Chapter 10

Logistics Challenges in Cambodia, Lao PDR, Myanmar, and Vietnam

Ruth Banomyong
Thammasat University

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CHAPTER 10

LOGISTICS CHALLENGES IN CAMBODIA, LAO PDR, MYANMAR, AND VIETNAM

Ruth Banomyong

Abstract

An efficient logistics system can increase a nation's or region's competitiveness and ability to attract foreign direct investment. If a nation or region lacks the reliable network of dependable transportation, telecommunications, warehousing and other related infrastructure, firms will be restricted from designing an efficient logistics strategy for the movement and storage of its traded goods. This limitation currently exists in Cambodia, Lao PDR, Myanmar, and Vietnam (CLMV). The purpose of this chapter is to describe and highlight key issues that are affecting the integration of the CLMV countries from a logistical perspective and to use Lao PDR as an illustrative case study. Limited connectivity is not only confined within CLMV but also exists in these four nations' logistics situation with the advanced economies in Southeast Asia.

Keywords: CLMV, Logistics, Service Links, Integration

INTRODUCTION

Manufacturers and traders in Cambodia, Lao PDR, Myanmar, and Vietnam (CLMV) require efficient and effective logistics services that can move their products to the right place, at the right time, in the right condition, and at the right price. To establish production networks and develop logistics for better access to the global market, it is therefore of great importance that regional linkages among CLMV countries are strengthened.

In CLMV, inadequate transport infrastructure and high logistics "service-link" costs have constrained industrial and economic integration. As remedy, major infrastructure investments are already being undertaken by these countries and more are planned. Physical connectivity in the CLMV will be significantly improved with the completion of these infrastructure investments. The improving infrastructure, coupled with expanded cross-border cooperation among these countries (Banomyong *et al* 2002; Than 2005) will help integrate the subregion's industrial network with the rest of the world.

The purpose of this chapter is to describe and highlight key issues that are affecting the integration of the CLMV countries from a logistical perspective and to use Lao PDR as a case study that illustrates the CLMV's limited logistics connectivity. The structure of this chapter is as follows: After the introduction, a short literature review is presented to discuss the importance of logistics to CLMV. The methodology section then focuses on the research framework and approach of the chapter. The findings section describes the key logistics issues affecting the CLMV connectivity. This is followed by the chapter's conclusion.

1. LITERATURE REVIEW

Logistics is difficult to define because it is a constantly evolving concept. Logistics no longer concerns only the handling of materials or transportation of materials. It has grown in scope to encompass the set of activities that facilitate the economic transactions associated with production and trade (Stock and Lambert 2001). These include customer service and support; demand forecasting and planning; facilities site selection, warehousing, and storage; inventory management; logistics communication and order processing; material handling and packaging; reverse logistics, sourcing; and transportation (Grant et al. 2006).

Logistics plays a key role in national and regional economies in two ways. First, it is one of the major expenditures for businesses, thereby, affecting and being affected by other economic activities. Second, it supports the movement of a multitude of economic transactions. It is an important aspect of facilitating the sale of all goods and services.

Logistics is not just confined within national borders or markets because within each country or region there are export and import firms that face specific logistics attributes that may be different from those experienced in the domestic market. In an international logistics system, many state agencies and, in particular, customs agencies play a very important role in the efficiency of the logistics system. There is also a heavy reliance on specialized service providers, such as freight forwarders or customs brokers that can facilitate the flow of goods across borders. The biggest difference between domestic and international logistics is the environment in which the logistics system operates.

An efficient logistics infrastructure increases a nation's competitiveness and its ability to attract foreign direct investment (FDI). If a nation lacks a reliable network of dependable transportation, telecommunications, warehousing, and other related infrastructure, firms will be restricted from designing an efficient logistics strategy for the distribution of finished goods (Goh and Ang 2000). This statement is especially true for CLMV.

The CLMV logistics system, like any other macro-level logistics systems, is composed of (1) shippers, traders, and consignees; (2) public and private service providers; (3) regional and national institutions, policies, and rules; and (4) transport and communications infrastructure (Banomyong 2008). These four dimensions are then combined to determine the performance of the CLMV's logistics system. The sum of all these factors will determine CLMV's international competitiveness (Banomyong 2004).

2. METHODOLOGY

The research methodology was derived partly from the methods developed by Banomyong *et al* (2008) in formulating the ASEAN logistics policy roadmap. The first step of the methodology involved a rapid assessment of the CLMV logistics sector. This meant that the status of the sectors related to logistics had to be understood in terms of:

- The general condition of the transport network and fleet for each mode.
- The level of modernisation of customs and trade facilitation initiatives.
- The level of development and liberalisation of transport and logistics services.

- The structure and scope of the freight forwarding industry and related logistics services.
- The level of modernisation of the information and communications system.

Seven questionnaires that were drawn up focused on the major advances introduced in the past few decades in relation to the logistics sectors. Data collected described which of these advances, which can be read in current trade literature, had been introduced or are planned to be introduced in the CLMV countries. The questionnaires aimed to assess the capacity of each CLMV nation's logistics-related sectors, such as:

- Customs
- Ports and maritime transport
- Rail transport
- Road transport
- Inland waterway transport
- Air transport
- Logistics services

The second phase of the methodology focused on CLMV's logistics integrated route as an indicator of connectivity within the subregion. In this phase, the aim was to better understand how the CLMV countries are inter-connected from a logistics perspective. Since industrial fragmentation (Kimura 2008, 2009) is a key theoretical concept for understanding how integrated production networks in the CLMV can be

developed, it therefore is necessary to understand the logistics connectivity or "service link" that could either enable or impede fragmentation possibilities among CLMV countries.

