> <li>3. Adjustment of business hours</li> <li>4. Pre-arrival procedures (pre-arrival taxation, etc.)</li> <li>5. Issuance of multiple visa for transport service providers</li> <li>6. Preferential treatment measures for goods in transit (tax inspection, tax exemption, etc.)</li> <li>7. Fee collection for vehicles in transit</li> <li>8. Registration of vehicles at originating countries</li> <li>9. Compliance of vehicles with standards set by the originating country for standards on transport safety and vehicle emissions, and standards set by the destination country such as limits on vehicle dimensions, axle weights, and gross weights</li> <li>10. Extend transport activities of transport service providers to cover the three countries</li> <li>11. Necessary permit from destination country regarding cabotage transportation</li> </ol>

An agreement to facilitate cross-border transport to change existing unfavorable conditions was concluded between Laos, Thailand and Viet Nam in November 1999. The Agreement for Facilitation of Cross-Border Transport of Goods and People is a comprehensive agreement that covers cross border procedures, such as single window and/or single inspection of passports, visas, taxes, quarantine, driver's licenses, and vehicles, as well as the exertion of efforts to perform pre-arrival customs clearances, and authorization on mutual cross border passing of trucks (Table 3).

One of the major objectives of the above agreement is the promotion of intermodal transport. To attain intermodalization in logistics, three stages may be necessary. The first stage should focus on the standardization of containers or trailers dimensions, and the realization of simple cargo transfers at border crossings. The second stage should focus on allowing truck companies conducting country-to-country transport (transit transport) to pass other countries (i.e. cargoes coming from Thailand and bound for Viet Nam can pass Laos, etc.). Standardization of vehicle weight limits and uniform road signs and regulations are required in this stage. Issues on road user charges will also be important in this stage. For example, suitable charging of foreign trucks using roads in Laos to account for maintenance expenses has become a vital issue in the EWEC project, as mentioned in the previous section. Even the agreement has explicitly expressed and recognized the significance of fee collection. The third stage should focus on allowing the mutual passage of truck companies that have cargoes coming from and bound for their own countries. The removal of the ban on cabotage transportation will be an important issue in the future.

It is also beneficial to utilize information technology applications to standardize cross border procedures. Among the methods of standardization are the adoption of a standard document for the processing of papers based on UN format, and the use of Internet EDI. It was found out from the experience of Singapore that companies involved in freight distribution derived large benefits from the electronic sharing and exchanging of trade information. Valuable lessons can also be learned from the experience of U.S. and Canada on the lump-sum declaration system of duties (mostly exempted), and from the experiment of U.S. and Mexico on the pre-arrival customs clearance which utilizes ITS.

## **5. Conclusion: Issues on Asian logistics**

In Europe, the concept of border movements of people and goods has been completely eliminated. Even transport service providers can now freely perform transport operations, including cabotage transportation. Manufacturing industries, on the other hand, are now adopting the concept of total optimization of the whole supply chain, and are trying to reorganize production and storage facilities to take advantage of economies of scale to encourage concentration of logistics facilities. These have become the driving forces of global competition

At present, the amount of international logistics flows in EWEC is still very small as border crossing remains an obstruction. However, barriers in trading are gradually being removed. Several international organizations such as the WTO, APEC, ASEAN, and GMS are moving towards liberalization. The entry of China in the WTO would further accelerate this trend.

In the near future, deficiencies in transportation infrastructure and cross-border transport regulations which are the primary sources of bottlenecks will almost certainly attract a great deal of attention. In Europe, the European Commission has taken a primary role in recommending the Trans-European Transport Network plan, based on Europe's future transport demand, that efficiently integrates rail and road transport. Similarly in Asia, the countries of Japan, Korea, Taiwan, and Singapore have become the leaders in implementing hard and soft plans and structures towards an efficient logistics system, and providing the standards for each system. Hence, creating the present version of the silk-road will never be a dream any longer.

## References

1. Asia-Pacific Task Force, Logistics Integration in the Asia-Pacific Region, Institute of Highway Economics, 2000.
2. ADB, Pre-Investment Study for the Greater Mekong Sub-region: East-West Economic Corridor, 2000.
3. The Lao PDR, Thailand, and Viet Nam, Agreement between and among the Governments of the Lao People's Democratic Republic, The Kingdom of Thailand, and the Socialist Republic of Viet Nam for Facilitation of Cross-border Transport of Goods and People, 26 November 1999.
4. Japan International Cooperation Agency (JICA), Lao Ministry of Communication, Transport, Post and Construction, and Thai Department of Highways, The Detailed Design of the Second Mekong International Bridge Construction Project, 2000.
5. Japan International Cooperation Agency (JICA), Committee for Planning and Cooperation, Lao People's Democratic Republic, and Office of the National Economic and Social Development Board, The Kingdom of Thailand: Development Vision and Cooperation Programs for the Cross Border Region, Final Report Summary, September 2001.
6. Japan International Cooperation Agency (JICA), Committee for Planning and Cooperation, Lao People's Democratic Republic, and Office of the National Economic and Social Development Board, The Kingdom of Thailand: The Study on the Integrated Regional Development Plan for the Savannakhet and Khammouan Region in the Lao PDR, Final Report Summary, September 2001.
7. Japan International Cooperation Agency (JICA), Committee for Planning and Cooperation, Lao People's Democratic Republic, and Office of the National Economic and Social Development Board, The Kingdom of Thailand: The Study on the Integrated Regional Development Plan for the Northeastern Border Region in the Kingdom of Thailand, Final Report Summary, September 2001.
8. Japan International Cooperation Agency (JICA), Committee for Planning and Cooperation, Lao People's Democratic Republic: The Study on Special economic Zone Development Plan for the Border Region in Laos (Savannakhet Region), Final Report Summary, February 2001.