According to Kimura and Obashi (2009), the concept of industrial fragmentation is reflected in two dimensions: fragmentation in terms of geographical distance and the disintegration of corporate activities. The latter is particularly important in the context of ASEAN and CLMV, as it explains up to a certain extent the current proliferation of arm's length, i.e., inter-firm, transactions including various classes of outsourcing such as subcontracting, OEM (original equipment manufacturing or original equipment manufacturer)/ODM (original design manufacturing or original design manufacturer) contracts, and EMS (electronics manufacturing service) firms.

To better understand this service link connectivity, some basic data are needed:

- The origin and destination of the cargo (based on selected industries);
- The full route from origin to destination, including places where the cargo is temporarily stationary or in transit (such as national borders and points of intermodal transfer such as sea ports or airports, where applicable);
- Mode of transport for each leg;
- Distance for each leg;
- Transit time for each leg (in hours or days); and
- Cost or quotes for each leg.

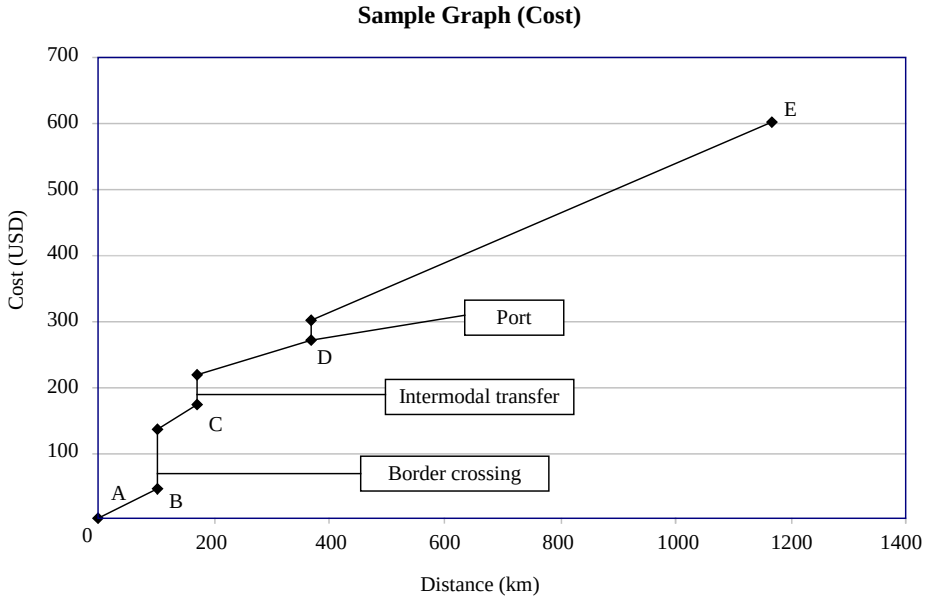
A sample data table showing the transit of goods from point A (origin) to point E (destination) is given in Table 1. Data are plotted against distance for each leg of the journey. In terms of the costs or quotes, the figure will graphically show the relative cost of each leg (or mode, where applicable), as well as indicate the approximate proportion of non-transport costs in relation to transport costs. For example, a breakdown of costs at border crossings or ports can highlight areas for policymakers' action (Banomyong and Beresford 2001). Similarly, by plotting time against distance, the relative speed of transit transport for each leg (or mode) can be compared. Figure 1 shows a sample graph using the cumulative cost data from the table. Getting the required cost, time, and distance data is the primary objective of this method. Preferred unit of analysis is for the hypothetical shipment of one container (Twenty-foot Equivalent Unit or TEU) from origin to destination.

Table 1: Sample Data Table

Leg	***Mode***	***Distance (km)***	***Cum. distance (km)***	***Cost (US$)***	***Cum. cost (US$)***	***Transit time (hours)***	***Cum. Time (hours)***
A to B	Road	100	100	50	50	4	4
Border Crossing	-	-		100	150	6	10
B to C	Road	70	170	30	180	3	13
Intermodal transfer	-	-		40	220	3	16
C to D	Rail	200	370	60	280	18	34
Port	-	-		20	300	6	40
D to E	Sea	800	1 170	300	600	72	112
TOTAL		1 170		600		112	

Source: The Author.

Figure 1: Sample Graph



Source: The author.

The output derived from the obtained data will help identify bottlenecks in transhipment points that could impede enhanced fragmentation among CLMV countries. This logistics connectivity can be measured both in terms of the cost and time dimensions.

3. FINDINGS

3.1. CLMV Customs

All CLMV countries, except for Lao PDR, are members of the World Trade Organisation (WTO). This means that in theory, countries in the subregion will have to follow WTO-based rules for customs valuation. Strangely enough, Table 2 seems to

show that in practice, not all WTO-based valuation rules are implemented. Myanmar, in particular, is the only country that is not even considering using such valuation rules. Lao PDR is not a WTO member but has started to follow some WTO-based rules so as to help negotiate its entry into the organisation, although it still has a long way to go.

Most customs issues related to logistics, such as the Association of Southeast Asian Nations (ASEAN[1]) Customs declaration form, have been only partially implemented or are at the planning stage of implementation. Full implementation of this declaration form---the same declaration form for all its member-countries---will

Table 2: CLMV Customs Comparison

	Cambodia	Lao PDR	Myanmar	Vietnam
· Electronic single window	Planned	Planned	Planned	Planned
· ASEAN Customs declaration documents	No	Planned	No	Implementing
· WCO Harmonised system code	Yes	Yes	Implementing	Yes
· Customs valuation based on WTO rules	Planned	Partial	No	Yes
· Reduced number of tariff bands	Implementing	Implementing	No	Planned
· Computerised input of customs declaration data	Partial	Planned	Planned	Yes
· Direct trader input	Partial	Planned	No	Planned
· ASYCUDA or similar system	Implementing	Implementing	Planned	Implementing
· Green Channel	Implementing	Planned	No	Yes
· Post audit clearance	Planned	Implementing	Partial	Partial
· Computer based risk management	Implementing	Implementing	No	Yes
· GMS-CBTA[2] status	Partial	Partial	Implementing	Partial
· Inland Bonded Warehouse	Yes	Partial	Partial	Yes

Source: The author.

[1] Cambodia, Lao PDR, Myanmar, and Vietnam are all members of ASEAN.

[2] Greater Mekong Sub-region Cross Border Transport Agreement

facilitate trade among these nations even further. Meanwhile, a significant step toward this single declaration form is the CLMV member-countries' adoption of the United Nations Conference on Trade and Development (UNCTAD) key layout form, which standardises administrative documents.

Although it is still at the planning stage, the eventual implementation of the ASEAN electronic single-window system is also critical to the development of logistics services in CLMV.

Likewise, the implementation of computerised risk management and the clearance of documents with post-audit need to be accelerated to facilitate the efficient and effective flow of goods across borders. Both activities are currently only partially implemented.

Myanmar seems to be the most restrictive in terms of customs and trade facilitation. It is important for Myanmar's Customs and related agencies to accelerate their reform process so that connectivity within the CLMV and subregional integration can truly happen.

3.2. CLMV Ports and Maritime Issues

Ports are often the chief facilities linking an economic system with the international market and therefore the main trade hubs. Based on survey results, Cambodia and Myanmar have no direct service with mainline carriers. Lao PDR is a land-locked country and is therefore not included in the analysis of ports and maritime issues.

This lack of mainline connection is because of these nations' low container volume as compared to the volume of more developed countries in Southeast Asia. The

CMV countries[3] are mostly served by shuttle feeder services to main regional hubs such as Singapore or Hong Kong. Southeast Asia has developed a system of shipping networks wherein individual ports are linked to intricate patterns of dependency in hub–feeder relationships as well as to end-to-end shipping linkages that reflect the increasing dependency between national, regional, and global economies (Flemming and Hayuth 1994).

The concept of implementing landlord ports in Vietnam is in the planning stage. This concept is not applicable in Cambodia and Myanmar. Port information and communication technology (ICT) plays an important role in the integration of the port and its stakeholders, including the shipping lines, exporters, importers, and customs. However, CMV ports are still at an early stage of ICT development, with Vietnam being the most advanced among the three nations. Certain ports in Vietnam, mostly private ones, have computerised information systems that enable ports and port users to exchange information on regulatory procedures or on the status of cargos in transit. Table 3 describes ports and maritime issues of the CMV countries. Here, Myanmar lags behind in terms of port and maritime development.

There is also an observed lack of rail link with the main ports in the CMV countries. Modal integration is mostly limited to linking the road and sea interface.

3.3. CLMV Rail Transport

Railways usually offer an efficient interface between maritime and land transportation systems, especially ever since container shipping became prevalent. Rail logistics is, however, complex as it requires management of capacity, schedule, shipment

[3] Cambodia, Myanmar, and Vietnam (CMV).

Table 3: CMV Maritime Comparison

	Cambodia	Myanmar	Vietnam
·**Direct mainline services**	Yes	No	Limited
·**Feeder services**	Yes	Yes	Yes
·**Regional services (>1,500TEU)**	No	No	Yes
·**Landlord port**	No	No	Planned
·**Container terminal concessions**	No	Yes	Planned
·**Day of the week shipping services**	Yes	Limited	Yes
·**Portnet or equivalent**	Planned	Planned	Limited
·**Direct debit payment system**	No	No	Limited
·**Pilot free entry for large vessels**	Limited	Yes	No
·**Post Panamax gantry cranes**	Yes	No	Planned
·**Computerised terminal control system**	Yes	Planned	Yes
·**Automated gate entry**	Partial	No	Planned
·**Of dock container yard**	No	No	Yes
·**Bonded distribution facilities**	Planned	No	Yes
·**Full truck scanners**	Yes	Yes	Planned
·**Shunting lines to port**	No	No	No

Source: The Author

characteristics, origin, and destinations. From the questionnaires' results, rail transport can be considered as the weakest links in the CLMV logistics infrastructure. Table 4 describes the rail situation in CLMV.

The railway system in CLMV is based on the metre-gauge system; however, this rail network is not linked. The CLMV rail freight system is characterised by:

- Access charges that are high compared to road transport
- Almost no international route, leading to excessive transit time and poor service quality, and;
- Lack of priority given to timetables, resulting in poor reliability.

Table 4: CLMV Rail Comparison

	Cambodia	Lao PDR	Myanmar	Vietnam
· Unified gauge	Yes	Yes	Yes	No
· Standard gauge	No	No	No	Planned
· Double track	No	No	Yes	No
· Dedicated track for freight services	No	No	No	Planned
· Centralised train control	No	No	Planned	Limited
· Advanced train control	No	No	No	Planned
· Electrified lines	No	No	No	Planned
· Bogied Wagon	Limited	Yes	No	No
· Heavy Load Wagons	No	No	No	No
· Long train	No	No	No	No
· Modern locomotives	No	Limited	Yes	Limited
· Unit container train operations	No	Planned	No	Yes
· 24-freight terminal operations	No	Planned	Yes	Limited
· Privately-owned rail wagons	Planned	Planned	Limited	No
· Private freight trains operations	Planned	Planned	No	Limited

Source: The author.

Freight operations are also hindered by the lack of a centralised train control system or any other type of advanced train control system that can monitor train movements, including train identification and automatic route setting. Another limitation of the CLMV railway system is that trains could not operate once wagons have cargos weighing 80 tons or more, or once trains have more than 50 wagons. Based on the collected data, implementing the following rail transport recommendations would therefore help develop CLMV's logistics connectivity:

- Double tracks and dedicated track for freight services
- Centralised or advanced train control systems
- Wagons that can carry more than 80 tons

- Trains that can operate with more than 50 wagons

Efforts to improve and integrate the CLMV rail network will need to be based on long-term support as the network capability is currently constrained by limited infrastructure and lack of management capability. The concession operation of the Royal Cambodian Railway could be an interesting business model for other CLMV countries to follow if it becomes successful.

3.4. CLMV Road Transport

Road is the main mode of transport in CLMV. However, its management and operations still need to be harmonised and standardised. The challenge is that road infrastructure in the CLMV still lags behind those of Southeast Asian countries. Multi-lane dual carriageway only exists in Vietnam but limited access highways are non-existent in these nations. Toll roads and ring roads around major cities do exist in Myanmar and Vietnam as urban congestion has hindered the efficient flow of goods carried by trucks, especially during peak hours. This is also in the reason behind the implementation of total or partial truck bans in all the CLMV countries. Table 5 describes the road transportation issues in the CLMV.

Overloading of cargo is another issue all CLMV countries face. Axle load limits do exist, but enforcement is often lacking. Articulated trucks can be found in many CLMV countries but they are not the type that comprises most of the trucks moving the nations' cargos. In terms of compliance, roadworthiness certificate are theoretically required in most CLMV countries, but enforcement is again often lacking. This is the

Table 5: CLMV Road Comparison

	Cambodia	Lao PDR	Myanmar	Vietnam
·Multilane dual carriageway	No	Planned	No	Yes
·Limited access highway	No	Planned	No	No
·Toll Roads	Limited	Planned	Yes	Yes
·Ring road capital	Limited	Planned	Yes	Limited
·Ring road major cities	Limited	Planned	Yes	Limited
·Partial truck ban	Limited	Planned	Yes	Yes
·Control of axle load limit	Partial	Yes	Yes	Planned
·Limit enforced by police	Partial	Planned	No	No
·Articulated trucks	Yes	Limited	Yes	Yes
·Modern commercial trucks	Limited	Planned	Yes	Yes
·Road worthiness certificate	Partial	Limited	Yes	Planned
·Pollution control	No	Planned	Yes	Yes
·Pollution test failed but still on road	Partial	Yes	Yes	Yes

Source: The author.

same problem with pollution control. The CLMV countries are characterised by a lack of enforcement capability with regard road rules and regulations.

3.5. CLMV Inland Waterway Transport

The inland water transport system in the CLMV serves mostly domestic traffic. Some scheduled international inland waterway services exist in the CLMV as all are riparian to the Mekong River. Linkages to the main seaports are not readily available, hindering the development of inland waterway transport (as a key component in the CLMV logistics system). Linkages to the main seaports are currently being developed between Phnom Penh Port in Cambodia and the new port network in Southern Vietnam. Table 6 compares inland water transport (IWT) systems among CLMV countries.

When compared to maritime ports, inland waterway port facilities, equipment,

Table 6: CLMV IWT Comparison

	Cambodia	Lao PDR	Myanmar	Vietnam
• Scheduled service	Yes	No	Yes	Yes
• Links to main seaport	No	No	No	No
• Container vessel for IWT	Limited	No	No	Yes
• Landlord port	No	No	No	Limited
• Container terminal	Yes	No	No	Limited
• Portnet or equivalent	No	No	Planned	Yes
• Direct debit payment system	No	No	No	Planned
• Computerised terminal control system	Yes	No	No	No
• Automated gate entry	Limited	No	No	Yes
• Off-dock yard	Limited	No	Limited	Yes
• Bonded distribution facility	No	Limited	No	Planned
• Shunting lines to IWT terminal	No	No	No	Yes

Source: The author.

and ICT systems are sorely missing. There is a lack of container vessels and container-handling capability although some river ports do handle containers on an *ad-hoc* basis.

3.6. CLMV Air Transport

A draft of the ASEAN Multilateral Agreement on the Full Liberalization of Air Freight Services has been developed, and the 11th ASEAN Transport Ministers' (ATM) meeting endorsed and finalised this multilateral agreement in 2006. According to the survey, only Myanmar has not liberalised air freight services, even though all CLMV countries are also members of the ASEAN. Table 7 describes the air transport capability among the CLMV countries.

Pure freighter services are not common in CLMV but Lao PDR and Vietnam are keen to operate these. Myanmar and Vietnam would also hope to be considered as major air freight hubs for the region, as gleaned from their national air development

Table 7: CLMV Air Transport Comparison

	Cambodia	Lao PDR	Myanmar	Vietnam
・Liberalised air freight services	Yes	Yes	No	Yes
・Pure freighter services	No	Planned	No	Planned
・Hub for air freight	No	Planned	Yes	Yes
・On airport operations	No	No	No	Limited
・Cargo village	No	Planned	Planned	Limited
・On airport cold storage	Limited	Planned	Limited	Yes
・On airport storage for dangerous goods	Limited	Planned	Limited	Planned
・Competitive ground handling services	No	Limited	Limited	No
・Large palette scanners	No	Planned	No	Yes
・Quick clearance	Yes	No	Yes	Yes
・EDI for cargo manifest	No	No	No	Planned

Source: The author.

policies. However, pre-requisites of an airfreight hub are the improved on-site operations at airports and cargo villages. These facilities do not exist or are limited in Myanmar and Vietnam. Also, capabilities to handle cold storage and dangerous goods storage, and competitive ground handling services are important factors in the development of an airfreight hub.

Quick clearance and Electronic Data Interchange (EDI) for cargo manifests are closely related to such services but are again lacking in Lao PDR. Large palette scanners that facilitate the examination of freight shipped on aircrafts are also needed but only exist in Vietnam.

3.7. The CLMV Logistics Services Sector

Logistics services available in the ASEAN reflect the economic development achieved by member-countries, with more sophisticated services available in the more developed nations. In Vietnam, meanwhile, freight forwarders and logistics service providers are available to give extensive logistical and supply chain services, whereas freight forwarders from Cambodia, Lao PDR, and Myanmar can only provide basic or traditional logistics services such as trucking, warehousing, or customs brokerage. However, local customers are now starting to demand that global services providers also expand their services in the region.

The use of domestic containers for internal freight movement can play an important role in the development of a country's logistics system and facilitate CLMV's inter-connectivity. Cambodia and Myanmar have no such domestic containers, and domestic freight is being carried as break-bulk items. Domestic containers are limited in Lao PDR.

Track-and-trace, distribution, and cross-docking centres are now considered prerequisites for a modern logistics system, and the logistics service sector must be able to provide these activities to clients. This capability does not exist, except for some Vietnamese providers, among CLMV's logistics service providers. This means that the movement of freight in CLMV is hampered by a lack of an efficient monitoring system in the subregion.

Distribution and cross-docking activities seem to be more common, and service providers in Lao PDR and Vietnam have started to partially offer these services. Foreign logistics service providers have a limited influence over the local CLMV market. This is understandable because, apart from Vietnam, the local logistics market

is relatively small and difficult to enter. Local service providers are usually not capable of providing track-and-trace, distribution, and cross-docking services compared to international service providers from the more developed countries in Southeast Asia. This is particularly true for Cambodia, Lao PDR, Myanmar, and Vietnam. The local freight forwarding industry in Cambodia and Lao PDR is likewise concentrated due to the small market size. There are only a handful of key players in both markets. The Vietnamese market is more open, with most freight forwarding companies consisting of small- and medium-sized enterprises.

In terms of trucking services, the picture is more balanced, with no real market concentration even though there are a few dominant players in the Cambodian trucking industry. Concentration in itself is not a bad thing, as long as shippers and consignees can receive the best logistics services at the lowest price.

A critical point for logistics sector integration relates to standardised service contracts. It is important for the logistics service industry to be able to provide logistics services on the basis of standard service contracts, but this is not the case in Cambodia, Lao PDR, and Myanmar. A harmonised standard service contract would protect both clients and service providers. Table 8 describes the CLMV logistics sector.

The network of agents among CLMV countries is quite limited, with only Lao PDR and Vietnam having sufficient connections to liaise within the whole of the CLMV. This structural weakness of service providers impedes the logistics connectivity capability within CLMV.

Table 8: CLMV logistics service providers' comparison

	Cambodia	Lao PDR	Myanmar	Vietnam
· Domestic containers	No	Limited	No	Yes
· Track & trace	Planned	Planned	Planned	Yes
· Distribution centres	No	Limited	No	Limited
· Cross docking facilities	Limited	Limited	No	Limited
· National booking centres	No	No	No	No
· House B/L	Yes	Yes	Yes	Yes
· Multimodal Transport B/L	Yes	No	Yes	Yes
· Document accuracy	Limited	Yes	Yes	Yes
· Forwarding industry concentration	Yes	Yes	Limited	No
· Concentration of foreign LSP	Limited	Limited	No	Limited
· Trucking industry concentration	Limited	No	No	No
· Standard service contract	No	No	Planned	Yes
· Guaranteed service quality level	Limited	Yes	Limited	Yes
· CLMV coverage	Limited	Yes	Yes	Limited

Source: The author.

4. CLMV LOGISTICS CONNECTIVITY---AN EXAMPLE

Lao PDR is the sole land-locked country within the CLMV subregional grouping. Lao PDR has formulated a national policy where it would move from considering itself as a land-locked country to becoming a land-linked nation because it recognizes the potential benefits that can be gained from increased regional integration within the Greater Mekong Subregion[4] (GMS) and ASEAN.

When one talks of international logistics, there is usually a complex and uncertain cross-border dynamics where government actors play a prominent part (Grainger 2007) in either impeding or facilitating the flow of goods. Customs plays a very important role in reducing cross-border uncertainties. Manufacturing and trading firms have to heavily

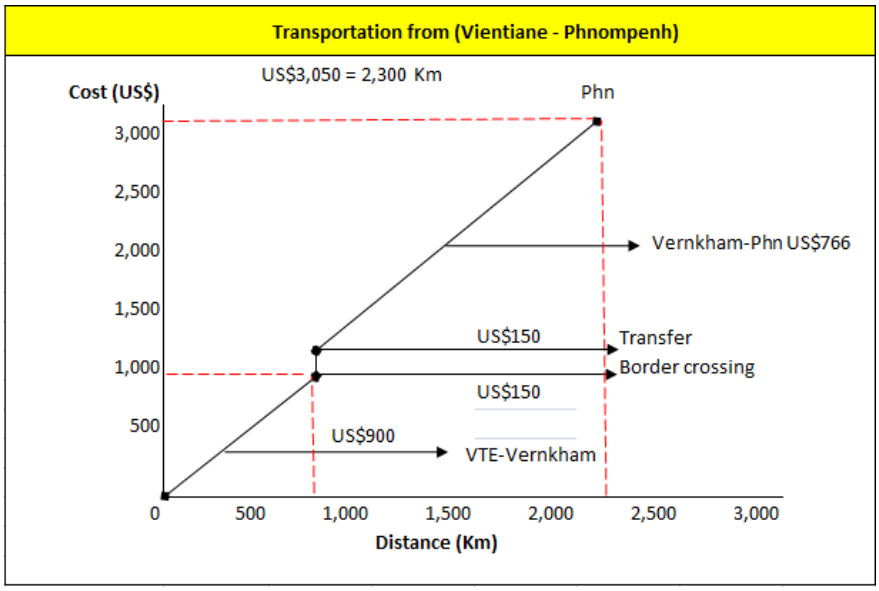
[4] Members of the GMS are Cambodia, the People's Republic of China (Yunnan & Guangxi province), Lao PDR, Myanmar, Thailand, and Viet Nam.

rely on specialised service providers to facilitate and reduce risks to goods flowing across borders (Banomyong 2004). The CLMV countries now realise that even with customs improvements, service link reliability still remain weak because of other factors affecting the handling and movement of goods between borders and hinterland, whether from the point of origin or of destination (Price 2006). Ownership from other related cross-border agencies is lacking, and many reforms are solely Customs focused. This is not sufficient in itself. A holistic approach is needed for cross-border management.

Figure 2 describes the cost structure of transport from Vientiane to Phnom Penh. The door-to-door cost of transporting goods from Vientiane to Ho Chi Minh is more expensive than from Vientiane to Phnom Penh. This is quite interesting as the distance to Ho Chi Minh is 2,060 km compared to 2,300 km to Phnom Penh. Figure 3 describes the cost structure between Vientiane and Ho Chi Minh. It is also observes that the domestic freight charges by kilometre in Lao PDR is quite expensive. This is reflected in the steep cost curves between Vientiane (VTE) and Dansavanh's (DSV) border post. However, the most expensive leg in this route is the one between DSV and Danang (at US$720 for 320 km). Border-crossing fees represent less than 10 percent of the total transport cost.

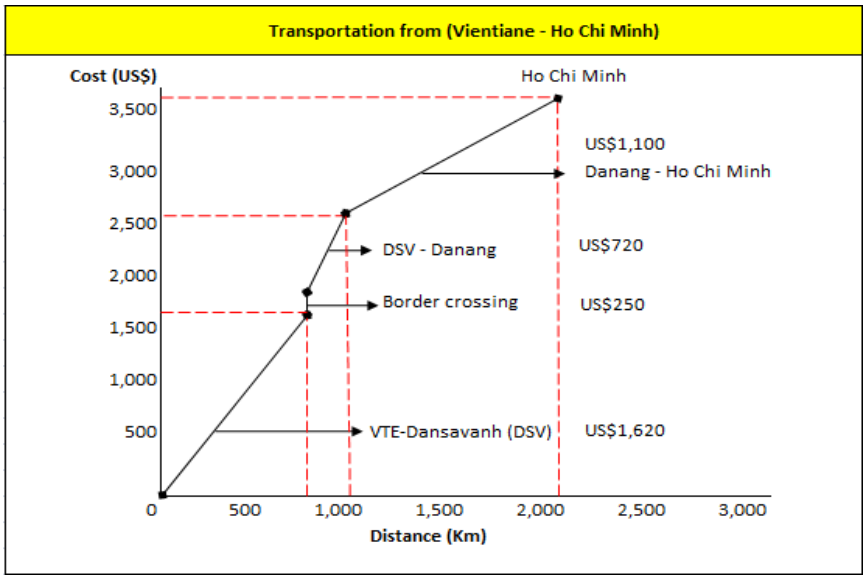
Figures 4 and 5 represent the door-to-door cost structure for the route from Vientiane to Danang and from Vientiane to Hanoi. The route from Vientiane to Danang is similar to the route for Ho Chi Minh. The route to Hanoi passes through Lak 20 and Vinh, which is a different route. However, cost per kilometre between these two routes is quite similar at around US$2.50 per km. It is interesting to note that the cheapest cost per kilometre is the route to Ho Chi Minh, which has the longest distance.

Figure 2: Vientiane to Phnom Penh Cost Model



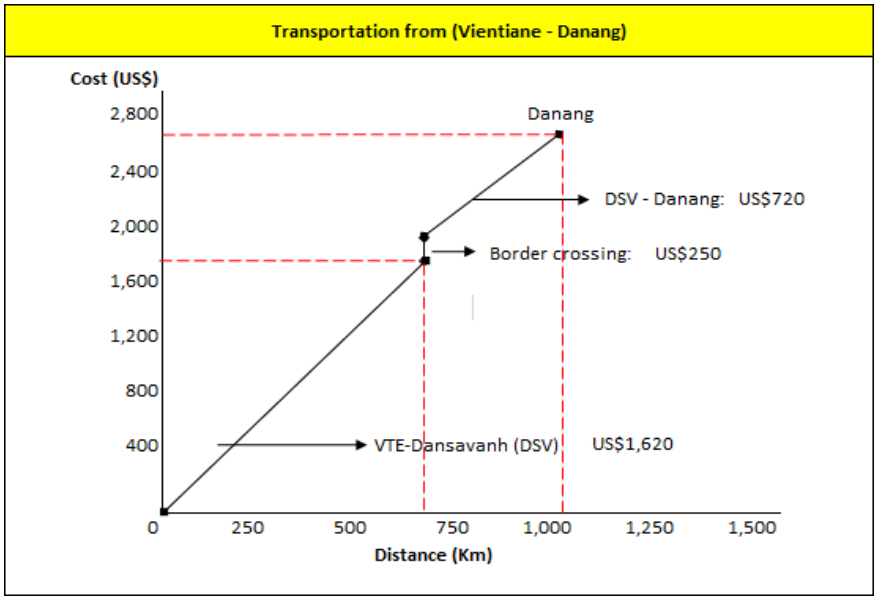
Source: Lao study team.

Figure 3: Vientiane to Ho Chi Minh Cost Model



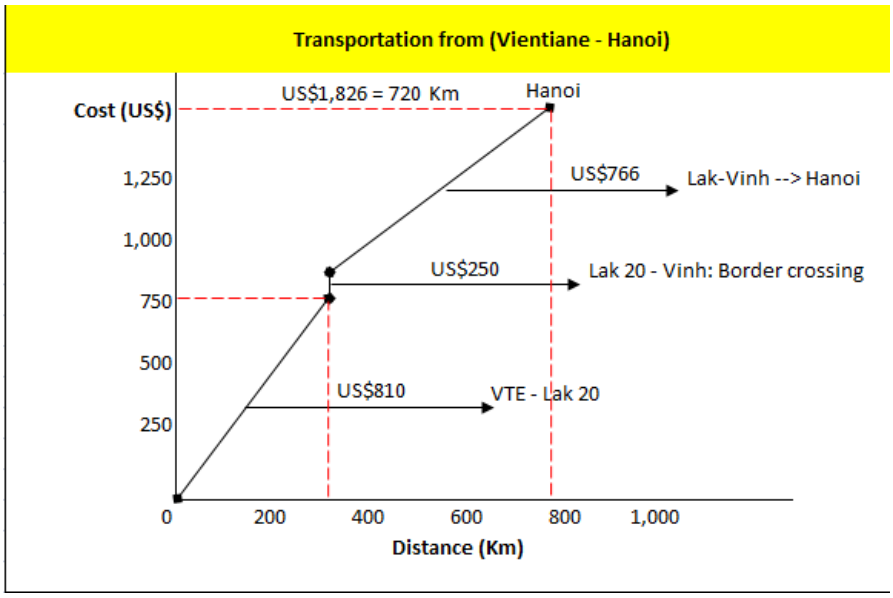
Source: Lao study team.

Figure 4: Vientiane to Danang Cost Model



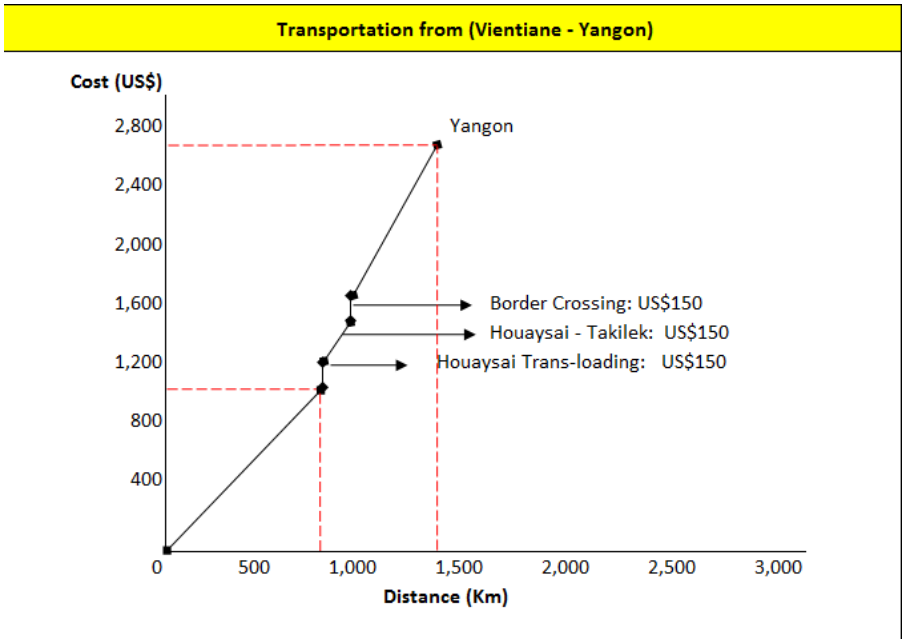
Source: Lao study team.

Figure 5: Vientiane to Hanoi Cost Model



Source: Lao study team.

Figure 6: Vientiane to Yangon



Source: Lao study team.

Figure 6 represents the cost structure of the door-to-door transport from Vientiane to Yangon. It is observed that the road transport cost in Myanmar is two times higher than road transport cost in Lao PDR. Border crossing is also cumbersome and expensive with trans-loading requirements for freight. This was not the case with the Vietnamese routes.

The above examples illustrate that it is possible to establish service links among CLMV countries. However, cost remains relatively high because the traffic volume is limited and physical infrastructure is still lacking. Scheduled services within CLMV could become an enabler in developing these service links as a support for industrial fragmentation.

5. DISCUSSIONS

Logistics connectivity remains a key challenge to the integration of CLMV. Apart from Vietnam, the CLMV countries suffer in general from a lack of connectivity with the more developed ASEAN countries such as Malaysia and Indonesia.

There exists within CLMV a limited service link capability (except for Lao with Vietnam, and Cambodia with Vietnam, but this is more related to the geographical proximity of these nations). There is a theoretical service link between Lao and Myanmar but the physical connection does not even exist. Such weak service link is further aggravated by the lack of capable logistics service providers indigenous to CLMV and by providers' limited regional network.

The Lao case illustrates that service links are possible but remain highly expensive with no regular scheduled service and weak reliability. The fact is that the limited demand within CLMV does not support the existence of such service links.

Transit issues and border crossings remain problematic and are still cause the key bottleneck in CLMV's logistics integration. Myanmar's case, for instance, shows that to cross the borders from Myanmar to other CLV countries costs about US$500. Such is a staggering number, bearing in mind that this does not yet even include freight charges.

The service link connectivity between CLMV and outside the subregion is limited as well---except for Vietnam, which stands out because of its capacity to attract massive foreign direct investment. This limited connectivity can be gleaned from the existing trade flow patterns as well as from the fact that there is a lack of service link data. Since

there is no official service link data available, this study relied on data collected from a network of respondents working in CLMV.

Port-to-port connection in the subregion does exist via regular services although the frequency of transhipment activities is limited to one to two sailings a week (maximum) to the main ports in the ASEAN. A direct route from Indonesia to the main CMV seaports does not exist. Malaysia's maritime connection with Myanmar is quite good, especially in the case of barter trade vessels, and connectivity with Vietnam is picking up. Nonetheless, trade imbalance remains high and affects freight cost to and from CLMV to the more advanced ASEAN countries.

Logistics connectivity remains difficult for both the internal and external integration of CLMV countries. Thailand seems to be the most connected country with CLMV but this is more due to its adjoining border and geographical position.

Thailand can be the catalyst for the logistics integration of CLMV countries through a hub-and-spoke system that supports Thai foreign direct investment in its neighbouring countries. This is currently happening with some agro-industrial produce but some traditional barriers such as those pertaining to border crossings remain unchanged. There exist a negative relationship between the amount of money paid at borders and the amount of time taken for clearance. The more money is paid, the less time it takes to clear goods at the border.

CONCLUSIONS

In CLMV, it is important to create an enabling environment that facilitates service linkages not only within these nations but with Southeast Asia as well. However,

having an enabling environment is not sufficient. Since logistics is a derived demand of trade, CLMV countries will need to increase their production capability to have more products to trade and from there, can require efficient and effective logistics that can create connectivity and integrate production networks across the region.

To increase their production capability, the CLMV countries will need to attract enough investment to generate economic growth. Minimum conditions in the CLMV countries will need to be met before any investment decisions are made. These minimum requirements are not confined to infrastructure issues only but should cover service link issues as well. Other key areas such as insurance coverage, freight network quality and reliability, and availability of logistics providers must be fully understood. These issues are more related to the management of logistics than the building of logistics' "hard" infrastructure. This is where the logistics challenges are for the CLMV countries in the next decade. It will not be on the infrastructure anymore.

REFERENCES

Banomyong, R.2008. “Logistics Development in the Greater Mekong Subregion: A Study of the North-South Economic Corridor”. *Journal of Greater Mekong Subregion Development Studies.* Vol. 4. December 2008, pp. 43-58.

—— 2004. “Assessing Import Channels for Lao PDR”. *Asia Pacific Journal of Marketing & Logistics*. Vol. 16. No. 2, pp. 62-81.

Banomyong R, P. Cook, and P. Kent. 2008. “Formulating Regional Logistics Development Policy: The case of ASEAN”. *International Journal of Logistics Research & Applications*. Vol. 11. No. 5, pp. 359-379.

Banomyong R, S. Iwata and K. Kumazawa. 2002. “Issues in Cross-border Inter-city Freight Transport in ASEAN”. *Thammasat Journal of Business Administration*. Special Issue on Supply Chain Challenges in Asia. 19 November 2002, pp. 59-69, ISSN 0125-233X.

Banomyong R and Beresford AKC.2001. “Multimodal Transport: The Case of Laotian Garment Exporters”. *International Journal of Physical Distribution and Logistics Management*. Vol. 31. No. 9, 2001, pp. 663-685, ISSN 0960-0035.

Flemming, D.K. and Y. Hayuth. 1994. *Spatial Characteristics of Transportation Hubs: Centrality and Intermediacy.* Journal of Transport Geography. Vol. 2. No. 1, pp. 3-18.

Goh, M. and A. Ang. 2000. “Some Logistics Realities in Indochina”. *International Journal of Physical Distribution & Logistics Management.* Vol. 30. No. 10, 2000, pp. 887-911.

Grainger, A. 2007. “Government Actors in International Supply Chain Operations: Assessing Requirements for Skills and Capabilities”. Logistics Research Network Conference Proceedings 2007. Hull, England. 5-7 September 2007, pp. 293-298.

Grant, D.B., D.M. Lambert, J.R. Stock, and L.M. Ellram. 2006. *Fundamentals of Logistics Management*. Berkshire: McGraw-Hill.

Kimura, F.2008. "The Mechanics of Production Networks in Southeast Asia: The Fragmentation Theory Approach". In *Production Networks and Industrial Clusters-Integrating Economies in Southeast Asia*. Kuroiwa I & Toh MH (Eds). IDE-JETRO and ISEAS. Singapore, pp. 33-53.

——, F. 2009. "Expansion of the Production Networks into Less Developed ASEAN Region: Implications for Development Strategy". In *Plugging into Production Networks-Industrialization Strategy in Less Developed Southeast Asian Countries*. Kuroiwa I (Ed). IDE-JETRO and ISEAS. Singapore, pp. 15-32.

Kimura, F. and Obashi, A. 2009. "International Production Networks: Comparison between China and ASEAN", ERIA Discussion paper series, Jakarta, ERIA-DP-2009-01.

Price, P.M. 2006. "A Model for Logistics Management in a Post-Soviet Central Asian Transitional Economy". *Journal of Business Logistics*. Vol. 27. No. 2, pp. 301-331.

Stock, J.R. and D.M. Lambert. 2001. *Strategic Logistics Management, 4th Edition*. Singapore: McGraw-Hill International.

Than, M. 2005."Myanmar's Cross-Border Economic Relation with the People's Republic of China and Thailand in the Greater Mekong Subregion". *Journal of GMS Development Studies*.Vol. 2. No. 1, pp. 37-54.